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Environmental Assessment for the Mid-America Pipeline Company, LLC Western Expansion Project III

[June 2013]

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BLM Rio Puerco Field Office
BLM Roswell Field Office

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List of Abbreviations and Acronyms

ACEC	Area of Critical Environmental Concern
AIRFA	American Indian Religious Freedom Act
AO	Authorized Officer
AOPL	Association of Oil Pipelines
APE	Area of Potential Effect
AQB	Air Quality Bureau
AQRVs	Air Quality Related Values
ARPA	Archeological Resources Protection Act
BCC	Birds of Conservation Concern
BCR	Bird Conservation Region
BEA	Bureau of Economic Analysis
BIA	Bureau of Indian Affairs
BMPs	Best Management Practices
BLM	Bureau of Land Management
BLS	Bureau of Labor Statistics
BP	before present
bpd	barrels per day
BSCs	Biological Soil Crusts
CEQ	Council on Environmental Quality
CFO	Carlsbad Field Office
CFR	Code of Federal Regulations
CO	carbon monoxide
COE	U.S. Army Corps of Engineers
CWA	Clean Water Act
DOT	U.S. Department of Transportation
Ecosphere	Ecosphere Environmental Services
EA	Environmental Assessment
EIA	Energy Information Administration
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ERP	Emergency Response Plan
ESA	Endangered Species Act
FFO	Farmington Field Office
FLPMA	Federal Land Policy and Management Act
FoRLH	fundamentals of range land health
FWS	U.S. Fish and Wildlife Service
GIS	Geographic Information System
GMU	Game Management Unit
HDD	horizontal directional drill
HMA	Herd Management Area

HUC	hydrologic unit code
Hwy	Highway
IMPROVE	Interagency Monitoring of Protected Visual Environments
IM	Instruction Memorandum
IR	Integrated Report
km	kilometer
MAPL	Mid-America Pipeline Company, LLC
MBTA	Migratory Bird Treaty Act
Mmhos/cm	micro mhos per centimeter
MOU	Memorandum of Understanding
mph	miles per hour
MDWA	Mutual Domestic Water Association
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NGLs	natural gas liquids
NHPA	National Historic Preservation Act
NM	New Mexico
NMAAQS	New Mexico Ambient Air Quality Standards
NMDFA	New Mexico Department of Finance and Administration
NMED	New Mexico Environment Department
NMGFD	New Mexico Game and Fish Department
NMPIF	New Mexico Partners in Flight
NNDFW	Navajo Nation Department of Fish and Wildlife
NO_2	nitrogen dioxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTP	Notice to Proceed
NWP	Nationwide Permit
O_3	ozone
OHVs	off-highway vehicles
OHWM	ordinary high water mark
Pb	lead
PFYC	Potential Fossil Yield Classification
PHMSA	Pipeline and Hazardous Materials Safety Administration
PI	point of intersect
PLS	Pure Live Seed
$PM_{2.5}$	particulate matter less than 2.5 microns in effective diameter
PM_{10}	particulate matter less than 10 microns in effective diameter
POD	Plan of Development
PRIA	Public Range Improvement Act
PRPA	Paleontological Resources Preservation Act
PSD	Prevention of Significant Deterioration
RFO	Roswell Field Office
RMP	Resource Management Plan
ROWs	rights-of-way
RPFO	Rio Puerco Field Office
RV	recreational vehicle
SAR	Sodium Absorption Ratio
SCADA	Supervisory Data Control and Acquisition
SDAs	Specially Designated Areas
SHPO	State Historic Preservation Office
SLO	State Land Office
SMAs	Special Management Areas
SO_2	sulfur dioxide
SPCC	Spill Prevention Control and Countermeasures
SSA	Socorro Seismic Anomaly

SSURGO	Soil Survey Geographic
SVR	Standard Visual Range
SWMP	Storm Water Management Plan
TCPs	Traditional Cultural Properties
TFO	Taos Field Office
TUAs	Temporary Use Areas
TUP	Temporary Use Permit
US	US Highway
USDA	U.S. Department of Agriculture
USDI	U.S. Department of the Interior
USGS	U.S. Geological Survey
VIEWS	Visibility Information Exchange Web System
VOCs	volatile organic compounds
VRM	Visual Resource Management
WEP III	Western Expansion Project III
WMBT	White Mesa Bike Trails
WoUS	Waters of the US

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1.0 PURPOSE AND NEED FOR ACTION

1.1 Background

Mid-America Pipeline Company, LLC (MAPL) has applied to obtain a Right-of-Way Grant and a Temporary Use Permit (TUP) from the Bureau of Land Management (BLM) to construct, operate, maintain, and abandon in-place six 16-inch diameter natural gas liquids (NGL) loop pipeline segments, totaling 233.7 miles in San Juan, Rio Arriba, Sandoval, McKinley, Bernalillo, Santa Fe, Torrance, Guadalupe, Lincoln, De Baca, Chaves, and Lea Counties. On BLM-managed lands, construction of the proposed loop pipeline segments would require a 125-foot wide construction right-of-way which would include a 50-foot wide permanent right-of-way and a 75-foot wide temporary use area. The Western Expansion Project III (WEP III or Proposed Action or proposed Project) would parallel existing pipelines and would cross BLM-managed lands for 67.1 miles (or 28.7 percent of the total length), Bureau of Indian Affairs-managed (BIA) lands for 26.0 miles (or 11.1 percent), 27.0 miles of state lands (or 11.6 percent), and 113.6 miles of private lands (or 48.6 percent). The proposed loop pipeline segments would transport increased NGL production to Hobbs, New Mexico (NM), and ultimately to markets in Mont Belvieu, Texas. Location maps of the proposed loop segments on 1:24,000 topographic quadrangles are provided in Appendix A. MAPL describes the WEP III in their Plan of Development (POD) submitted to the BLM in August 2012 with revisions in December 2012.

CASEFILE/PROJECT NUMBER: NMNM-126958, NMNM-126958-01

PROJECT NAME: Western Expansion Project III (WEP III)

PLANNING UNIT: BLM Farmington, Rio Puerco, and Roswell Field Offices

LEGAL DESCRIPTION: The legal description of the proposed pipeline segments is provided in Appendix B.

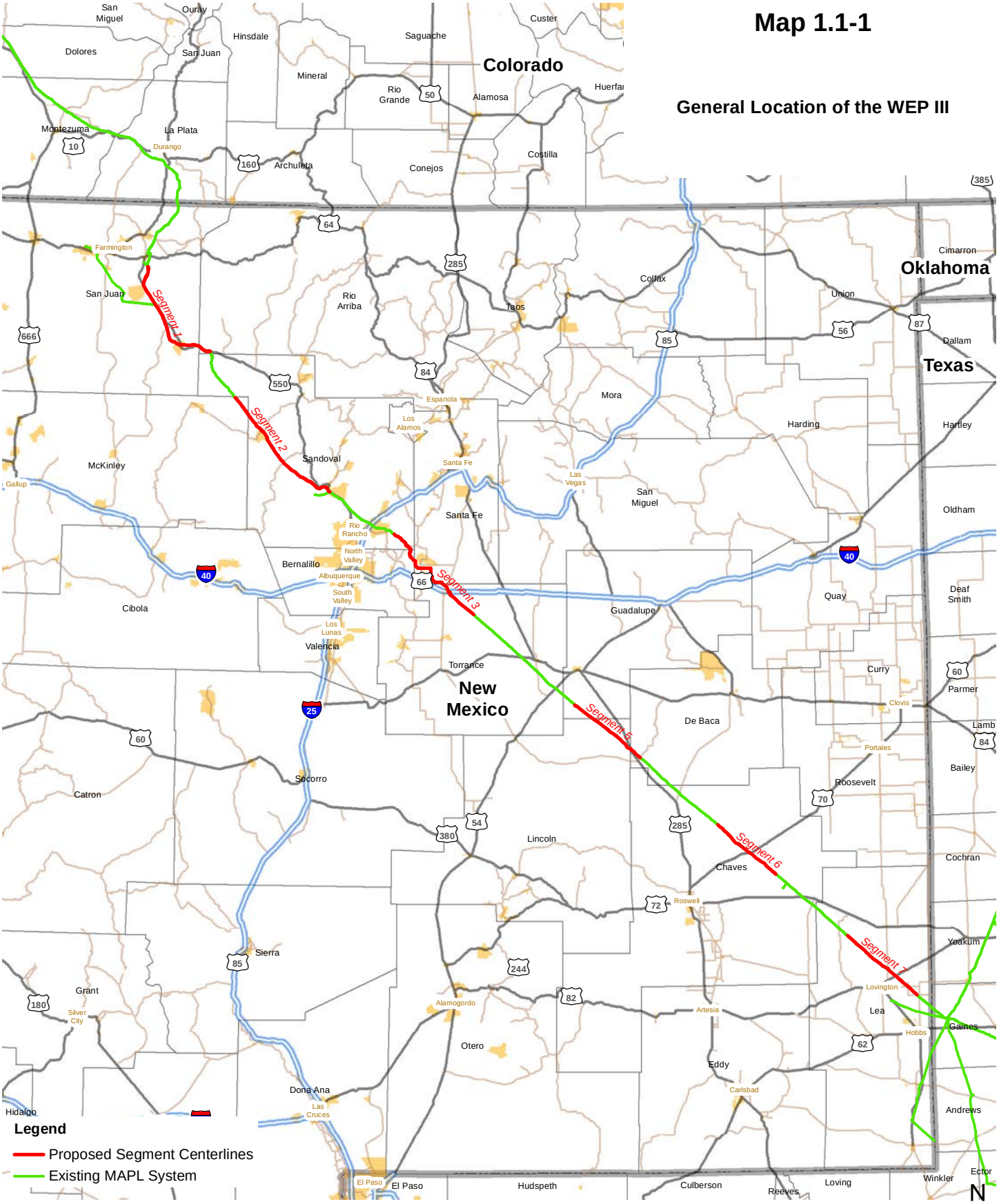
GENERAL PROJECT LOCATION:

The six proposed loop pipeline segments stretch diagonally across the State of New Mexico, beginning in the northwest corner of the state near Bloomfield and ending in the southeast corner near Lovington. The general location of the proposed loop pipeline segments are shown on Map 1.1-1.

- Segment 1 would cross San Juan and Rio Arriba Counties within the BLM Farmington Field Office (FFO) boundary beginning approximately 2 miles southeast of Bloomfield at Kutz Processing Plant, and continue for 45.7 miles before ending at Lybrook Station in Lybrook.
- Segment 2 would begin 5.5 miles north of Ojo Encino, and continue diagonally 50.9 miles to end at San Ysidro Station in San Ysidro. The segment would cross McKinley and Sandoval Counties within the boundaries of the BLM FFO and the BLM Rio Puerco Field Office (RPFO) as well as Pueblo of Zia tribal trust land, which is under the jurisdiction of the Southern Pueblos Agency (SPA).

Map 1.1-1

General Location of the WEP III



No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM

- Segment 3 is proposed to begin 2.5 miles east of the Placitas city limit and continue for 46.8 miles southeast, ending approximately 13 miles southeast of Moriarty, crossing Sandoval, Bernalillo, Santa Fe, and Torrance Counties within the boundaries of the BLM RPFO and the BLM Taos Field Office (TFO). The majority of Segment 3 would be located on private lands.
- Segment 4 was dropped from the Proposed Action, but to minimize confusion with supporting documentation, the subsequent segments were not renumbered.
- Segment 5 would begin at Duran Station and continue 30.2 miles southeast, ending approximately 20 miles northwest of the junction of Highway (Hwy) 285 and Hwy 20, crossing portions of Guadalupe, Lincoln, and De Baca Counties. Segment 5 would be located within the boundaries of the BLM Roswell Field Office (RFO).
- Segment 6 would be located approximately 24 miles northeast of Roswell, and continue diagonally southeast across Chaves County for 27.3 miles within the boundaries of the BLM RFO.
- Segment 7 would begin approximately 22 miles northwest of Lovington, and continue 32.8 miles southeast within Lea County, ending approximately 4 miles southeast of State Hwy 83. Segment 7 would be within the boundaries of the BLM Carlsbad Field Office (CFO) but would only cross private and state lands.

NGL OVERVIEW:

When natural gas is removed from the ground, it is compositionally different than what is transported through natural gas transmission systems and ultimately used as an energy source for end users such as home heating and cooking, and industrial energy. When removed from the ground, the mixture is predominately methane, but also includes heavier hydrocarbons and inert gases. Although the mixture can vary greatly, a typical stream may include 85 percent methane, 10 percent heavier hydrocarbons (NGLs), and 5 percent inert gases. NGLs consist of ethane, propane, butane, and natural gasolines. Some of the NGLs and inert gases must be removed to make the natural gas salable and transportable. Unprocessed natural gas (wet gas) is generally processed in the gas fields to separate the NGLs from the natural gas. The two components are then transported via separate pipelines to market destinations. The removal of NGLs from the natural gas stream can also enhance the value of the components removed. Although only 10 percent of the stream by weight, the NGLs can contribute approximately 15 percent of the energy of the stream. This higher energy content of the NGLs makes them more useful in other applications:

- Ethane is primarily used for the production of plastics.
- Propane is typically used for heating purposes in areas without access to natural gas, but can also be utilized in the production of plastics.
- Butanes and natural gasoline are primarily used for motor gasoline blending.

NGLs behave differently in the pipeline and in the environment than other pipeline contents, such as crude oil, refined products (gasoline, diesel, etc.) or compressed gases (natural gas, carbon dioxide). The properties of NGLs compared to these other pipeline products are summarized in Table 1.1-1. NGLs are compressed and transported in liquid form through a pipeline. If released to the air, they become vapor.

Table 1.1-1
Comparison of NGLs to Other Common Pipeline Products

	NGL	Refined Products	Compressed Gas
Components	Ethane Propane Butane Natural Gasolines	Gasoline Diesel Jet Fuel Heating Oil Anhydrous Ammonia	Natural Gas Carbon Dioxide
Physical State if Released	Vapor	Liquid	Gas
Potential for groundwater contamination	Low	Higher	Low
Potential for surface water contamination	Low to moderate	Higher	Low
Explosion potential	Moderate (requires an ignition source)	Low	Higher
Contamination Migration Pathways	Dispersion to air Liquid spill to ground	Liquid spill to ground	Dispersion to air

1.2 Purpose and Need for Action

BLM Purpose and Need

The Purpose and Need stem from the BLM‘s charge under the Federal Land Policy and Management Act (FLPMA) to manage the public lands including the processing of land use applications. The Proposed Action is reviewed to ensure there is no unnecessary or undue degradation of the public lands. The purpose of the Proposed Action is to provide the applicant, MAPL, with the formal response to its application to construct, maintain and operate a natural gas liquids pipeline across federal lands managed by the BLM and to utilize BLM-managed roads to access the pipeline right-of-way.

The need for the action is established by the BLM‘s responsibility under FLPMA, mission statements and land use planning goals and objectives to respond in a timely manner to requests for utility authorizations and to make lands available for environmentally and economically sound energy exploration and development projects.

BIA Purpose and Need

The Purpose and Need are derived from the BIA’s approval authority for right-of-way acquisition for construction, operation, and maintenance of a project for the protection of both the facility and the public. BIA maintains the sole authority to issue right-of-way across trust lands and Indian allotments. The purpose of the Proposed Action is to provide the applicant, MAPL, with a formal response to its application to construct, maintain, and operate a NGL pipeline across Navajo Nation Tribal Trust lands, Navajo Indian Allotments, and Zia Pueblo lands.

The need for the action is to ensure the rights for beneficial use of land (live on, use profit from) are provided to tribes and allottees. The BIA is responsible to ensure these rights are realized by responding in a timely manner and that the Proposed Action is completed in an environmentally sound manner.

SPA, as the jurisdictional agency for Zia Pueblo trust lands, is responsible for approving land use applications on those lands. Therefore, SPA’s purpose and need would be 1) approval of a grant of easement for a right-of-way between MAPL and the Pueblo of Zia, and 2) approval of a permit for improvements to any roads that are on the Pueblo’s road inventory.

Applicant Purpose and Need

The existing 840-mile MAPL pipeline system transports NGL from Wyoming, Utah, Colorado, and New Mexico to end-users in the Gulf Coast and Mid-Continent markets. The system has been expanded at various times and in various locations (see Table 1.2-1). Through New Mexico, MAPL's NGL system is comprised of three parallel pipelines (8-inch diameter, 10/12-inch diameter, and 12-inch diameter). In some locations the system has been looped with 16-inch diameter pipe (WEP I/2006 in Wyoming and New Mexico; WEP II/2013 in Colorado). The six proposed loop pipeline segments would parallel and tie-in to MAPL's existing NGL system.

Table 1.2-1
MAPL's Existing NGL System

Year	System Expansion
1972	8-inch pipeline from the Huerfano Pump Station in San Juan County, NM to the Hobbs Station in Gaines County, Texas crossing New Mexico diagonally from northwest to southeast
1982	Rocky Mountain NGL Pipeline, a 10/12-inch pipeline project that originated in Rock Springs, Wyoming and connected with the MAPCO line in the Four Comers area. A 10/12-inch loop of the original 8-inch diameter New Mexico pipeline was also constructed in 1982
1995	12-inch looping project referred to as the Four Comers Loop. It is parallel and adjacent to the 8-inch and 10/12-inch pipeline for its entire length between the Huerfano Pump Station and the Hobbs Station in Texas.
1999	10/12-inch and 16-inch pipeline expansion of the Rocky Mountain Pipeline was constructed, and was referred to as the Rocky Mountain Pipeline Loop Project. It looped the original 10/12-inch Rocky Mountain NGL line from Brown's Park, Utah to Bloomfield, NM
2002	Enterprise purchased the assets of MAPCO and established the subsidiary MAPL
2006	WEP I, which consisted of 12 pipeline loop segments in southwest Wyoming and New Mexico, totaling 202 miles. The segments were installed parallel and adjacent to portions of the 8, 10/12, and 12-inch pipelines.
2012	MAPL received a Grant of Easement to construct the WEP II, a 16-inch diameter, 95-mile looping pipeline in Utah and Colorado to transport increased production in Utah, Colorado, and Wyoming parallel and adjacent to portions of the 8, 10/12, and 12-inch pipelines

As natural gas production increases in the San Juan Basin and in the Rockies, the existing capacity of the MAPL Rocky Mountain pipeline system will not be sufficient to transport the anticipated increase of NGL production. The system can transport approximately 275,000 barrels per day (bpd), and is currently flowing at near capacity. It is projected that approximately 75,000 bpd additional NGL will be produced from the region, a figure contributed to by multiple well development areas in northern New Mexico as well as southwestern Wyoming, Utah, and Colorado. WEP III would increase the capacity of the existing pipeline system to approximately 350,000 bpd. While increasing capacity, the overall system would be required to operate at or below the current maximum operating pressure of 1,650 psig, as determined by DOT regulations.

For MAPL, the purpose of this action is to secure legal access across federal lands managed by the BLM and BIA for construction and operation of six natural gas liquids loop pipeline segments. The Proposed Action (MAPL's POD) is needed to increase transport capacity of natural gas liquids from production in the San Juan Basin and the Rockies.

1.3 Decision to be Made

The BLM will decide, based on the analysis contained in this Environmental Assessment (EA), whether or not to authorize the Proposed Action, and if so, under what terms and conditions. The BLM New Mexico State Office has delegated signature authority to the Farmington Field Office Manager should the BLM issue a federal Right-of-Way Grant for the Project.

The BLM has provided the opportunity for other federal, state, and local agencies to participate in the National Environmental Policy Act (NEPA) process as cooperating agencies. Cooperating agencies would review and provide comments on the EA based on their regulatory authority and their respective expertise in analyzing potential Proposed Action effects to various resources and proposing mitigating measures. These comments would be considered as part of the decision. Cooperating agencies, with permitting responsibilities, would decide whether or not to issue their respective permits or approvals.

The BIA is a cooperating federal agency and would issue right-of-way grants, temporary use permits, and road use agreements for Navajo Indian Allotment, Navajo Nation Tribal Trust land, and Zia Pueblo lands. As a cooperating agency under NEPA and as Trustee of Indian Lands, the BIA must adequately analyze and disclose the environmental impacts of the Proposed Action in determining whether the pipeline right-of-way should be approved. Segments 1 and 2 would traverse Navajo Nation Tribal Trust lands, Navajo Allotted lands (Navajo Allotted lands are those lands owned by individual Navajo Indians and administered by the BIA), and Zia Pueblo Trust lands. Currently these lands are not zoned or classified for specified uses. There are no adopted land uses or known comprehensive plans for these tribes/pueblos.

Rights-of-way acquisition across the Zia Pueblo Trust lands requires a resolution from the respective Tribal council followed by the BIA's approval of a grant of easement as well as approval of any permits for improvement to roads that are on the Pueblo's road inventory. On Navajo Nation lands, the Naa'bik'iyati Committee (formal Natural Resources Committee) of the Navajo Tribal Council reviews the Proposed Action and must issue a Committee Resolution authorizing the President of the Navajo Nation to issue written authority, and to the BIA, to approve and issue a Grant of Easement to the applicant. If the Tribal authorities approve the grant of easement request, this approval would be communicated to the BIA, and an easement would be granted pursuant to the conditions imposed by the BIA and the Tribe. Similar procedures (also in conformance with 25 CFR, Part 169) exist for obtaining consent and approval of the individual Navajo Allottees prior to issuance of a grant of easement by the BIA.

Although the BLM and BIA have separate authorities over portions of the Project, the agencies may issue a joint Decision Record.

1.4 Conformance with Applicable Land Use Plan(s)

All management actions and development on BLM-managed lands must conform to the respective field office RMP. An action must be mentioned in or be consistent with the objectives of the respective RMPs. Additionally, the Proposed Action must comply with all stipulations, conditions, and constraints in the RMPs as well as the stipulations developed specifically for the Proposed Action.

The Proposed Action also includes design and implementation of appropriate mitigation intended to be consistent with the goals, objectives, and decisions of the respective Resource Management Plans (RMPs) in each of the three BLM field offices in which BLM-managed lands would be crossed (BLM, 2003a, 1986, 2012a, 1997a, 1988, and 1997b), as well as with applicable local, state and federal policies, regulations, and laws.

The Proposed Action (WEP III) is subject to and has been reviewed and determined to be in conformance with the RMPs described below.

BLM Farmington Field Office

A key goal of the Farmington RMP (BLM, 2003a) is to: "provide opportunities for environmentally responsible commercial activities, including the orderly development of important energy resources (p. 2-1)." Guidance on rights-of-way (ROWs) directs that any new rights-of-way, to the extent possible, will be "located within or parallel to existing ROWs or ROW corridors to minimize resource impacts (p. 2-11)." The Proposed Action would be adjacent to existing utility rights-of-way.

BLM Rio Puerco Field Office

BLM lands are managed under the Rio Puerco RMP (BLM, 1986) and subsequent RMP updates. A 1992 update lists planning criteria for right-of-way corridors, stating that areas of multiple compatible rights-of-way will be considered for utility corridor designation (p. 1-12, BLM, 2006). The proposed WEP III would parallel existing multi-pipeline rights-of-way. The 1992 update also states that " ... rights-of-way are issued so as to protect natural and cultural resources associated with the public lands and adjacent lands." MAPL has committed to follow BLM directives for the protection of natural and cultural resources.

BLM Roswell Field Office

The Roswell RMP (BLM, 1997a) lists planning and management decisions for its Utility and Transportation System on BLM-managed lands. Public lands in the area are made available for rights-of-way, permits, and leases. Management guidance states, when possible, facilities will be confined to existing alignments, maximizing multiple occupancy (p. 21, BLM, 1997a). WEP III would follow an existing alignment and would not be located on any of the rights-of-way exclusion areas listed in Table 10 of the RMP.

Based on the BLM's review of the Proposed Action and the pertinent RMPs, the BLM has determined that the Proposed Action is consistent with the management objectives of these plans subject to:

1. Site-specific RMP conditions of approval, such as seasonal closures;
2. Site-specific conditions of approval for crossing special management areas; and
3. Other general and specific measures needed to reduce or eliminate impacts to resources.

1.5 Relationship to Statutes, Regulations or Other Plans

This EA is prepared under the authority of NEPA of 1969 (PL 91-852) and its regulations (40 CFR Parts 1500-1508) for implementation.

The following laws, regulations, and BLM policies apply to the Proposed Action:

- **Federal Land Policy and Management Act (FLPMA) (43 U.S.C. 1701, 1976; FLPMA):** FLPMA defines "multiple use" as "harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output." FLPMA also mandates that the Secretary, "[i]n managing the public lands . . . shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands."

- **Public Rangelands Improvement Act (43 U.S.C. 1901, 1978):** PRIA mandates the agencies to "manage, maintain and improve the condition of the public rangelands so that they become as productive as feasible for all rangeland values in accordance with management objectives and the land use planning process established pursuant to section 1712 of this title" and "continue the policy of protecting wild free-roaming horses and burros from capture, branding, harassment, or death, while at the same time facilitating the removal and disposal of excess wild free-roaming horses and burros which pose a threat to themselves and their habitat and to other rangeland values."
- **Endangered Species Act (1973):** Section 7 of the Endangered Species Act of 1973 (FWS, 1973) outlines the procedures for federal agencies to conserve federally-listed species and their designated habitats. Section 7(a)(2) of the ESA states that each federal agency shall ensure that actions they authorize, fund, or permit are not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of their habitats.

Table 1.5-1 lists the permits/approvals from federal, state, and local agencies required for WEP III.

Table 1.5-1
Permits/Approvals Necessary for WEP III[1]

Agency	Permit/Approval/Consultation
FEDERAL	
Bureau of Land Management	NEPA analysis and FONSI/Decision Record; Right-of-Way Grant and Temporary Use Permit on federal lands & Notice To Proceed (NTP)
U.S. Army Corps of Engineers	Section 404/401 of the Clean Water Act (CWA) Nationwide Permit (NWP) 12
U.S. Fish and Wildlife Service	Section 7 of the Endangered Species Act –consultation and Biological Opinion
Bureau of Indian Affairs –Southern Pueblos Agency Office, Southwest Region	NEPA review for Zia Pueblo Tribal lands; FONSI/Notice of Decision for BIA actions on Zia trust lands; Right-of-Way Grant on Indian lands & NTP; road crossing permits for BIA roads on the Pueblo of Zia.
Bureau of Indian Affairs – Navajo Regional Office	NEPA review for Navajo Tribal lands and Indian Allotments; Right-of-Way Grant; Temporary Use Permits; Road Crossing Permits for BIA roads; and NTP for BIA-administered lands
Navajo Nation Environmental Protection Agency	Section 401/402 of the Clean Water Act - certification on Navajo Nation lands.
Navajo Nation Historic Preservation Department (Tribal Historic Preservation Office –THPO)	Consultation for protection of cultural resources
Navajo Nation Department of Fish and Wildlife	Biological Resource Land Use Clearance
Environmental Protection Agency Region 6	Section 401 of the Clean Water Act - certification on Zia lands, water quality
Environmental Protection Agency with implementation by involved state(s) with primacy, as applicable	Stormwater Management Plan (SWMP), Section 402 of the CWA - construction projects disturbing greater than 1 acre; minimize erosion
Advisory Council on Historic Preservation	Consultation, as needed, for protection of cultural resources in compliance with 36 CFR 800; National Historic Preservation Act (NHPA), Section 106 compliance
NEW MEXICO	
NM Environment Department	Section 401 of The Clean Water Act Section 402 of The Clean Water Act
NM Oil Conservation Division	Hydrostatic Test Water Discharge Permits
NM State Land Office	Consultation and administration of state lands

Agency	Permit/Approval/Consultation
NM Fish and Game	Consultation: fish and wildlife
NM State Historic Preservation Office	Consultation and NHPA, Section 106 compliance
NM State Engineer	Appropriation of State Water, and Temporary Water Use Permit
NM Department of Transportation	Road and Highway Crossing Permits
San Juan, Rio Arriba, McKinley, Sandoval, Bernalillo, Santa Fe, Torrance, Guadalupe, Lincoln, De Baca, Chaves, and Lea Counties	Consultation; County Special Use Permits; road crossing permits
INDIAN TRIBES	
Navajo Nation	Consultation; issuance of road crossing permits; approval of Right-of-Way on Navajo Nation land
Zia Pueblo	Consultation; issuance of road crossing permits; approval of Right-of-Way Grant on Zia Pueblo land
[1] Other state and local permits may be required.	

1.6 Relationship to WEP I and WEP II

The question has been raised whether MAPL's WEP I (Wyoming/New Mexico) and WEP II (Utah/Colorado) expansions are connected actions to the WEP III proposal. WEP I was approved and built in 2006; it included 12 loop pipeline segments in Wyoming and New Mexico, increasing the capacity of MAPL's existing system by 50,000 bpd. MAPL requires WEP II in order to transport the existing 15,000 bpd of NGL production in Wyoming, Colorado, and Utah. WEP II has been approved and is planned for construction in 2013. WEP III is needed to transport future, producer-committed increased production (approximately 75,000 bpd) from the western Rocky Mountain region. WEP II and WEP III are independent projects with independent utility. Although MAPL named the expansion projects consecutively (i.e., WEP I, WEP II, and WEP III), the three projects were/are not dependent on the other; each went/would go forward regardless of implementation of the other. As a result, WEP I, WEP II, and WEP III are not connected actions.

1.7 Scoping, Public Involvement, and Issues

Scoping is the process by which the BLM solicits internal and external input on the issues, impacts, and potential alternatives that will be addressed, along with the extent to which those issues and impacts will be analyzed in a NEPA document. Internal scoping is the use of BLM and cooperating agency staff to help determine what needs to be analyzed in a NEPA document. External scoping involves notification and opportunities for feedback from other agencies, organizations, tribes, local governments, and the public. While NEPA regulations (40 CFR §1500-1508) do not require external scoping for an EA, to encourage public participation, the BLM opted to provide a public scoping comment period.

The BLM posted a press release, MAPL's POD, and maps of the Proposed Action at www.blm.gov/nm/westernexpansionpipeline on October 19, 2012 and invited the public to comment on the proposal through November 20, 2012. The comment period was extended to December 5, 2012. The press release was emailed to 161 media organizations. Additionally, informational notices were mailed to 149 interested parties. During the comment period, 24 comment letters/emails were received, including 3 from business and industry, 5 from advocacy groups, and 16 from individuals. Comments received during the public comment period were considered during the impact analysis in this EA. Based on input from both internal and external scoping, the following procedural issues were raised and the following planning issues have been developed.

Procedural Issues

Alternatives (Section 2.0). If applicable, what is a reasonable range of alternatives? Do impacts warrant alternative pipeline alignments?

Connected Action (Section 1.6). Is the WEP II Project a connected action to this project?

Cumulative Impacts (Section 3.0). Does the cumulative effects analysis consider impacts from the entire pipeline as well as adjacent pipelines and supporting infrastructure?

General (Section 3.0). In general, are environmental impacts sufficiently analyzed?

Mitigation (Section 3.0). Do the identified impacts require mitigation?

Significant Impacts (Section 3.0). Does the EA identify significant impacts that require an Environmental Impact Statement?

Planning Issues

Air Quality (Section 3.2.1). How would the project affect air quality, including dust emissions during construction?

Cultural and Native American Resources (Section 3.4.1 and 3.4.2). Would the project be in compliance with the National Historic Preservation Act, Section 106? Have the Hopi Tribe's concerns been addressed?

Fire and Fuels (Section 3.5.4). How would the project prevent starting fires?

Geologic Resources (Section 3.2.2), Paleontologic Resources (Section 3.4.3), and Minerals (Section 3.2.3). How would the project affect geologic, paleontologic, and mineral resources?

Land Tenure (Section 3.5.5). Would the project affect existing rights-of-way?

Noise (Section 3.2.1). How would noise generated during construction affect the community and use of nearby open space?

Recreation (Sections 3.5.1 and 3.5.2). How would the project affect recreation (hiking) in open spaces?

Range Management (Section 3.5.3). How would the project affect grazing?

Safety and Health (Section 2.2). How would the project affect human health during construction and operation of the Proposed Action?

Socioeconomics (Sections 3.4.5 and 3.4.6). How would the project affect the local economy?

Soils (Section 3.2.4). How would the project affect soils?

Special Management Areas. Would the project affect the Placitas open space recreation area?

Special Status Species (Sections 3.3.4 and 3.3.5). How would the project affect ESA-listed species and crucial habitat?

Transportation and Access (Section 3.4.7). How would the project affect transportation?

Vegetation and Weeds (Sections 3.3.2 and 3.3.1). How would the project affect vegetation?

Visual Resources (Section 3.4.4). How would the project affect visual resources?

Waste (Section 3.4.8). Would the project generate waste that would affect resources?

Wildlife (Section 3.3.6). How would the project affect wildlife in the area? Would alternatives be warranted to avoid disrupting wildlife and cutting through habitat?

Wetlands and Water Resources (Sections 3.2.5 and 3.3.3). What would the effects be from open cut crossings of wetlands and waterbodies and how would water quality and habitat be affected? Would hydrostatic test discharge affect water resources?

Issues Considered but not Analyzed

Issues outside the regulatory authority of the BLM and BIA as well as issues that would not be affected by the Proposed Action are listed below with responses (in italics).

How would construction contractors be selected?

This issue is outside the authority of the BLM and BIA.

What are MAPL's hiring practices?

This issue is outside the authority of the BLM and BIA.

Would MAPL use eminent domain?

This issue is outside the authority of the BLM and BIA.

Would there be effects to the residents of Camino de Las Huertas?

The proposed loop pipeline segments would not cross Camino de Las Huertas.

Would flooding along Las Huertas Creek result in pipeline safety issues?

The Proposed Action would not cross Las Huertas Creek.

Would the project affect wild horses in the area?

The Proposed Action would not be in proximity to the Jicarilla Wild Horse Herd Area.

How would the pipeline be regulated for safety issues?

Safety issues for the operation of the Proposed Action would be regulated by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration.

2.0 PROPOSED ACTION AND ALTERNATIVE(S)

2.1 Introduction

The purpose of this section is to describe alternatives, both those analyzed in detail and those considered but not analyzed in detail. Alternatives analyzed in detail include the Proposed Action Alternative (MAPL POD) and the No Action Alternative.

2.2 Proposed Action

Under the Proposed Action, MAPL proposes to install six 16-inch diameter loop pipeline segments, totaling 233.7 miles, to expand the capacity of the existing NGL pipeline system. A portion of Segment 1 (mileposts [MPs] 400.30 to 415.39) and a portion of Segment 3 (MPs 251.87 to 269.92) would be 20-inch diameter. The six loop segments would parallel three existing pipelines owned and operated by MAPL, crossing BLM-managed, tribal trust, tribal allotted, state, and private lands. The general location of the project area is shown on Map 1.1-1, and land status and the BLM field office boundaries are shown on Maps 2.2-1 and 2.2-2. Topographic maps showing the location of the proposed loop pipeline segments are provided in Appendix A.

The expansion would not take any segment of the adjacent MAPL pipelines out of production. WEP III was designed with the assumption that the existing pipelines would remain in the system. There are no plans to convert any of the other existing MAPL pipelines to transport other products.

2.2.1 Location and Description of Proposed Facilities

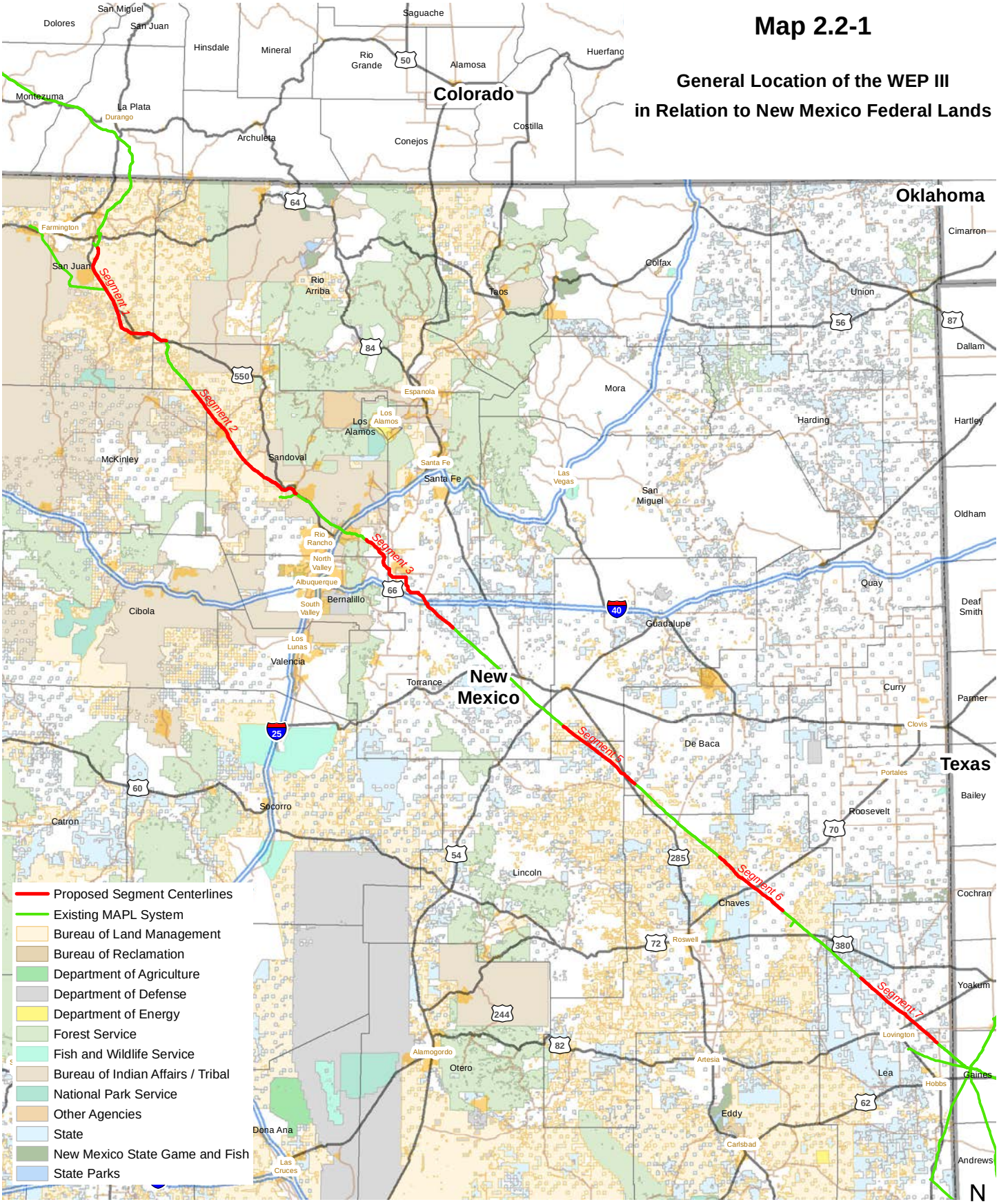
Pipeline Facilities. WEP III would require a 125-foot construction right-of-way consisting of a 50-foot permanent right-of-way and a 75-foot temporary right-of-way. Use of a 75-foot temporary right-of-way reduces the need for extensive temporary use areas (TUAs) along the segment alignments. The temporary right-of-way has been reduced (or 'necked down') in certain locations to protect resources. The 50-foot permanent right-of-way for the proposed loop pipeline segments would overlap the right-of-way for the existing pipelines by approximately 25 feet. MAPL's typical construction right-of-way configuration is shown in Figure 2.2-1. TUAs would be used during construction for areas of rugged terrain, waterbody crossings, road crossings, and at pipeline point of intersection (PI) locations. A list of TUAs required for construction of WEP III indicating their purpose and location is provided in Table C-1 in Appendix C.

As shown in Table 2.2-1, the Project would cross 67.1 miles of BLM-managed lands (28.7 percent), 26.0 miles of BIA-managed lands (11.1 percent, see Table 2.2-2a for a breakdown), 27.0 miles of state lands (11.6 percent), and 113.6 miles of private lands (48.6 percent). While the Project would be located within the boundaries of five BLM field offices, it would cross BLM-managed lands within three of the field office areas (see Table 2.2-1). Table 2.2-2 provides the estimate surface disturbance for each of the proposed loop pipeline segments.

Segment 1 would begin two miles southeast of Bloomfield, New Mexico at the Kutz Processing Plant, crossing San Juan and Rio Arriba Counties within the BLM FFO boundary and continuing for 45.7 miles. Segment 1 would cross Kutz Wash at MP 414 and at MP 409 it would begin paralleling Hwy 550 for most of the remainder of the segment, ending in Lybrook.

Map 2.2-1

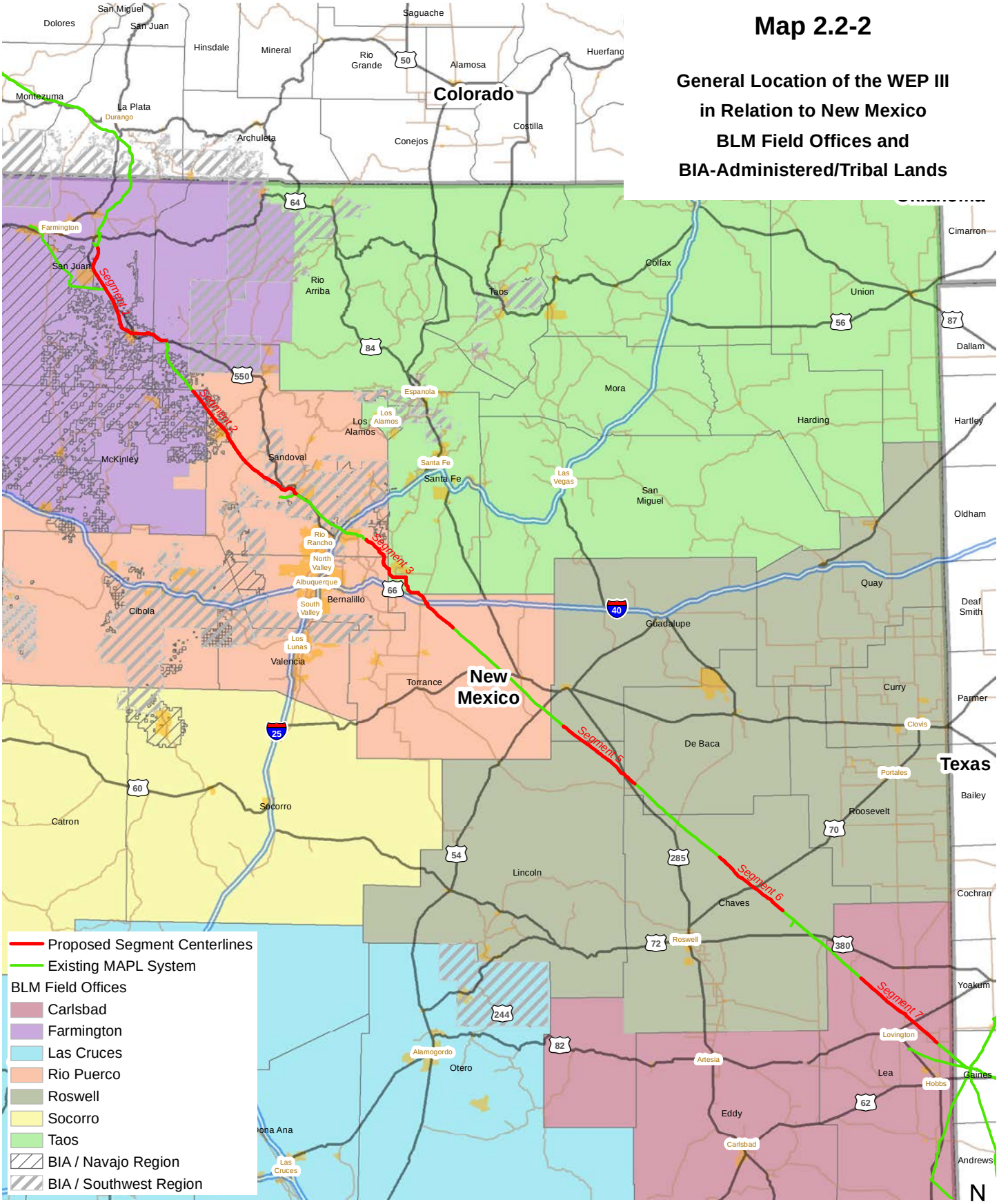
General Location of the WEP III in Relation to New Mexico Federal Lands



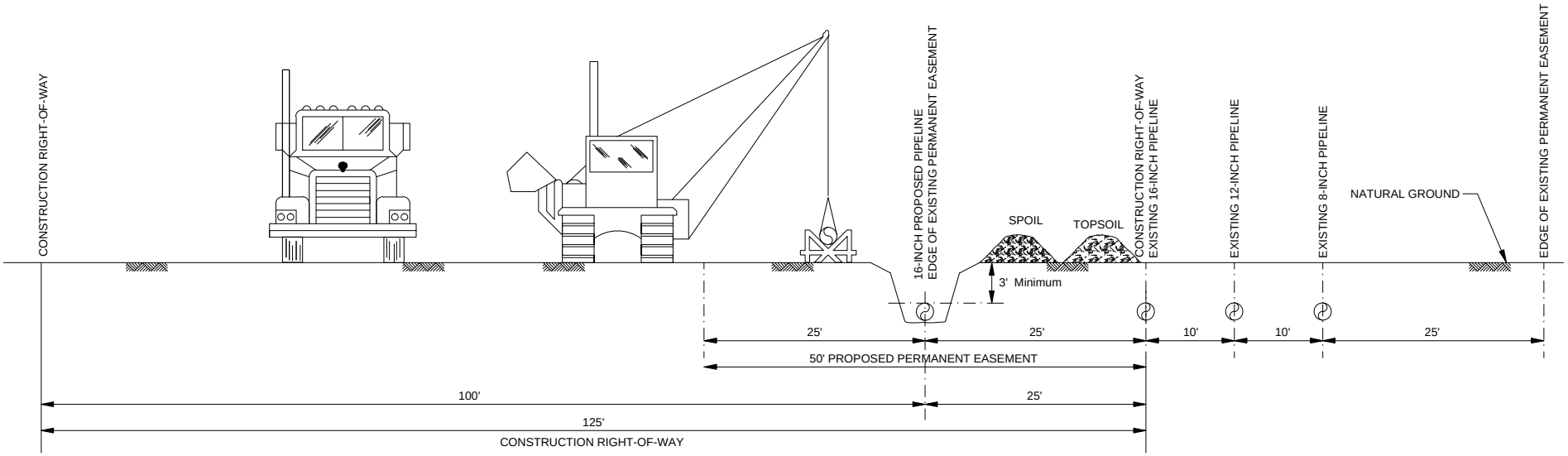
No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM

Map 2.2-2

General Location of the WEP III in Relation to New Mexico BLM Field Offices and BIA-Administered/Tribal Lands



No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM



NOTE:

Typical spoil placement shown.

Topsoil or spoil placement may also occur on the working side of the construction right-of-way as determined by site- specific conditions.

MID-AMERICA PIPELINE
TYPICAL RIGHT-OF-WAY CROSS SECTION
WESTERN EXPANSION PROJECT III

NEW MEXICO

DRAWN BY: EE	DATE: 12/13/2012	ISSUED FOR BID:	SCALE: NO SCALE
CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:	
APPROVED BY:	DATE:	DRAWING NUMBER: 2.2-1	

Table 2.2-1
Summary of Landownership Affected by WEP III

Segment	Totals		BLM		BIA		Private		State	
	Miles	Acres	Miles	Acres	Miles	Acres	Miles	Acres	Miles	Acres
Segment 1	45.7	699.4	29.4	433.8	9.6	136.6	6.0	91.8	0.7	37.2
Segment 2	50.9	789.7	27.8	430.4	16.4	257.0	2.9	44.6	3.8	57.7
Segment 3	46.8	729.6	0.5	7.3	0.0	0.0	40.6	634.1	5.7	88.2
Segment 5	30.2	464.8	5.2	81.1	0.0	0.0	17.8	272.5	7.2	111.2
Segment 6	27.3	420.9	4.2	65.3	0.0	0.0	19.6	301.9	3.5	53.7
Segment 7	32.8	505.0	0.0	0.0	0.0	0.0	26.7	410.4	6.1	94.6
Totals	**233.7**	**3,609.4**	**67.1**	**1,017.9**	**26.0**	**393.6**	**113.6**	**1,755.3**	**27.0**	**442.6**
Segments by BLM Field Office										
Segment 1/ Farmington	45.7	699.4	29.4	433.8	9.6	136.6	6.0	91.8	0.7	37.2
Segment 2/ Farmington	7.3	114.1	3.6	57.2	3.7	56.9	0.0	0.0	0.0	0.0
Segment 2/ Rio Puerco	43.5	675.5	24.1	373.1	12.7	200.1	2.9	44.6	3.8	57.7
Segment 3/ Rio Puerco	29.8	464.3	0.5	7.3	0.0	0.0	24.1	376.4	5.2	80.6
Segment 3/ Taos	17.1	265.3	0.0	0.0	0.0	0.0	16.6	257.7	0.5	7.6
Segment 5/ Roswell	30.2	464.9	5.2	81.2	0.0	0.0	17.7	272.5	7.2	111.2
Segment 6/ Roswell	27.3	420.9	4.3	65.3	0.0	0.0	19.6	301.9	3.5	53.7
Segment 7/ Carlsbad	32.8	505.0	0.0	0.0	0.0	0.0	26.7	410.4	6.1	94.6
Totals	**233.7**	**3,609.4**	**67.1**	**1,017.9**	**26.0**	**393.6**	**113.6**	**1,755.3**	**27.0**	**442.6**
Segments by County										
Segment 1/ San Juan	40.5	616.5	28.3	415.9	6.7	91.5	4.8	71.9	0.7	37.2
Segment 1/ Rio Arriba	5.2	82.9	1.1	17.9	2.9	45.1	1.2	19.9	0.0	0.0
Segment 2/ Sandoval	43.5	675.6	24.1	373.2	12.7	200.1	2.9	44.6	3.8	57.7
Segment 2/ McKinley	7.4	114.1	3.7	57.2	3.7	56.9	0.0	0.0	0.0	0.0
Segment 3/ Santa Fe	17.1	265.3	0.0	0.0	0.0	0.0	16.6	257.7	0.5	7.6
Segment 3/ Bernalillo	4.6	71.8	0.0	0.0	0.0	0.0	4.6	71.8	0.0	0.0
Segment 3/Sandoval	9.0	138.5	0.5	7.3	0.0	0.0	7.8	120.3	0.7	10.9
Segment 3/ Torrance	16.2	253.9	0.0	0.0	0.0	0.0	11.7	184.3	4.5	69.6
Segment 5/ Guadalupe	8.2	126.6	5.0	77.6	0.0	0.0	3.2	49.0	0.0	0.0
Segment 5/ Lincoln	16.9	259.9	0.2	3.5	0.0	0.0	9.6	147.6	7.1	108.8
Segment 5/De Baca	5.0	78.4	0.0	0.0	0.0	0.0	4.9	75.9	0.1	2.5
Segment 6/ Chaves	27.3	420.9	4.2	65.3	0.0	0.0	19.6	301.9	3.5	53.7
Segment 7/ Lea	32.8	505.0	0.0	0.0	0.0	0.0	26.7	410.4	6.1	94.6
Totals	**233.7**	**3,609.4**	**67.1**	**1,017.9**	**26.0**	**393.6**	**113.6**	**1,755.3**	**27.0**	**442.6**

Table 2.2-2
Estimated Disturbance Required for Construction of WEP III on Federal and Non-Federal Lands

Component	Surface Disturbance (acres)				
	Totals	**BLM**	**BIA**	**Private**	**State**
BLM Farmington Field Office (Segments 1 and 2)					
Permanent Right-of-Way	321.5	195.1	79.3	39.4	7.7
Temporary Construction Right-of-Way	467.2	275.7	111.6	51.0	28.9
Temporary Use Areas	24.8	20.2	2.6	1.4	0.6
Total	**813.5**	**491.0**	**193.5**	**91.8**	**37.2**
BLM Rio Puerco Field Office (Segments 2 and 3)					
Permanent Right-of-Way	443.6	149.0	76.9	163.2	54.5
Temporary Construction Right-of-Way	664.0	222.5	115.5	243.8	82.2
Temporary Use Areas	32.2	8.9	7.7	14.0	1.6
Total	**1,139.8**	**380.4**	**200.1**	**421.0**	**138.3**
BLM Taos Field Office (Segment 3)					
Permanent Right-of-Way	103.6	0.0	0.0	100.6	3.0
Temporary Construction Right-of-Way	156.2	0.0	0.0	151.6	4.6
Temporary Use Areas	5.5	0.0	0.0	5.5	0.0
Total	**265.3**	**0.0**	**0.0**	**257.7**	**7.6**
BLM Roswell Field Office (Segments 5 and 6)					
Permanent Right-of-Way	348.3	57.4	0.0	226.0	64.9
Temporary Construction Right-of-Way	521.2	84.7	0.0	338.8	97.7
Temporary Use Areas	16.3	4.4	0.0	9.6	2.3
Total	**885.8**	**146.5**	**0.0**	**574.4**	**164.9**
BLM Carlsbad Field Office (Segment 7)					
Permanent Right-of-Way	198.9	0.0	0.0	161.9	37.0
Temporary Construction Right-of-Way	298.6	0.0	0.0	242.1	56.5
Temporary Use Areas	7.5	0.0	0.0	6.4	1.1
Total	**505.0**	**0.0**	**0.0**	**410.4**	**94.6**
Grand Total – All Field Offices					
Permanent Right-of-Way	1,415.9	401.5	156.2	691.1	167.1
Temporary Construction Right-of-Way	2,107.2	582.9	227.1	1,027.3	269.9
Temporary Use Areas	86.3	33.5	10.3	36.9	5.6
Total	**3,609.4**	**1,017.9**	**393.6**	**1,755.3**	**442.6**

Table 2.2-2a
Estimated Disturbance Required for Construction of WEP III on Tribal Lands

Component	Surface Disturbance (acres)[1]					
	Totals	Navajo Allottees (12.1 miles)	Navajo Fee (1.3 miles)	Navajo Trust (5.4 miles)	Zia Fee (1 mile)	Zia Trust (7.8 miles)
BLM Farmington Field Office (Segments 1 and 2)						
Permanent Right-of-Way	84.5	61.1	8.0	15.4	0.0	0.0
Temporary Construction Right-of-Way	126.0	90.8	12.1	23.1	0.0	0.0
Temporary Use Areas	2.4	2.3	0.0	0.1	0.0	0.0
Total	**212.9**	**154.2**	**20.1**	**38.6**	0.0	0.0
BLM Rio Puerco Field Office (Segments 2 and 3)						
Permanent Right-of-Way	77.2	8.5	0.0	15.6	6.0	47.1
Temporary Construction Right-of-Way	115.7	12.8	0.0	23.3	9.0	70.6
Temporary Use Areas	5.5	0.0	0.0	0.3	0.2	5.0
Total	**198.4**	**21.3**	**0.0**	**39.2**	**15.2**	**122.7**
Grand Total	**411.1**	**175.3**	**20.1**	**77.8**	**15.2**	**122.7**

[1] Discrepancies between Table 2.2-2 and 2.2-2a result from the GIS base data. The BLM surface ownership, which does not include a breakdown by category of tribal lands, was used to generate Table 2.2-2. Survey data, which are still in progress but which contain categories for tribal lands, were used to generate Table 2.2-2a. Discrepancies would be resolved during easement acquisition.

Segment 2 would begin 5.5 miles north of Ojo Encino, and would continue diagonally 50.9 miles to end at San Ysidro Station in San Ysidro. The segment would cross McKinley and Sandoval Counties within the boundaries of the BLM FFO and RPFO and would cross Zia Pueblo trust lands. This segment would not cross or parallel any major paved routes. At MP 335, the segment would cross Canon Trujillo, then ascend to a mesa top associated with Black Mountain before dropping down into Canon Medro to cross Arroyo Piedra. The segment would then cross Mesa San Luis and the Rio Puerco River. At MP 305, the segment would skirt the northern side of White Mesa along the southern edge of Rio Salado.

Segment 3 would begin 2.5 miles east of the Placitas city limit and continue for 46.8 miles southeast, ending approximately 13 miles southeast of Moriarty, crossing Sandoval, Bernalillo, Santa Fe, and Torrance Counties within the boundaries of the BLM RPFO and BLM TFO. The northern portion of Segment 3 would begin on the east side of the Sandia Mountains near Puertecito. The segment would cross NM Hwy 14 at MP 261, continue between Monte Largo and South Mountain, and then would enter urban farmland before crossing NM Hwy 41 at MP 238 and NM Hwy 40 at MP 236.

Segment 5 would begin at Duran Station and continue 30.2 miles southeast, ending approximately 20 miles northwest of the junction of US Hwy 285 and NM Hwy 20, crossing portions of Guadalupe, Lincoln, and De Baca Counties. Segment 5 would be located within the boundaries of the BLM RFO. It begins in rural Guadalupe County, crossing into Lincoln County at MP 166, and crossing Hwy 285 near Ramon at MP 150 before terminating 5 miles south in De Baca County.

Segment 6 would be located approximately 24 miles northeast of Roswell and continue diagonally southeast across Chaves County for 27.3 miles within the boundaries of the BLM RFO. It would begin on Roosevelt Road (near Cottonwood Road) and continue southeast, crossing NM Hwy 70 at MP 92 before ending 8 miles north of NM Hwy 380.

Segment 7 would begin approximately 22 miles northwest of Lovington and continue 32.8 miles southeast within Lea County, ending approximately 4 miles southeast of NM Hwy 83. Segment 7 would be within the boundaries of the BLM CFO but would only cross private and state lands.

It would cross NM Hwy 206 at MP 29 and NM Hwy 82 at MP 24, before ending 4 miles west of State Line Road 769.

Aboveground Facilities. No new aboveground facilities (i.e., pump stations) would be constructed for the Project. Existing pump stations would be modified as necessary. Modifications, if necessary, would occur within existing footprints. MAPL would install block valves adjacent to existing block valves within the permanent right-of-way.

Access Roads. Existing public and private roads would be used to provide access to the construction right-of-way (see Table C-2 in Appendix C). Paved roads are not likely to require improvement or maintenance prior to or during construction. Gravel roads and dirt roads may require maintenance during the construction period due to high use.

No new roads would be constructed; upgrading portions of 26 existing roads (approximately 23.8 acres) would be required (see Table C-3 in Appendix C). Biological and cultural surveys have been completed for the areas that would be upgraded (see Table C-3 in Appendix C). Results of the surveys have been included in the respective survey reports and provided to the regulating agencies.

Contractor and Pipe Storage Yards. MAPL has identified three potential contractor and pipe storage yards, which would be utilized during construction for staging purposes (i.e., to store pipe materials and equipment, provide temporary office space for contractors, etc.). The yards would be located on private lands. The Cuba Yard site (approximately 15 acres) is located in Sandoval County approximately 7.5 miles east of Johnson Trading Post on State Route 197; the Moriarty Yard (approximately 17 acres) is located in Torrance County approximately 2 miles northeast of the town of Moriarty; and the San Ysidro Yard (approximately 15 acres) is located approximately 1 mile southeast of the town of San Ysidro.

2.2.2 Schedule

If approved, construction of WEP III could begin in late Spring/early Summer 2013 and would take approximately 9 months to complete, weather permitting. It would be completed with 3 construction spreads and would comply with timing limitations associated with environmental mitigation for sensitive resources. Notices to proceed for construction spreads would be issued by BLM only after all mitigation and construction stipulations were met.

2.2.3 Workforce

MAPL estimates that construction activities would require the employment of approximately 550 to 600 workers consisting of MAPL employees, contractor employees, construction inspection staff, and environmental inspection staff. A peak workforce of 600 workers would be required with an average workforce of 200 workers during construction. While final staffing plans are not yet complete, no additional staffing is expected at this time to operate and maintain the pipeline facilities after construction.

2.2.4 Traffic

The majority of the workers would commute to the construction right-of-way early in the morning (between 7:00 a.m. and 8:00 a.m.) and would return in the evening during non-peak traffic hours (between 5:30 p.m. and 6:30 p.m.). Heavy equipment vehicles would be transported to the site and left on the right-of-way until construction is complete.

MAPL has prepared and would follow a Transportation Plan (see Appendix C to the POD). The plan provides anticipated traffic levels associated with construction, describes functional

classification and anticipated use of existing roads, identifies proposed high and low traffic volume roads, and assesses the need for road improvement, construction, and maintenance.

2.2.5 Pipeline Construction

Standard pipeline construction techniques would be used along the loop pipeline segments, which typically involve the following sequential operations: preconstruction survey, mobilization, clearing, grading, installation of Best Management Practices (BMPs) for erosion control, topsoiling, trenching, pipe stringing, welding and coating pipe, lowering in and padding, backfilling, strength testing, and cleanup and restoration. The construction techniques described below would be used unless site-specific conditions warrant special methods. Construction of the pipeline would begin after all required federal, state, and local approvals have been obtained. Company personnel and construction contractors would discuss procedures and permit approvals prior to construction. Construction details are summarized below and are provided in MAPL's POD. MAPL's Stormwater Management Plan (SWMP - see Appendix E to the POD) describes temporary erosion control measures that would be used during construction, including measures that may be required based on weather conditions.

Pre-construction Survey. Construction staking is required to designate the centerline and outside right-of-way boundaries. The limits of disturbance would be clearly marked/staked prior to construction including the construction right-of-way, temporary use areas, and access roads. Utility lines would be located and marked to prevent accidental damage during pipeline construction. Sensitive areas to be protected from disturbance or that require monitoring would be marked. The location of access road entry points would be properly marked. Flagging, signs, and other markings identifying the limits of disturbance would be maintained through all phases of construction. A survey crew would be available during construction to refresh any damaged stakes.

Mobilization. Construction equipment would be transported to the construction right-of-way via tractor trailer and unloaded within a designated staging area. Transportation equipment would be removed from the site or parked within a staging area once off-loading is completed.

Clearing and Grading. Vegetation would be cleared and the construction right-of-way would be graded to provide for safe and efficient operation of construction equipment and vehicles and to provide space for the storage of subsoil and topsoil. Construction and ground disturbance would be limited to approved, staked areas.

Trees would be cut with a chain saw and/or mechanical shears and brush would generally be cut with a hydro-axe or similar equipment. Trees and brush would be cut as close to the ground as possible. Vegetative material would typically be shredded and scattered back across the surface to increase roughness, facilitate seeding establishment, and protect the construction right-of-way. Stumps that are not shredded or chipped and that are incorporated into the topsoil would be removed and disposed of at an approved disposal facility. Vegetation may also be brush-hogged to preserve habitat.

Topsoiling. Topsoil would be salvaged and segregated from trench spoil materials to prevent mixing in all non-forested areas on BLM-managed lands and Pueblo of Zia trust lands to facilitate revegetation of the construction right-of-way after construction is complete. If topographic constraints prevent topsoil salvaging, those areas would be identified prior to construction for BLM approval. On BIA and BLM-managed lands, all available topsoil up to a depth of 6 inches would be removed from the construction right-of-way (trenchline, working side, and non-working side of the right-of-way) and would be stored on the non-working side of the right-of-way and segregated from the trench spoil. If requested by the BLM or BIA, topsoiling would not occur where a brush-hog is used to preserve habitat within the right-of-way.

Topsoil would be stockpiled separately from subsoil and would not be used to pad the trench or construct trench breakers. In areas where the construction right-of-way crosses ephemeral drainages, the drainages would not be blocked with topsoil or subsoil piles. Topsoil and subsoil would be placed on the banks of the drainages. Gaps would be left periodically in the topsoil and subsoil piles to avoid ponding and excess diversion of natural runoff during storm events.

Pipe Stringing and Welding. After trenching is complete, individual joints of pipe would be strung along the construction right-of-way adjacent to the excavated trench and arranged so they are accessible to construction personnel. A mechanical pipe-bending machine would bend individual joints of pipe to the desired angle at locations where there are substantial changes in the natural ground contours or where the loop segments change direction.

Welding and Coating Pipe. After stringing and bending are complete, the sections would be aligned, welded together, and placed on temporary supports along the edge of the trench. All welds would be visually inspected by a qualified inspector. Non-destructive radiographic inspection methods would be conducted in accordance with current requirements. A specialized contractor would be employed to perform this work. Any weld defects would be repaired or cut out as required under the specified regulations and standards.

To prevent corrosion, the pipe would be externally coated with fusion bonded epoxy coating prior to delivery. After welding, field joints would be coated with a tape wrap, shrinkable sleeve wrap, or field-applied fusion bond epoxy. Before the pipe is lowered into the trench, the pipeline coating would be visually inspected and tested with an electronic detector and any faults or scratches would be repaired.

Trenching. Trenching would be completed using track hoes. The trench would be to one side of the construction right-of-way to allow for spoil to be placed opposite the wider working side. MAPL does not anticipate that blasting would be required during construction. If blasting were required, MAPL would follow the procedures described in the Blasting Plan (see Appendix N to the POD).

Access would be provided for landowners and grazing permittees to move vehicles, equipment, and livestock across the trench where necessary. Livestock operators would be contacted and adequate crossing facilities would be provided as needed to ensure livestock are not prevented from reaching water sources because of the open trench.

The contractor would keep wildlife and livestock trails open and passable by adding soft plugs (areas where the trench is excavated and replaced with minimal compaction) during construction. Soft plugs with ramps on either side would be left at all well-defined livestock and wildlife trails and at no more than 0.5-mile intervals (or as stipulated by the BLM) along the open trench to allow passage across the trench and to provide a means of escape for livestock and wildlife that may fall into the trench.

Trench breakers constructed of sand bags or polyurethane foam would be installed at specific spacing intervals to impede shallow groundwater from flowing down the trench. Trench breaker spacing would be determined by the Environmental Monitor but would generally be spaced as follows:

Slope Percent	Spacing (feet)
10-15	500
15-20	300
20-30	150
>30	100

Lowering-in and Padding. Before the pipe section would be lowered into the trench, an inspection would be conducted to verify that the pipe is properly fitted and installed in the trench, minimum cover is provided, and the trench bottom is free of rocks and other debris that could damage the external pipe coating. The pipe sections would be simultaneously lifted in position over the trench and lowered in place. Sifted soil fines from the excavated subsoils would provide rock-free pipeline padding and bedding. Sandbags may be used to pad the bottom of the trench instead of, or in combination with, padding with soil fines. In rocky areas, padding material or a rock shield would be used to protect the pipe. Topsoil would not be used to pad the pipe.

Backfilling Pipeline. Backfilling would begin after a section of pipe has been successfully placed in the trench. Backfill would be conducted using a bulldozer or other suitable equipment. Subsoil excavated from the trench would generally be used to backfill the trench, except in rocky areas where imported select fill material may be needed (imported fill would only be imported from sites that have, at a minimum, biological and cultural clearances). Backfill would be graded and compacted, where necessary, for ground stability, by tamping or walking with a wheeled or tracked vehicle. Compaction would be conducted to the extent that there would be no voids in the trench. Any excavated materials or materials unfit for backfill would either be utilized elsewhere or properly disposed of in accordance with applicable laws and regulations.

Hydrostatic Testing. Once the pipeline is in place, the pipeline would be pressure tested with water to ensure that the system is capable of operating at the design pressure. MAPL has prepared and would follow a Hydrostatic Test Plan (see Appendix F to the POD) which addresses test section lengths, source water, and discharge. It is estimated that approximately 9.7 million gallons (29.7 acre-feet) of water would be required for hydrostatic testing (see Appendix F to the POD).

MAPL has identified 10 potential water source locations (see Table 2.2-3). The required approvals/permits would be obtained prior to water withdrawal. MAPL would not seek new water rights but would negotiate to use existing water rights of the potential water sources. Water used for hydrostatic testing would be hauled to frac tank (portable water tank) staging areas located along the construction right-of-way.

MAPL has identified several locations for water discharge (see Appendix F to the POD). MAPL would discharge hydrostatic test water in a manner that prevents erosion. Prior to discharge, an energy dissipater would be installed at the discharge point and erosion protection measures employed. Permits would be obtained through the New Mexico Oil Conservation Division in compliance with the U.S. Environmental Protection Agency (EPA) NPDES program. If water is discharged on Navajo Nation Trust lands, a permit would be obtained through the Navajo Nation Environmental Protection Agency. Water would be sampled and analyzed prior to discharge and discharge would be in compliance with the respective state/Navajo discharge permits. Discharges would typically be to upland areas and would be controlled so that there are no point source discharges to drainages. Haybales, sandbags or other materials installed at the discharge points would be removed from the site upon completion of hydrostatic testing.

Table 2.2-3
Hydrostatic Test and Dust Abatement Source Water Locations

Source[1]	County	Supply for Segment	Volume in millions gallons (acre-feet)[2]	Purpose
NAPI Canal	San Juan	Segment 1 and North end of Segment 2	5.2 (15.3)	Hydrostatic Testing and Dust Abatement
San Luis / Cabazon Mutual Domestic Water Association	Sandoval	Segment 2	5.2 (15.3)	Hydrostatic Testing and Dust Abatement
City of Rio Rancho	Sandoval	Segment 2	1.3 (4.0)	Hydrostatic Testing and Dust Abatement
Entranosa Water	Bernalillo	Segment 3	2.3 (7.1)	Dust Abatement
City of Moriarty Water Works	Torrance	South end of Segment 3	3.3 (10.1)	Hydrostatic Testing and Dust Abatement
City of Vaughn	Guadalupe	South end of Segment 5	2.0 (6.1)	Hydrostatic Testing and Dust Abatement
Private Well	San Juan	North end of Segment 5	1.6 (4.9)	Hydrostatic Testing and Dust Abatement
Pecos River	Chaves	North end of Segment 6	1.3 (4.0)	Dust Abatement
City of Roswell	Chaves	Segment 6	1.9 (6.0)	Hydrostatic Testing and Dust Abatement
Privately-owned Bulk Water Supply	Lea	Segment 7	3.9 (12.0)	Hydrostatic Testing and Dust Abatement
		Total	**28.0 (84.8)**	

[1] MAPL would negotiate use of existing water rights; no new water rights would be sought.
[2] Due to rounding, the total of acre-feet is off by 1 acre-foot.

Cleanup and Restoration. Cleanup and restoration would occur after the pipeline is installed and backfill is completed. Cleanup of the surface along the construction right-of-way would include removal of construction debris and final grading to finished contours. Permanent erosion control measures would be installed and seeding would occur in accordance with landowner requirements. Restoration details are provided in MAPL's Reclamation and Monitoring Plan (see Appendix D to the POD) and in the SWMP (see Appendix E to the POD).

2.2.6 Special Construction Methods

Foreign Pipeline, Road, and Railroad Crossings. MAPL would ensure that the pipeline would meet or exceed the minimum depth of cover over the pipeline as required by code. Crossings of foreign pipelines (pipelines owned or operated by companies other than MAPL) would generally require the pipeline to be buried at greater depths. Where practicable, 12 inches of clearance would be maintained when crossing foreign pipelines, utilities, drain tiles, or any other existing underground utility.

Table C-2 in Appendix C lists the roads and railroads crossed by the proposed loop pipeline segments and the proposed crossing method for each road. The construction contractor would be responsible for preparing and implementing a Traffic Control Plan in coordination with local county road and bridge departments which would outline procedures for road closings and traffic control during open-cut crossings of roads. MAPL anticipates that roads would be closed at a crossing point for a few hours followed by having one lane open with a plate cover over the road cut.

Stormwater Management. MAPL developed a stormwater management plan (SWMP - see Appendix E to the POD) which describes the temporary and permanent sediment control devices (BMPs) that would be implemented during construction, reclamation, and operation to minimize the potential for accelerated erosion and offsite sedimentation. Temporary structural BMPs may include straw bales, barriers/check dams, temporary water bars, and straw fiber rolls/wattles. When applicable, temporary BMPs would be implemented during construction and interim reclamation phases. Temporary BMPs would be removed and disposed of upon final stabilization. Permanent structural BMPs may include water bars, earthen berms, drainage dips, diversion ditches, sediment basins, culvert inlet/outlet protection, and rock check dams. The plan describes the intent and objective of these BMPs and provides typical design drawings of each of the BMPs. The plans also include requirements for inspection and maintenance procedures to ensure sediment control measures are properly implemented, installed, and functioning during all phases of construction and reclamation until the disturbed areas are appropriately stabilized.

Wetland and Waterbody Crossings. Ecosphere Environmental Services (Ecosphere) conducted a wetland evaluation and delineation of the project area from July 2011 through August 2012 and identified potential jurisdictional wetlands and Waters of the U.S. (WoUS) within 125 feet on the north side and 75 feet on the south side of the proposed loop segments for a total buffer of 200 feet. Pipeline crossings of streams, creeks, or dry washes would be achieved by horizontal directional drill (HDD), conventional bore, dry open-cut methods (flume or dam and pump), or conventional open-cut methods. It is anticipated that most of the crossings would be crossed by conventional open cut methods with a few exceptions where there is water flowing at the time of construction. Typical drawings of stream and wetland crossing methods are provided in Appendix K to the POD.

Wetland delineations occurred in August and September of 2011 and April through October 2012 within 50 meters of the proposed segment centerlines (Ecosphere, 2012a). Potential jurisdictional wetlands were identified based on vegetation, soils, and hydrologic characteristics present at the site. WoUS were delineated using characteristics of the Ordinary High Water Mark (OHWM). Tables C-4 Appendix C lists the streams/drainages and the wetlands crossed by the proposed loop segments. MAPL would implement all general and special conditions in the U.S. Army Corps of Engineers' (COE) Nationwide 12 Permit. After construction, MAPL would implement measures in their Reclamation and Monitoring Plan (see Appendix D to the POD) to ensure appropriate habitat restoration and appropriate revegetation measures for wetlands.

Horizontal Directional Drilling. HDDs are planned for the locations indicated in Table 2.2-4. Appendix K to the POD provides plan and profile drawings for each HDD.

Table 2.2-4
Horizontal Directional Drills for Construction of the WEP III

HDD Location	Milepost	Length (feet)	Purpose
Kutz Canyon	413.50	4,230	Avoid topographic issues and listed plant species
Navajo Irrigation Canal	412.02	878	Avoid elevated canal
North Road ACEC	MP 403.25	5,099	Avoid ACEC
Landfarm Environmental	404.40	3,734	Avoid landuse
Rio Puerco River	320.20	1,349	Avoid river
Pecos River	105.63	946	Avoid river

HDDs would be typically set up on the surface and drilled on an angle below a feature, then curved or angled back up to the surface on the other side of the feature. The HDD would involve setup of a boring machine from the pipe trench and boring horizontally under the feature. A small pilot hole would be drilled, enlarged, and then reamed to the proper diameter. The HDD rig would then pull the drill and prefabricated pipe section back out in the opposing direction from which the pilot bore entered (pullback). Temporary use areas parallel to the pipeline for the length of the directional drill would be needed for stringing and welding the pipe section prior to its pullback. Final HDD engineering plans would follow completion of the geotechnical assessment, which is currently in process.

Fueling and Hazardous Materials. Fuels and hazardous materials would not be stored along the construction right-of-way. The SWMP (see Appendix E to the POD) includes measures to minimize occurrence of contaminants from construction equipment, welding, and refueling entering surface water. The SWMP was prepared in accordance with state permitting requirements.

Fire Control. MAPL would implement the measures in the Fire Prevention and Suppression Plan (see Appendix O to the POD), which includes notification of the BLM Authorized Officer (AO) of any fires during construction and would comply with all rules and regulations administered by the BLM AO concerning the use, prevention, and suppression of fires on federal lands. MAPL would notify the Southern Pueblos Agency and Pueblo of Zia if a fire started on Zia trust lands.

In the event of a fire, MAPL or their contractors would initiate fire suppression actions in the work area. Suppression would continue until the fire is out or until the crew is relieved by an authorized representative of the agency on whose land the fire occurred. Heavy equipment would not be used for fire suppression outside the construction right-of-way without prior approval of the BLM AO unless there is imminent danger to life or property. MAPL or their contractors would be responsible for all costs associated with the suppression of fires and the rehabilitation of fire damage resulting from their operations, employees, or contractors.

MAPL would designate a representative to be in charge of fire control during pipeline construction. The fire representative would ensure that each construction crew has firefighting tools and equipment, such as extinguishers, shovels, and axes, available at all times. The number of tools needed would depend on the number of persons working in the area. MAPL would, at all times during construction, maintenance, and operations, require that satisfactory spark arresters be maintained on internal combustion engines.

Dust Control. To limit dust associated with project-related traffic, MAPL would apply water to unpaved roads, staging areas, and points along the construction right-of-way. Magnesium

chloride would not be used for dust control. The volume of water needed for dust control would depend on the amount of precipitation during the construction period. In the event of little precipitation, it is estimated approximately 18.3 million gallons (56.1 acre-feet) of water would be required. Water trucks with an approximate capacity of 120 barrels would haul water from approved withdrawal locations (see Table 2.2-3) to the construction right-of-way and related areas. MAPL would obtain all approvals and water rights prior to withdrawal of water.

To minimize dust, vehicles travelling along the construction right-of-way would not exceed speeds of 15 miles per hour (mph). On access roads, posted speed limits would be followed. Where there is no posted speed limit, speeds on access roads would not exceed 30 mph. MAPL would not conduct clearing along the construction right-of-way when winds are in excess of 35 mph.

Weed Control. Biological surveys conducted by Ecosphere included documenting the presence of noxious weeds as part of general vegetation communities and species lists. MAPL has prepared and would follow the Integrated Noxious and Invasive Weed Management Plan (see Appendix G to the POD). All equipment would be thoroughly cleaned prior to being brought to the construction right-of-way to avoid contamination from noxious weeds. If working in sites with weed-seed contaminated soil, equipment would be cleaned prior to moving to uncontaminated terrain. MAPL would avoid driving vehicles through areas where weed infestations exist.

Survey Monuments. All survey monuments, witness corners, reference monuments, and bearing trees within the construction right-of-way would be protected against disturbance during construction, operation, maintenance, and restoration. If any monument, corner, or accessory is destroyed, obliterated, or damaged, a registered land surveyor would restore the disturbed monument, corner, or accessory. The survey would be recorded in the appropriate county and a copy would be sent to the appropriate BLM field office.

Erosion Control. Temporary erosion controls would be installed immediately after initial disturbance (clearing) and would be properly maintained throughout construction and reinstalled as necessary until replaced by permanent erosion controls or restoration is complete. These measures may include but are not limited to sediment barriers, slope breakers, mulch, and erosion control fabric as described in MAPL's SWMP (see Appendix E to the POD) and Reclamation and Monitoring Plan (see Appendix D to the POD).

Waste Disposal. Various waste materials would be generated during construction. Wastes would typically include trash and debris from construction materials and workers as well as sanitary sewage from temporary sanitary waste facilities. Trash and discarded materials would be cleaned up at the end of each work day. Cleanup would consist of patrolling work areas to pick up trash, scrap debris, other discarded materials, and contaminated soil. Wastes would be managed so as to not contribute to stormwater pollution. Construction trash and debris would be collected in appropriate containers and hauled off-site for disposal in suitable landfills. Sanitary waste would be contained in portable toilets or other storage tanks located on trailers or properly secured to the ground. Sanitary waste materials would be regularly pumped and transported off-site for proper disposal at approved facilities.

Human Health and Safety. The project would be constructed in accordance with MAPL's construction specifications. The pipeline and facilities would be operated and maintained according to accepted industry practices. During construction, operation, and maintenance, the applicable requirements of the Occupational Safety and Health Act would be followed. The guidelines would be provided to all MAPL employees, contractors, and environmental monitors engaged in the planning construction, operation, and maintenance of the Project. Employees and contractors would be instructed to follow these guidelines, where applicable, when planning, installing, and operating the proposed loop pipeline segments.

Biological Resources. Biological resources surveys have been or are being conducted by Ecosphere. Details of surveys, observations, and recommendations are provided in the Biological Survey Report. MAPL has prepared and would implement a Biological Resources Protection Plan (see Appendix H to the POD), which sets forth the procedures to be followed to protect wildlife including timing restrictions, where applicable, as well as measures to protect special status plant species known or potentially with the project area.

Wetlands and Waters of the U.S. Ecosphere has completed wetland delineations and waters of the U.S. jurisdictional determinations for the project area. All delineations and determinations have been closely coordinated with the U.S. Army Corps of Engineers (COE) Albuquerque District.

Cultural Resources. Cultural resources surveys have been or are being conducted by the University of New Mexico. The reports have been or will be submitted to the BLM NM State Office. All BLM-managed lands have been surveyed. All BIA-managed lands have been surveyed except for one Navajo allotment on Segment 2 (approximately 1 mile). All state and private lands have been surveyed.

The Unanticipated Discovery Plan for Cultural Resources (see Appendix I to the POD) provides measures to be followed during construction if there are unanticipated discoveries. MAPL's employees and contractors would be informed about relevant federal regulations protecting cultural resources. If any cultural remains, monument sites, objects, or antiquities subject to the Antiquities Act of June 8, 1906 or the Archaeological Resources Protection Act of 1979 are discovered during construction, activities would immediately cease and the responsible BLM AO will be notified. The Programmatic Agreement requires the BLM to notify agency landowners and the SHPO for discoveries of cultural remains, and for discoveries of cultural remains on tribal lands, requires notification of the tribal government, the BIA, and the SHPO.

Paleontological Resources. Paleontological resource surveys have been or are being conducted. All BLM-managed lands have been surveyed on Segments 1 and 2. Surveys on Navajo lands (on Segments 1 and 2) have also been completed. Based on the geologic formations along Segments 5, 6, and 7, surveys would be conducted on portions of Segment 7 prior to construction if private landowners grant survey permission. Segment 7 does not cross BLM-managed lands. All recommendations included in the report would be followed including recommendations for monitoring during construction.

The Unanticipated Discovery Plan for Paleontological Resources (see Appendix J to the POD) would be followed during construction. If paleontological resources are uncovered during construction activities, all operations would be suspended to prevent further disturbance of such materials and the BLM AO would be immediately contacted who would arrange for a determination of significance and, if necessary, recommend a recovery or avoidance plan. Mitigation of paleontological resources would occur on a case-by-case basis, and MAPL would be responsible for the costs.

2.2.7 Reclamation

MAPL prepared and would follow a Reclamation and Monitoring Plan (see Appendix D to the POD) which sets forth procedures for working surface preparation, soil reclamation/stabilization, revegetation, wetland restoration, weed control, and monitoring.

Working Surface Preparation. The entire working surface would be grubbed and cleared and vegetation would be placed along the side until construction is complete. Once construction is complete, vegetation and woody materials would be pulled and scattered along the construction right-of-way as advised by the BLM AO.

Soil Reclamation/Stabilization. The top 6 inches of soil would be segregated from the trenchline and stockpiled separately to prevent mixing with other trench material. Topsoil would be salvaged from the non-working side and working side of the right-of-way (except in areas where a brush-hog is used if requested by BLM or BIA). Topsoil would be stockpiled in separate piles from other soil horizons with stable slopes and be positioned to minimize exposure to wind and water erosion as described in Appendix E to the POD. Topsoil piles stored for long periods of time (i.e., a year or more – would only occur if construction were unexpectedly delayed) would be seeded to provide cover to reduce erosion, provide competition for weed species, and to maintain viability of the soil fungi and microbe communities. After construction, the stockpiled topsoil would be uniformly spread. Topsoil would not be used to bed or pad the pipe. During regrading and topsoil redistribution, the construction right-of-way would be re-contoured to its original or near original grade to blend with the surrounding landscape and to reestablish natural drainage patterns.

Revegetation. Replacement of topsoil would occur just prior to reseeding to prevent early germination and establishment of highly competitive annual weeds. Reseeding would be timed to coincide immediately prior to the season of greatest precipitation, which is late fall/winter. Soil preparation prior to seeding would include decompaction of the top 12 inches of soil and roughening of the soil surface. Trees, large woody debris, and rocks cleared during construction would be pulled back onto the construction right-of-way after seeding. Mulch (native grass hay or hydromulch wood fiber and erosion control blanket) would only be used where there are specific indications for its application. Seed mixtures (see Appendix D to the POD) would be certified, "weed free." Four types of seed mixtures would be used during revegetation unless otherwise directed by the BLM or private landowners. Seed mixture transitions are provided in MAPL's Reclamation and Monitoring Plan (see Appendix D to the POD).

Wetland Restoration. The top 12 inches of soil and wetland vegetation from the trench line would be removed and set aside from other soils until the pipeline trench is backfilled and the construction right-of-way is re-contoured. Within the graded portion of the right-of-way, the wetland vegetation would be cut off at ground level, leaving existing root systems intact, and would be stockpiled separately from other soils, and the wetland would be matted (to prevent rutting). The following protective measures would be used when crossing and/or working near wetland areas:

- Wetland boundaries would be clearly marked in the field with highly visible flagging and signs until construction and ground disturbing activities are completed.
- Sediment barriers and BMPs would be installed across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings to prevent sediment flow into the wetland.
- Where the construction right-of-way passes through wetlands, sediment barriers would be installed along the edge of the construction right-of-way to contain spoil and sediment within the construction right-of-way.

Equipment mats would be used under vehicles and construction equipment at all times while working in wetland areas. Wetland vegetation would be stockpiled no longer than 48 hours, if feasible, and if stored longer than 48 hours, they would be kept wet. Stockpiled wetland soils would be piled no deeper than 2 feet and actively flowing water channels within wetlands would not be impeded.

Weed Control. Treatments and management strategies for controlling and eradicating noxious and invasive species are included in the WEP III Integrated Noxious and Invasive Weed Management Plan (see Appendix G to the POD).

Reclamation Monitoring. Reclamation monitoring provides evidence of whether a self-sustaining plant community has been established and whether vegetative processes such as reproduction and seedling establishment are occurring. Reclamation monitoring as described in the Reclamation and Monitoring Plan (see Appendix D to the POD) would occur annually for 3 years post-construction or in accordance with landowner direction.

2.2.8 Pipeline Operation and Maintenance

MAPL is required to operate and maintain its NGL system in a safe and dependable manner and would be required to operate and maintain WEP III, as part of the overall system, in the same manner. Industry-proven practices are implemented in accordance with the requirements of the U.S. Department of Transportation (DOT) Office of Pipeline Safety and the U.S. Environmental Protection Agency (EPA). All pipeline facilities are under 24-hour, state-wide, one-call systems, which would include WEP III.

Until vegetation is re-established following construction, MAPL would conduct annual inspections as required by stormwater discharge permit requirements. After construction, periodic aerial patrols (26 times per year, not to exceed three week intervals) would be conducted to visually inspect for evidence of pipeline damage, nearby construction activities of landowners or other parties, erosion and wash-out areas, areas of sparse vegetation, damage to permanent erosion control devices, exposed pipe, and other potential problems that may affect the safety and operation of the pipeline. Pipeline markers and signs would be maintained or replaced as necessary to ensure the pipeline location is visible from the air and ground. Patrols would be followed up with site-specific inspections to better identify potential problems and make repairs as needed.

Impressed current cathodic protection would be maintained along the pipeline to prevent or minimize corrosion of the pipeline in accordance with federal regulations. Pipeline rectifier and associated ground bed sites would be located where access to electrical power is available. To supplement the impressed current cathodic protection system at locations where additional protection may be required, sacrificial anodes may be installed. This situation could occur at valve sites, road crossings and other pipeline crossings. The cathodic protection system would be monitored annually, at a minimum, depending on specific equipment and circumstances. The design life of the CP system, if appropriately maintained in accordance with MAPL and DOT standards, is indefinite.

MAPL maintains a supply of pipe, leak-repair clamps, sleeves, etc. for emergency repairs and implements measures to protect the health and safety of all persons affected by activities performed in connection with the operation and maintenance of the pipeline. Emergency response procedures to be followed in case of leak, spill, or explosion are summarized below in Section 2.2.10 and are detailed in Appendix L to the POD.

The permanent right-of-way would be maintained in a manner consistent with pre-construction conditions. Herbicides, if needed on federal lands, would not be used without prior written approval of the BLM, BIA, or if on Zia trust lands, approval from the Zia tribal officials. Herbicides would be applied in compliance with BLM and other applicable laws and regulations. Herbicides would not be applied within 100 feet of wetlands or floodplains.

BLM lessees would be allowed to continue pre-construction land uses. Vegetation management practices may be modified in some localities in order to comply with applicable federal, state, and county requirements. At waterbodies, a 25-foot-wide riparian strip (measured from the mean high water mark) would be allowed to revert to native vegetation. In riparian areas, as well as in wetlands, a 10-foot-wide strip centered over the pipeline may be maintained in a treeless, herbaceous state to facilitate inspection and maintenance.

2.2.9 Emergency Response

MAPL has prepared and would follow an Emergency Response Plan (ERP – see Appendix L to the POD). The ERP would assist in planning and responding to a suspected or actual emergency involving WEP III. The ERP is also the Emergency Action Plan. The safety of employees, contractors, visitors, responding personnel and the surrounding population is critical in every emergency response, as generally the products contained in the pipeline or facility are highly volatile when released. With this in mind, it is critical for emergency responders to train their personnel on the proper response to a suspected or actual emergency.

In the event of an emergency, Pipeline Control would close any automated valves and local personnel would close manual valves as needed to mitigate a release. MAPL employees are required to be trained on the ERP. Each employee would be familiar with the plan and their duties under the plan. MAPL would provide a copy of the ERP to applicable agencies including 911 Call Centers, Fire Departments, Police Departments, Sheriff Departments, Office of Emergency Management and State Police.

2.2.10 Pipeline Safety

MAPL incorporates safety measures into its operating procedures to ensure that its pipelines function in a manner that is protective of human health and the environment; as part of the overall system, the same measures would be applied to WEP III. MAPL maintains a policy manual specifying the procedures to follow for routine and emergency operation and maintenance activities. The manual details safety precautions and training requirements, and establishes inspection schedules for instruments, valves, pressure control and relief devices, cathodic protection systems, and other system elements. All personnel working on pipeline systems are routinely tested to assure appropriate knowledge and skill for each task required.

MAPL employees participate in conducting facility hazard assessments, inspecting and auditing facilities and processes, reviewing and updating safety practices and procedures, incident investigations, and other safety related activities. In addition, MAPL develops an Emergency Preparedness Plan for each facility to contain, control and mitigate the various types of emergency situations that could occur at a pipeline location.

MAPL's standards for safe operating and maintenance procedures meet or exceed good business practices, industry standards, and federal, state and local regulations. The components of MAPL's pipeline safety program that supplement safe operating and maintenance procedures are described below:

Cathodic Protection System. Cathodic protection reduces and controls external pipeline corrosion by applying small electrical charges to the pipe in order to inhibit the electrochemical reactions that cause corrosion. As part of the cathodic protection system, regular testing is conducted and compared against pre-existing conditions, industry standards and regulatory requirements to assure satisfactory performance of the entire system.

Depth of Cover. Federal regulations establish minimum depth of cover requirements, which determine how deep a pipeline is buried as measured from ground surface to pipe top. Minimum depth of cover requirements vary by terrain and anticipated use of the right-of-way. MAPL meets or exceeds minimum depth of cover standards during pipeline construction.

Hydrostatic Testing. Hydrostatic testing is conducted to ensure the integrity of newly installed pipeline segments. Testing procedures include filling new loop pipeline segments with water and pressurizing them to 90 to 95 percent of the Specified Minimum Yield Strength while monitoring pressure and temperature inside the pipeline to verify system integrity.

One Call System. To prevent third-party pipeline damage, operators of pipelines and other underground facilities participate in state-specific utility notification centers, which provide a "one-call" communication link between excavators and underground facilities. Excavators call the One Call Center prior to excavating and provide specific information about the location of upcoming excavation. The One Call Center then alerts all underground utilities and pipeline operators in the affected area. For impacted pipelines, MAPL's policy is to be on-site during excavation to ensure that its pipeline is safely uncovered and back-filled properly after excavation is completed. MAPL distributes One Call and other safety information to landowners and residents in its areas of operation.

Public Education and Damage Prevention Programs. MAPL would employ existing public education programs that promote pipeline safety. These initiatives include community outreach programs that keep landowners informed of the pipelines that cross their property, comprehensive public awareness programs that address pipeline safety issues, and annual meetings with excavators and emergency responders to provide updated information specific to individual pipeline locations.

Radiographic Inspection. New pipeline girth welds, which join the ends of pipeline sections, are inspected radiographically to ensure that no defects exist. Defective welds are repaired and re-radiographed.

Right-of Way Marking. MAPL uses markers to alert the public and potential excavators to the existence and location of its pipelines. WEP III would be located adjacent to an existing NGL pipeline owned and operated by MAPL that is currently marked. Aboveground marker signs display a warning message, the product transported, contact information, and a 24-hour emergency phone number.

Right-of-Way Monitoring. MAPL conducts routine inspections of its pipelines and aerially inspects pipeline right-of-ways at approximate two-week intervals. MAPL provides right-of-way access for long-term third-party environmental monitoring for 5 years after acceptance of final pipeline reclamation.

Smart Pigs. A smart pig is an electronic instrument that the transported fluid pushes through a pipeline. Smart pigs inspect the inside of the pipeline and detect irregularities such as internal and external corrosion, changes in wall thickness, dents, gouges, and pipe deformities. Detected irregularities are repaired to comply with applicable regulations and industry standards. Internal integrity tests, utilizing smart pigs, are completed according to DOT criteria.

Supervisory Control and Data Acquisition (SCADA). MAPL uses SCADA to obtain current and comprehensive information on key operating aspects of pipeline systems, including operating pressures and the status of pumping equipment and remotely operated valves. SCADA remotely collects data from satellite communication units located along the pipeline 24 hours a day. SCADA data are used to detect changes in flow rate or pressure that indicate potential leaks. In the event of such a change, SCADA would alert the MAPL controller so that actions can be initiated to mitigate potential hazardous conditions.

Valve Spacing. Valves are used to restrict the flow of natural gas liquids through a pipeline in the event of a potentially hazardous incident. Block valves isolate pipeline segments and divert its flow, and check valves prevent reverse flow in the pipeline. In compliance with regulations and industry standards, MAPL installs the appropriate valve type in accessible locations at all pump stations and storage tank areas, on each side of water crossings greater than 100 feet wide, and at mainline locations and takeoff points that are determined to minimize the impacts of an accidental discharge. In addition to these specified locations, valves would be installed at approximate 10-mile intervals along the loop pipeline segments.

2.2.11 Abandonment

Properly maintained, the WEP III would be expected to operate for 50 or more years. MAPL has not identified plans for abandonment of these facilities. If abandonment of any facilities is proposed in the future, the abandonment would be subject to approvals by state and/or federal agencies with appropriate jurisdiction. Abandonment would be implemented in accordance with then-applicable permits, approvals, codes and regulations. At the end of the pipeline's useful life, MAPL would obtain the necessary authorizations from the BLM AO and SPA and Pueblo of Zia to abandon the facilities.

2.2.12 Compliance

MAPL would employ Environmental Monitors for each construction spread during construction, cleanup, and restoration. The Environmental Monitors would have peer status with all other construction personnel and would have authority to stop activities that threaten to violate environmental requirements/stipulations/conditions contained in the various permits issued for WEP III. The Environmental Monitors would be authorized to order corrective action. All contractor foremen and inspectors would receive training on all project specifications and requirements, with emphasis on the environmental compliance procedures. These individuals would support the Environmental Monitors by communicating potential conditions observed during daily activities that may jeopardize environmental compliance. All personnel employed on the project would receive basic training on actions necessary to ensure compliance.

The BLM will require a third-party compliance contractor to be hired to oversee environmental compliance during construction. A compliance plan would be developed which outlines the lines of communication between the third-party contractor, MAPL's Environmental Monitor, and the BLM, as well as the procedures to be implemented in the event of a non-compliance event.

2.2.13 Protective Design Features

MAPL will implement the following design features on BLM-managed and BIA-administered lands to minimize effects to specific resources.

Geologic Resources and Groundwater Resources

- Reporting immediately any cave or karst feature, such as a deep sinkhole, discovered during construction or operation on BLM-managed lands to the AO. An evaluation of the discovery will be made by the AO to determine appropriate action(s). Any decision as to further mitigation measures will be made by the AO after consulting with MAPL.

Soils

- Implementing the SWMP (see Appendix E to the POD);
- Scheduling construction to avoid periods when soils are saturated and more susceptible to compaction/rutting damage and increased runoff and potential erosion;
- Properly installing and maintaining erosion and sediment control devices in accordance with the SWMP;
- Salvaging 6-inches of topsoil from the trench line and construction right-of-way (working and non-working side unless otherwise directed by BLM or BIA), where available;
- Storing the topsoil on the edge of the construction right-of-way separately from the trench spoil and evenly distributing the topsoil over the areas it was salvaged from prior to seeding;
- Salvaging 12 inches of topsoil and vegetation in wetlands for replacement during restoration (no wetlands would be affected by the Proposed Action);
- Narrowing the construction right-of-way and utilizing equipment mats to minimize soil disturbance in wetlands;

- Regrading/recontouring all disturbed areas back to their approximate original contours during reclamation to restore original drainage patterns;
- Controlling the release of hydrostatic test water to prevent erosion;
- Scarifying or ripping where necessary to loosen/mitigate compacted areas;
- Preparing a roughened seedbed which would hold broadcasted seed, reduce runoff, promote infiltration, and minimize wind and water erosion potential;
- Utilizing appropriate seed mixtures and rates that are adaptable to the habitat/soil conditions disturbed to enhance plant establishment and soil protection (includes appropriate use of certified seed and tested seed, using rates based on Pure Live Seed [PLS], and doubling seeding rates where broadcast seeding occurs);
- Utilizing appropriate seeding methods and techniques (drilling, broadcast, hydroseeding) based on site-specific conditions (includes appropriate calibrated seeding equipment and lightly covering seed as site conditions/equipment allow);
- Seeding during the appropriate seeding window;
- Applying adequate weed free mulch during restoration at a rate to provide a temporary cover to protect disturbed soils and enhance revegetation success; and
- Monitoring restoration efforts and conducting maintenance actions, including weed control, as needed.
- Prohibiting construction or travel on roads during periods when the soil is too wet to adequately support construction equipment. The soil shall be deemed too wet to work if such equipment creates ruts in excess of 6 inches deep. Vegetation clearing and soil segregation activities shall also cease if ruts greater than 6 inches are observed in soils, unless approved by the BLM AO.
- Developing and implementing supplemental restoration measures to reestablish soil productivity if, after construction and reclamation are complete, the BLM determines that monitoring results indicate soil productivity has not been restored to its pre-disturbance condition.
- Addressing immediately after observation erosion features such as rilling, gullying, piping, and mass wasting on the right-of-way or adjacent to the right-of-way as a result of this action by contacting the BLM Realty Specialist and submitting a plan to assure successful soil stabilization with BMPs to address erosion problems.
- Prohibiting side casting of soils off slopes if the material may slide out of the right-of-way. Any side casted soil shall be retrieved for re-contouring during final reclamation.
- Minimizing fugitive dust by controlling traffic speeds on the construction right-of-way and spraying water on all appropriate areas as necessary as determined by MAPL or BLM's AO. Water spraying to control fugitive dust and soil loss maybe necessary on topsoil and spoil piles, the construction right-of-way, temporary use area and access roads

Invasive, Non-native Plants

- Implementing MAPL's Integrated Noxious and Invasive Weed Management Plan (see Appendix G to the POD), which includes:
    - All equipment used at previous construction sites, or within sites with weed seed contaminated soil would be power-washed to remove mud, weed seeds, and propagules before entering the project area and/or moving to uncontaminated terrain. All maintenance vehicles would be regularly cleaned of soil.
    - MAPL would avoid vehicle travel through weed infested areas, where feasible.
    - Topsoil stockpiles would be seeded with non-invasive sterile hybrid grasses if stored longer than one growing season.
    - Treatment strategies for weedy species documented would consider effective methods and timing for preventing seed production of that species and could

include hand/machine pulling, cutting roots just below soil level, treatment with herbicides, or mowing.
    - Surface disturbances would be reseeded at the appropriate time and with the recommended seed mix outlined in the Reclamation and Monitoring Plan (see Appendix D to the POD).
- Implementing MAPL's Reclamation and Monitoring Plan (see Appendix D to the POD).
- Treating or removing weeds documented within and/or adjacent to the project area prior to ground-disturbing activities to limit weed seed production and dispersal, as well as reduce the potential for expansion. Follow-up inventories and re-treatment during the same growing season may be necessary to provide additional control.
- Working in conjunction with BLM field offices to determine the best methods to control noxious weeds on lands disturbed during construction.
- Obtaining BLM approval for a Pesticide Use Proposal (PUP) prior to the use of herbicides on land managed by the BLM, and SPA approval shall be obtained for a PUP prior to the use of herbicides on Zia trust lands.
- Providing an annual report to respective BLM field offices and SPA (for Pueblo of Zia trust lands) that identifies the extent of noxious weed infestations and treatment used to eradicate or minimize undesirable species. Reports shall be provided by December 1, annually until the desired reclamation level is achieved, as determined by the BLM or BIA.

Vegetation

- Erecting exclusion fencing along the revegetated right-of-way in highly vulnerable areas to exclude livestock, accelerate reclamation of surface disturbances, and minimize weed infestations, until monitoring has determined reclamation is successful (see Reclamation and Monitoring Plan, Appendix D the POD). The BLM AO shall determine areas for potential exclusion.
- Placing salt licks away from the revegetated right-of-way to reduce livestock use of the reclaimed right-of-way and increase the likelihood for successful reclamation within areas highly used for livestock grazing.

Wetlands, Riparian Areas, and Floodplains

- Reseeding surface disturbance within the 100-year floodplains at the appropriate time and with the recommended seed mix outlined in the Reclamation and Monitoring Plan (see Appendix D to the POD).

Special Status Species and Migratory Birds

- Implementing the Biological Resources Protection Plan (see Appendix H to the POD).

Terrestrial Wildlife

- Proposing formally any entry whatsoever of hibernation sites on BLM-managed lands to the BLM (BLM, 2011) because pursuant to Federal Register Notice, Vol. 76, No. 16, page 4373, January 23, 2011, all known hibernacula are temporarily closed to public entry to monitor for the presence of WNS and attempt to prevent its spread if it arrives.
- Ensuring that anyone entering non commercial caves or mines on federally-managed lands in New Mexico must follow the most current USFWS White-Nose Syndrome Decontamination Protocols and gear dedication procedures (BLM, 2010a).

Cultural Resources

- Implementing the Cultural Monitoring and Discovery Plan (see Appendix I to the POD).

Paleontological

- Implementing the Unanticipated Discovery Plan for Paleontological Resources (see Appendix J to the POD).
- Informing all persons associated with project that they would be subject to prosecution for knowingly disturbing paleontological sites, or for collecting fossils. Personnel shall be informed about the types of fossils they could encounter. If fossil materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the direct area of the find and immediately contact the BLM AO, as outlined in MAPL's POD.
- Preparing and submitting a final technical report following completion of the paleontological surveys. The final report shall contain the results of mitigation work conducted, including a record of fossils collected listing locality and disposition of the fossils. The report shall also contain a discussion of the scientific significance of the specimens and geologic and paleontological setting of the fossils and their localities.
- Monitoring during construction in PFYC Class 4 or 5 areas.

Visual Resources

- Implementing the Reclamation and Monitoring Plan (see Appendix D to the POD).

Transportation and Access

- Implementing the Transportation Plan (see Appendix C to the POD).
- Requiring the approval of the BLM (or the SPA on Zia Pueblo trust lands) for upgrading or improving any access roads outside of the existing road footprint.
- Prohibiting use of the permanent easement as a roadway and consulting with the BLM and BIA about measures to deter public use of the easement as a roadway (may include construction of deterrence structures).

Waste, Hazardous or Solid

- Prohibiting fueling or vehicle maintenance within 100 feet of any waterbody or wetland, including dry streambeds and dry or seasonal wetlands.
- Ensuring that fuel trucks are equipped with a shovel and absorbent pads.
- Notifying the BLM AO of any incident requiring notification to any other spill reporting hotline. The SPA and Pueblo of Zia tribal officials shall be notified of any similar incident on Zia Trust lands.

Recreation

- Posting the construction schedule and information signage at key sites in the Angel Peak Scenic Area and at trailheads in the WMBT and Ysidro Trials areas.
- Consulting with the BLM and the New Mexico Trials Association to determine potential trail closures, trail reroutes, and planned organized trail events.

Range Management

- Notifying the BLM AO so that the AO can provide mitigation and a solution to avoid or minimize impacts to improvement(s) if they would be affected during construction.
- Capping the ends of the strung pipe to prevent animals from crawling in.
- Constructing escape ramps/cross overs every 1,320 feet including each end of the trench when left open overnight between the communities of Counselor and Cuba, New Mexico. Escape ramp/crossovers will be constructed with a minimum 3:1 slope at each end of the crossover. Crossovers will be a minimum of 10 feet wide.

- Monitoring open trenches on a daily basis for trapped wildlife and definitely just prior to lowering pipe into the trench. Any trapped wildlife or livestock discovered will be promptly removed and released at least 150 yards from the open trench.
- Providing written documentation that all livestock owners/grazing operators in the project area have been consulted about the project to include construction start date, anticipated end date, company contacts, and that MAPL accepted liability for livestock loss or injury. MAPL will provide details about all mitigation agreements made with livestock grazing operators (plans/payments to move livestock out of project area, etc.) prior to implementation of such agreements.

Fire and Fuels

- Implementing MAPL's Fire Prevention and Suppression Plan (see Appendix O to the POD).

Land Tenure

- Coordinating with existing right-of-way holders prior to construction.

2.3 No Action Alternative

In accordance with NEPA and the Council of Environmental Quality (CEQ) regulations, which require that a No Action Alternative be presented in all environmental analyses in order to serve as a "base line" or "benchmark" from which to compare all proposed "action" alternatives, a No Action Alternative is analyzed in this EA. Under the No Action Alternative, the BLM would deny MAPL's application to install the 233.7 miles of six loop pipeline segments to transport natural gas liquids and associated block valves and no construction would occur.

Under the No Action Alternative, NGLs would continue to be produced as a by-product of natural gas drilling and would require an alternative means of transport. Produced NGLs are consumed in the local market when economically possible. Once the local demand has been satisfied, the NGLs must be transported to other markets. The largest markets for NGLs are on the Gulf Coast and in the Mid-Continent region. NGLs that are not consumed locally can be transported to alternate markets in three primary ways:

- Truck: At approximately 200 barrels per truck, it would take approximately 375 trucks per day to accommodate the 75,000 bpd expected growth.
- Rail: At approximately 600 barrels per rail car, it would take approximately 125 rail cars per day to accommodate the 75,000 bpd expected growth.
- Pipeline (Proposed Action).

The numbers of trucks or rail cars in the example above are used for transporting one day of production. If it takes a truck seven days to make a round trip from an NGL processing plant to market and back, the 375 trucks per day would amount to a total of 2,625 trucks.

2.4 Alternatives Considered but Eliminated from Detailed Study

If an alternative is considered during the environmental analysis process, but the agency decides not to analyze the alternative in detail, the agency must identify those alternatives and briefly explain why they were eliminated from detailed analysis (40 CFR 1502.14).

An alternative alignment to the north for a portion of Segment 1 at Kutz Wash was considered in order to provide resource protection to Aztec gilia and Brack's cactus plant populations. The alternative route was similar in scope and design to the proposed route. Initial plant surveys were conducted by Ecosphere, and dense populations of both species were encountered. Construction methods to avoid impacts, such as conventional bores and HDDs, were also

considered and would be used for both the proposed route and the alternative route; however, due to unfavorable topography, existing pipelines, lack of work space, and elevational changes, the HDDs, along either route, cannot completely avoid construction impacts to the sensitive plants. Ecosphere's initial surveys indicated that more numbers of Brack's cactus would require transplanting along the alternative route than along the proposed route. Therefore, the proposed Segment 1 route, adjacent to the existing pipeline, would cause the lesser impact to the local plant populations. In addition, a cultural site was identified within the right-of-way along the alternative route. The alternative analysis was, therefore, not carried forward in detail.

The WEP III segments would be co-located with existing pipelines; therefore, the BLM has not identified any additional alternatives that were considered but not analyzed in detail. The six pipeline segments need to tie into or 'loop' the existing pipeline system in hydraulically determined locations in order to increase the volume capacity of the system.

As noted earlier, MAPL removed Segment 4, and, therefore, it was dropped from the Proposed Action, but to minimize confusion with supporting documentation, the subsequent segments were not renumbered.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

This section provides a description of the human and natural environmental resources that could be affected by the Proposed Action and presents comparative analyses of the direct and indirect effects on the affected environment. This EA draws upon information compiled in the respective RMPs for each BLM field office (BLM, 2003a, 1986, 2012a, 1997a, 1988, and 1997b).

BLM Resource Specialists, experts in their respective fields, determined which resources would be brought forward for analysis by evaluating whether the resources were present within the project area and whether the Proposed Action would impact those resources. Any resource not present within the project area or any resource that would not be affected by the Proposed Action or No Action Alternative is not analyzed in this document.

Environmental impact analysis was based upon available data and literature from state and federal agencies, peer-review scientific literature, and resource studies conducted in the project area. Comparison of impacts is intended to provide an impartial assessment to help inform the decision-maker and the public. Actions resulting in adverse impacts to one resource may impart a beneficial impact to other resources. For each resource analyzed, environmental consequences include:

- **direct impacts –** impacts that are caused by the action, and that occur at the same time and in the same general location as the action.

- **indirect impacts –** impacts that occur at a different time or in a different location than the action to which the impacts are related.

- **short or long-term impacts –** when applicable, the short-term or long-term aspects of impacts are described. For the purposes of this EA, short-term impacts occur during or after the activity or action and may continue for up to 2 years. Long-term impacts occur beyond the first 2 years.

The predicted intensity and duration of effects from implementation of the Proposed Action for each resource were evaluated to determine how these effects could be avoided or reduced through the application of protective design features. The measures that MAPL included in their POD as design features were evaluated for their ability to reduce expected effects and are included, where applicable, for each resource. Each BLM field office may have Conditions of Approval that could be applied in addition to the design features. The need for additional mitigation measures was determined for each resource, based on the expectation that potential effects could be further reduced or avoided.

Cumulative Impacts

NEPA requires federal agencies to consider the cumulative impacts of proposals under their review. Cumulative impacts are defined in the CEQ regulations 40 CFR §1508.7 as "…the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency…or person undertakes such other actions." The CEQ states that the "cumulative effects analyses should be conducted on the scale of human communities, landscapes, watersheds, or airsheds" using

the concept of “project impact zone” or more simply put, the area that might be affected by the Proposed Action. The area that might be affected by the Proposed Action is within New Mexico along the alignments of the six proposed segments.

To assess past, present, and reasonably foreseeable actions that may occur within the project area, each BLM field office NEPA log was reviewed. The following includes all past, present, and reasonably foreseeable actions known to the BLM that may occur within the project area.

Past Actions. Past projects considered in this cumulative impacts assessment are the existing pipelines and other linear facilities that occupy a common utility right-of-way or other pipeline route that includes existing MAPL pipelines (including WEP I – BLM and BIA, 2006), other operators’ pipelines, and other linear facilities (i.e., power lines, fiber optic cables, roads, highways, etc.).

The Proposed Action would be located within or would parallel an existing pipeline or utility right-of-way for its entire length. Much of the proposed construction right-of-way would overlap previous or existing disturbance associated with the existing pipeline(s). Power lines parallel the existing utility right-of-way but contribute minimal disturbance or influence on environmental resources.

Past activities within or in the vicinity of the project area that BLM has determined would have a major influence on the resources in the area include:

- Livestock grazing (expected to continue in the future);
- Oil and gas development within the general area of the existing right-of-way (expected to continue in the future);
- Dispersed motorized and mechanized recreation (expected to continue in the future);

Present Actions. Present activities within or in the vicinity of the project area that BLM has determined would have a major influence on the resources in the area include:

- Livestock grazing;
- Oil and gas development;
- Dispersed motorized and mechanized recreation;

Additionally, the BLM FFO NEPA log includes a number of small projects ranging from well sites and guzzlers to communication sites. The St. Moritz power line is a linear disturbance that runs within about 3 miles west of MP 386. The Escrito I24-2409 01H Pipeline will be located about 1 mile northeast of MP 384.

The EA notes that numerous natural gas production projects (both BLM-approved and those approved by other agencies as well activities on private lands) are on-going in the San Juan Basin and Rockies.

Reasonably Foreseeable Future Actions. Reasonably foreseeable future actions describe existing facilities identified within and adjacent to the project area, as well as proposed projects which may be constructed in the area in the reasonably foreseeable future. To be included, a proposed future action must have a high probability of occurrence and be defined well enough to consider in any cumulative impact analysis. Foreseeable projects would be included if the responsible BLM field offices have accepted applications for the projects. Future activities within or in the vicinity of the project area that BLM has determined would have an influence on the resources in the area include:

- Disturbance from construction of additional pipelines adjacent to the current pipeline right-of-way;
- Livestock grazing;
- Oil and gas development;

- Dispersed motorized and mechanized recreation;
- Additive risk from operation of existing and future co-located pipelines within the current pipeline right-of-way;
- Construction of new or expansion of existing roads, highways, or railroads adjacent to the current pipeline right-of-way; and
- Construction of other linear projects, such as power lines, in or adjacent to the current pipeline right-of-way.

Planning Documents. To provide context for potential reasonably foreseeable future actions, the RMPs for each field office was reviewed. According to the Farmington RMP Record of Decision (2003a), a total of 2,597,193 acres of BLM-managed lands would remain open for oil and gas leasing and development. The planning area encompassed the New Mexico portion of the San Juan Basin. This basin is one of the largest natural gas fields in the nation and has been under development for more than 50 years. It supports approximately 18,000 active oil and gas wells and there are more than 2,400 existing oil and gas leases. The portion of the San Juan Basin in the Albuquerque Field Office was addressed in the Farmington RMP. Cumulative impacts of the potential development of 9,942 new oil and gas wells (approximately 16,150 acres of new disturbance) were analyzed in the RMP FEIS. Under the Roswell RMP (1997a), the BLM manages approximately 9,740,000 acres of federal oil and gas mineral estate in the Roswell Resource Area. Approximately 9,316,200 acres (96 percent of the oil and gas mineral estate) would be open to leasing and development.

As evidenced by the analyses supporting the RMPs, increased gas exploration and production is occurring in the Western United States, particularly in the San Juan Basin of New Mexico, and operators are currently developing plans for gas production in natural gas fields within the area. Many companies are currently developing plans for expansion of their facilities and pipeline transportation capacity. In time, it is likely there may be additional pipelines in the project area to consider, but as of this writing, there are no known plans that would impact the project area.

It is noted that, while not in the vicinity of the project area, MAPL plans to construct WEP II (Colorado/Utah) in 2013 (BLM, 2012c).

This list of past, present, and reasonably foreseeable actions was considered when analyzing cumulative impacts in the individual resource sections.

3.2 Physical Resources

3.2.1 Air Quality, Climate, and Noise

3.2.1.1 Affected Environment

The New Mexico Environment Department's Air Quality Bureau (AQB) administers regulations, standards and implementation plans established under the Federal Clean Air Act under authorization from the EPA for New Mexico with the exception of tribal land, administered by EPA, and Bernalillo County, administered by the City of Albuquerque/Bernalillo County. The New Mexico and National Ambient Air Quality Standards (NMAAQS or NAAQS) are designed to protect public health and welfare and establish maximum acceptable concentrations of air pollutants at all locations to which the public has access. Criteria pollutants for which NMAAQS and NAAQS exist include carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter less than 10 microns in effective diameter (PM_{10}), particulate matter less than 2.5 microns in effective diameter ($PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). Although specific air quality monitoring has not been conducted within the project area, air quality monitoring has been conducted at multiple sites in the counties through which the project area extends.

Albuquerque/Bernalillo County was selected as a central, representative locale to obtain monitored data for the project area. Air pollutant concentrations of carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter less than 10 microns in effective diameter (PM_{10}), and particulate matter less than 2.5 microns in effective diameter ($PM_{2.5}$) monitored in Bernalillo County and sulfur dioxide (SO_2) monitored in nearby San Juan county are provided in Table 3.2-1. All portions of San Juan, Rio Arriba, Sandoval, McKinley, Santa Fe, Torrance, Guadalupe, Lincoln, De Baca, Chaves, and Lea Counties are designated as "attainment" by the AQB and EPA for all criteria pollutants indicating that all ambient air quality standards are currently being met. Bernalillo County is also designated as attainment for all criteria pollutants.

Table 3.2-1
Regional Monitored Air Quality Concentrations

Pollutant	Averaging Period	Monitored Concentration	NMAAQS/NAAQS
CO[1]	1-hour 8-hour	3.4 ppm 2.6 ppm	13.1 / 35 ppm 8.7 / 9 ppm
NO_2[2]	1-hour	53 ppb	100 ppb
PM_{10}[3]	24-hour	102 µg/m^3	150 µg/m^3
$PM_{2.5}$[4]	24-hour Annual	18 µg/m^3 5.2 µg/m^3	35 µg/m^3 12 µg/m^3
Ozone[5]	8-hour	0.065 ppm	0.075 ppm
SO_2[6]	1-hour 24-hour	14 ppb 2 ppb	75 ppb 140 ppb

[1] 1-hour and 8-hour second maximum concentration, 2010. 201 Prosperity SW, Bernalillo County.
[2] 1-hour 98th percentile concentration, 2010. 4700a San Mateo NE, Bernalillo County.
[3] 24-hour second maximum concentration, 2010. 3700 Singer, Albuquerque.
[4] 24-hour 98th percentile and annual mean concentrations, 2010. 6000 Anderson Avenue SE, Bernalillo County.
[5] 8-hour 4th maximum concentration, 2010. 201 Prosperity SW, Bernalillo County.
[6] 1-hour 99th percentile and 24-hour second maximum concentrations, 2010. US Bureau of Reclamation Shiprock Station, San Juan County.

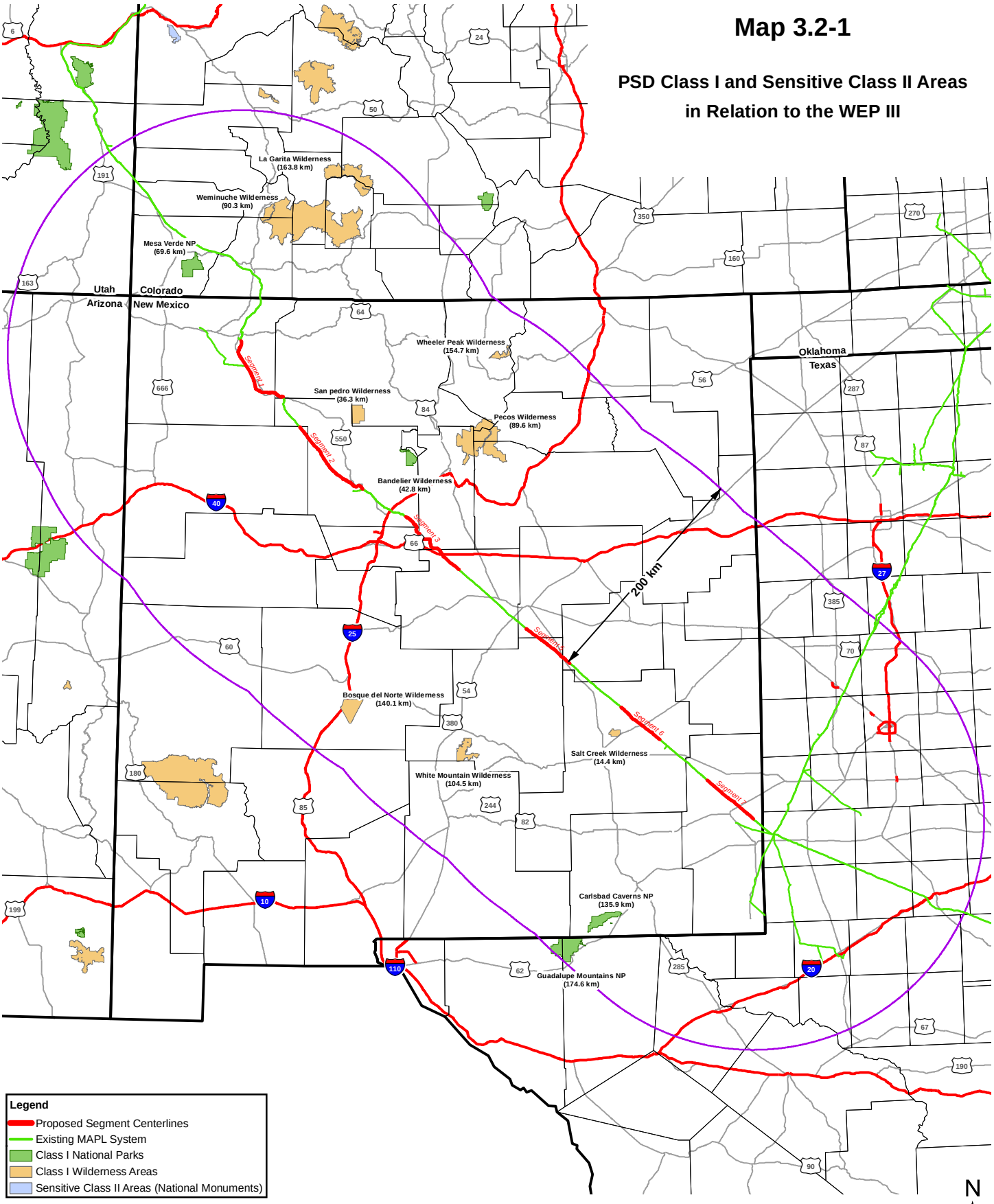
Federal air quality regulations adopted and enforced by the AQB and EPA limit incremental concentration increases to specific levels defined by the classification of air quality in a specific area. The Prevention of Significant Deterioration (PSD) Program is designed to limit the incremental increase of specific air pollutant concentrations above a legally defined baseline level. PSD Class I and Class II Increments define that allowed incremental increase. At PSD Class I areas, impacts to air quality related values (AQRVs) such as visibility, atmospheric deposition, aquatic ecosystems, flora, fauna, etc., are also strictly limited; increases allowed in Class II areas are less strict. The Clean Air Act defines Class I areas as certain wilderness areas greater than 5,000 acres, national memorial parks greater than 5,000 acres, national parks greater than 6,000 acres, and international parks that were in existence on or before August 7, 1977. All other areas are classified as Class II areas, except those designated as Class II Wilderness Areas. The project area and surrounding areas are classified as PSD Class II.

The PSD Class I areas (see Map 3.2-1) located closest to the loop pipeline segments are:

- The San Pedro Parks Wilderness is 59.8 kilometers (km) (37.2 miles) from Segment 1 and 36.3 km (22.6 miles) from Segment 2.
- The Bandelier Wilderness is 42.8 km (26.6 miles) from Segment 2, and 44.0 km (27.3 miles) from Segment 3.
- The Salt Creek Wilderness is 67.8 km (42.1 miles) from Segment 5; 14.4 km (8.9 miles) from Segment 6; and 84.9 km (52.8 miles) from Segment 7.

Map 3.2-1

PSD Class I and Sensitive Class II Areas in Relation to the WEP III



No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM

Visibility conditions can be measured as standard visual range (SVR). SVR is the farthest distance at which an observer can just see a black object viewed against the horizon sky; the larger the SVR, the cleaner the air. Continuous visibility-related optical background data, representative of the project area, have been collected at the Bandelier Wilderness Area as part of the Interagency Monitoring of Protected Visual Environments (IMPROVE) program. The average SVR at the Bandelier Wilderness is over 170 kilometers (105.6 miles) (Visibility Information Exchange System - VIEWS, 2012).

Climate. New Mexico is well known for its arid climate. Mean annual temperatures range from 64°F in the extreme southeast to 40 °F or lower in high mountains and valleys of the north. Elevation is the major factor in determining the temperature of any location within the state. During the summer months, individual daytime temperatures quite often exceed 100 °F at elevations below 5,000 feet. The average monthly maximum temperatures during July, the warmest month, range from slightly above 90 °F at lower elevations to the upper 70s at high elevations. The average range between daily high and low temperatures is from 25 to 35 °F. In January, the coldest month, average daytime temperatures range from the middle 50s in the southern and central valleys to the middle 30s in the higher elevations of the north. Temperatures below freezing are common in all sections of New Mexico during the winter. Subzero temperatures are rare in New Mexico except in the mountains. New Mexico's average annual precipitation ranges from less than 10 inches over much of the southern desert and the Rio Grande and San Juan Valleys to more than 20 inches at higher elevations. A wide variation in annual totals is characteristic of arid and semiarid climates.

Noise. Existing noise sources in the vicinity of the proposed loop pipeline segments include turbines and equipment at existing pump stations, wind noise, and traffic noise at rural road crossings and highway crossings.

3.2.1.2 Proposed Action Alternative

3.2.1.2.1 Direct and Indirect Impacts

Under FLPMA and the Clean Air Act, the BLM and BIA cannot conduct or authorize any activity that does not conform to all applicable local, state, tribal or federal air quality laws, statutes, regulations, standards, or implementation plans. As such, significant impacts to air quality from project-related activities would result if it is demonstrated that:

- NAAQS or NMAAQS would be exceeded;
- Class I or Class II PSD increments would be exceeded; or
- AQRVs would be impacted beyond acceptable levels.

Construction of the proposed pipeline would result in intermittent and short-term air pollutant emissions from the operation of diesel-fired heavy construction equipment. Specifically, fugitive dust emissions (PM_{10} and $PM_{2.5}$) and diesel combustion emissions (NO_x, SO_2, CO, VOC, PM_{10}, $PM_{2.5}$) would result from the construction of the pipeline and from travel on unpaved roads. As discussed in the POD, MAPL would use water to control dust on access roads and the construction right-of-way, and would utilize carpooling of workers to and from the work site. These measures would minimize potential fugitive dust emissions. To further minimize fugitive dust emissions, MAPL would limit speeds to 15 mph for vehicles traveling along the construction right-of-way. On access roads, posted speed limits would be followed and where there is no posted speed limit, speeds on access roads would not exceed 30 mph. MAPL would not conduct clearing along the construction right-of-way when winds are in excess of 35 mph. MAPL would obtain any required fugitive dust permits from AQB, EPA, and/or Bernalillo County.

Increased levels of air emissions would be caused by the Proposed Action; however, potential impacts would be temporary at any single location. Total annual emissions associated with construction of the Proposed Action are shown in Table 3.2-2 and reflect activities occurring along the entire 233.7 miles of the six loop pipeline segments over the 274-day construction period. Emissions along a single mile would be less than the project-wide total. Daily project emissions representing a single day of construction at one locale are provided in Table 3.2-3.

Table 3.2-2
Total Project Annual Air Pollutant Emissions (tpy)

Activity	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC
Pipeline Construction Fugitive Dust	25.16	2.39	--	--	--	--
Wind Erosion of Disturbed Areas	0.68	0.06	--	--	--	--
Construction Traffic	172.77	17.62	9.59	23.65	0.04	2.14
Construction Heavy Equipment	0.53	0.53	9.17	6.53	0.23	0.71
Total Emissions	199.14	20.60	18.76	30.17	0.27	2.85

Table 3.2-3
Project Daily Air Pollutant Emissions (tpd)

Activity	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC
Pipeline Construction Fugitive Dust	0.0918	0.0087	--	--	--	--
Wind Erosion of Disturbed Areas	0.0025	0.0002	--	--	--	--
Construction Traffic	0.6305	0.0643	0.0350	0.0863	0.0002	0.0078
Construction Heavy Equipment	0.0019	0.0019	0.0335	0.0238	0.0008	0.0026
Total Emissions	0.727	0.075	0.068	0.110	0.001	0.010

These emissions would not be expected to cause or substantially contribute to a violation of any applicable ambient air quality standard at a single location, and the Proposed Action would be expected to comply with all applicable PSD increments. The transient or assembly-line nature of construction activities occurring along the pipeline segments would minimize annual impacts. The contribution from project source emissions to ambient air concentrations and AQRVs, including regional haze and atmospheric deposition at the distant PSD Class I areas shown on Map 3.2-1, would be expected to be negligible.

All NEPA analysis comparisons to PSD Class I and II increments are intended to evaluate a threshold of concern, and do not represent a regulatory PSD increment consumption analysis. The determination of PSD increment consumption is an air quality regulatory agency responsibility. Such an analysis would be conducted as part of the New Source Review process for a major source, as would an evaluation of potential impacts to AQRVs such as visibility, aquatic ecosystems, flora, fauna, etc., performed under the direction of the AQB in consultation with federal land managers.

During operation of the pipeline, in the event of a rupture/failure, there would be no effect to ambient air quality standards or air toxics threshold values. As provided in Section 2.2.10, MAPL would utilize the block valves to isolate the failure and shut down the flow of NGLs. Given that the components of the NGLs are flammable, they could pose a safety hazard should there be an ignition source nearby until they dissipate into the atmosphere.

Climate. An emissions inventory of greenhouse gases (GHGs) CO_2, CH_4, and nitrous oxide (N_2O) was prepared. The GHG inventory is presented here for informational purposes and is

compared to New Mexico GHG emission inventory data in order to provide context for the proposed Project GHG emissions.

Emissions of the greenhouse gases CO_2, CH_4, and N_2O from new and existing sources are quantified in terms of CO_2 equivalents (CO_2e). Measuring emissions in terms of CO_2e allows for the comparison of emissions from different greenhouse gases based on their Global Warming Potential (GWP). GWP is defined as the cumulative radiative forcing of a gas over a specified time horizon relative to a reference gas resulting from the emission of a unit mass of gas. The reference gas is taken to be CO_2. The CO_2e emissions for a greenhouse gas are derived by multiplying the emissions of the gas by the associated GWP. The GWPs for the inventoried greenhouse gases are CO_2:1, CH_4:21, N_2O:310 (EPA, 2009).

Greenhouse gas emissions for construction under the Proposed Action are calculated to be 41,051 metric tons (0.041 million metric tons). GHG emissions in the State of New Mexico total 76.2 million metric tons (NMED, 2007); therefore, project emissions would comprise approximately 0.054 percent of total State GHG emissions. No effects to climate would be expected from construction of the Proposed Action.

Noise. Noise associated with the Proposed Action would include heavy equipment operating within the construction right-of-way and increased traffic along access roads. Noise impacts would be short-term (9-month construction schedule), temporary at any one location, and changing as the loop pipeline segments would be installed in assembly-line fashion. Most of the Proposed Action would be located in rural, unpopulated areas, resulting in minimal or unnoticeable noise impacts to the public. At the closest point, one location along Segment 3 would be approximately 125 feet from the nearest home, which is currently unoccupied; there, construction noise could be heard but would be temporary.

Protective Design Features

No measures have been identified to further reduce impacts to air quality and climate.

3.2.1.2.2 Cumulative Impacts

Cumulative air quality impacts are defined as incremental impacts from any one alternative combined with impacts from other existing or proposed air emission sources in the region. Given that project source emissions would be short-term and localized during construction and that the maximum impacts would likely occur immediately adjacent to the project area, the Proposed Action would not be expected to contribute significantly to any violations of the NMAAQS or NAAQS when added to the past, present, and reasonably foreseeable actions (i.e., grazing, oil and gas development, and recreation). In addition to potential contribution to cumulative AQRV, impacts (including regional haze and atmospheric deposition) at the distant Class I and sensitive Class II areas would likely be negligible.

3.2.1.3 No Action Alternative

3.2.1.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to air quality or climate associated with the Proposed Action would not be caused because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the increased NGL production, diesel combustion emissions would increase and possibly fugitive dust emissions (if travel were to occur on unpaved roads.)

3.2.1.3.2 Cumulative Impacts

Cumulative impacts would depend on the means of transport, the routes that would be used, and the air quality status of the areas the routes would traverse. Effects are not quantifiable in a meaningful way for purposes of this analysis.

3.2.2 Geologic Resources

3.2.2.1 Affected Environment

General Physiography and Geology. The project area includes a variety of physiographic provinces and landscapes. In general, relief within each individual segment is low to moderate with limited areas of steeper slopes in some areas. The project includes areas of unconsolidated Quaternary deposits and near-surface or exposed Pennsylvanian, Permian, Late Triassic, Jurassic, Cretaceous and Tertiary age sedimentary bedrock. Older near-surface and exposed bedrock occurs in some areas as well.

Geologic Hazards

Faults and Earthquakes. Seismic activity in New Mexico is generally concentrated along the Rio Grande Rift, which represents a zone of crustal extension that extends from south of Las Cruces northward into southern Colorado. In spite of the presence of numerous fault zones and large boundary faults present within and along the margins of the Rift, earthquakes are not common along most of the Rift's length (Sanford et al., 2002). The Rio Grande Rift faults and fault zones date from late Pliocene to late Quaternary. The Tijeras Canyon shear zone developed in the Precambrian, and evidence suggests motion has occurred on this fault system as late as Holocene (Lisenbee et al., 1979). A small earthquake was recorded near Tijeras in 1947 (Kelley and Northrop, 1975).

Small quakes (magnitude 3.5 or less) have been recorded near Raton in northern New Mexico and in other parts of the rift. Some more substantial quakes have been recorded in the segment of the Rift between Albuquerque and Socorro. These quakes are associated with the Socorro Seismic Anomaly (SSA) and a shallowly intruding magma body (Sanford et al., 2002) and are approximately 80 miles from the nearest proposed segment. An earthquake of approximate magnitude 4.5 was recorded near Vaughn (near Segment 5) in 1949, but there has been no recorded activity since then (Sanford et al., 2002, 2006). A swarm of earthquakes was observed beginning in 1998 northwest of Carlsbad in the Delaware Basin (Sanford et al., 2006). This swarm is hypothesized to be related to petroleum production in the nearby Dagger Draw oil field, which is more than 50 miles southwest of the Proposed Action. Seismic risks for New Mexico are generally moderate to low.

Soil liquefaction is a phenomenon often associated with earthquake activity. When seismic waves pass through water-saturated sands and silts, these materials can behave as a fluid. The potential for soil liquefaction in the project area is low. Saturated surface materials are not common in the project area, with the exception of the Rio Grande valley.

Landslides. Landslides are not considered to be a substantial hazard in much of New Mexico, but rather a persistent issue along mountain highways where steep sides produce primarily rock falls (Haneberg, 1992). There is evidence of past slope instability throughout the state that is usually related to rockfalls and topples near steep cliffs and small landslide features where soft sediments or sedimentary rocks underlie a more resistant caprock (Haneberg, 1992).

Karst topography. Karst topography refers to a landscape with irregular topography, including sinkholes, underground streams, springs and cavern systems formed as limestone, dolomite and gypsum dissolve in the subsurface. Much of southeastern New Mexico is characterized by karst topography, a result of the dissolution of Permian limestone, dolomite and gypsum (Kelley, 1971; Summers, 1972). The San Andres Formation forms the dip-slope of the eastern Sacramento Mountains and is underlain by the Yeso Formation, which contains abundant limestone, dolomite and gypsum (Kelley, 1971). Older units underlying the Yeso Formation also locally contain gypsum and limestone that can contribute to development of karst topography in the region (Summers, 1972). The uppermost member of the San Andres Formation, the

Fourmile Draw Member, also contains abundant gypsum locally and can contribute to small scale karst features where this unit is preserved (Kelley, 1971).

Abandoned Underground Mining. The project area includes the Fruitland Hogback coal field and the La Ventuana-Chacra Mesa coal field. These coal fields have a broad geographic extent, but mining has tended to occur in local, relatively small seams, such that there are not substantial underground mining operations (Kottlowski, 1965). Small-scale coal mining has occurred near Madrid, but these mining endeavors were for local use and did not produce substantial underground coal mining operations (Kottlowski, 1965).

3.2.2.2 Proposed Action Alternative

3.2.2.2.1 Direct and Indirect Impacts

Direct and indirect effects related to geological hazards from implementation of the Proposed Action are likely to be from those natural conditions and events that would affect the pipeline. There is less likelihood that the project would have an effect on geological hazard conditions. The project could increase the potential for a hazardous event, such as a landslide or sinkhole development, resulting from rock and/or soil excavations or surface activity by heavy equipment in high risk area.

Segments 1, 5, 6, and 7 do not cross major fault zones. The southeastern end of Segment 2 crosses major fault zones associated with the Sierra Nacimiento uplift and the western margin of the Rio Grande Rift. Faults exposed in the Sierra Nacimiento are Laramide in age (Late Cretaceous to Tertiary) (Woodward et al., 1992). Segment 3 crosses several fault zones related to both the eastern margin of the Rio Grande Rift and the Tijeras Canyon shear zone.

The highest seismic hazard in the project area is in the areas associated with the southeastern portion of Segment 2 and the northwestern portion of Segment 3, both of which lie within the bounding fault zones of the Rio Grande Rift. Peak ground acceleration for this area has been estimated to be around 0.08 g, which would produce a Modified Mercali Intensity VI effect; the probability of the occurrence of an earthquake of M7.0 is approximately 1:10,000 (von Hake, 1975; Wong et al., 2004).

Karst topography may create a risk for ground subsidence, sinkhole collapse, and groundwater contamination in the event of pipeline failure. Segments 5, 6, and 7 would cross through areas underlain by carbonates and evaporites pertaining to the Permian Yeso and San Andres Formations. Based on the current conditions of the existing pipelines within the right-of-way, construction and operation of the proposed segments are not expected to affect karst topography. However, given the prevalence of karst topography in southeastern New Mexico, and in compliance with the Federal Cave Resources Protection Act of 1988, care would be taken to be alert for surface expressions of potential subsurface features. The same level of care would be taken on all segments in which karst topography is or may be encountered.

A review of landslide hazard maps, produced by Cardinali et al (1990), indicates minor rockfall and/or landslide risk associated with Segments 2 and 3, especially where the segments are near steeper topography such as White Mesa near San Ysidro (southernmost portion of Segment 2). There have been no landslide or geotechnical issues with the existing pipeline, which Segment 2 would parallel; therefore, no effects are expected from the Proposed Action.

The proposed loop pipeline segments would not be near known abandoned underground mining. Segments 1 and 2 would cross through the Fruitland Hogback coal field and the La Ventana-Chacra Mesa coal field, and small-scale coal mining has occurred near Segment 3 near Madrid. The proposed loop pipeline segments would not impact any abandoned mines.

Protective Design Features

The following measure has been identified to protect geologic resources.

- Reporting immediately any cave or karst feature, such as a deep sinkhole, discovered during construction or operation on BLM-managed lands to the AO. An evaluation of the discovery will be made by the AO to determine appropriate action(s). Any decision as to further mitigation measures will be made by the AO after consulting with MAPL.

3.2.2.2.2 Cumulative Impacts

The loop pipeline segments would be restored to pre-existing contours following construction. The cumulative impacts resulting from the Proposed Action in addition to the continued operation of existing pipelines would be minor. There may be areas that would require post construction maintenance/repair in order to restore surface drainage patterns or repair roads; however, with the protective measures that would be implemented by the existing operators, including MAPL, the overall impacts are expected to be localized and minor.

3.2.2.3 No Action Alternative

3.2.2.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to geologic resources associated with the Proposed Action would not be caused because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to geologic resources would not be expected.

3.2.2.3.2 Cumulative Impacts

None would be anticipated.

3.2.3 Mineral Resources

3.2.3.1 Affected Environment

Oil and Gas. The project area includes a portion of the San Juan Basin, which is one of the largest oil and gas fields in New Mexico. Production in the San Juan Basin occurs in the Cretaceous sedimentary strata with minor production from Pennsylvanian strata (Arnold, 1965). Development of oil shales in the Cretaceous Mancos Shale is currently underway in the northeastern San Juan Basin. The project area also includes a portion of the western Permian Basin, one of the most active oil and gas fields in the nation, with production occurring in Paleozoic sedimentary rocks (Montgomery, 1965). Both of these regions are still being actively exploited for oil and gas reserves.

Coal Bed Methane. The northern portion of the project area coincides with the Fruitland coal beds that are currently producing coal bed methane (Ayers and Kaiser, 1994). The northern San Juan Basin is among the most active areas in coal bed methane development and production (Ayers and Kaiser, 1994). There are numerous smaller coal beds that also occur in this area, but these have not been identified as production-grade for coal bed methane.

Coal. The primary coal-bearing units in New Mexico are the Upper Cretaceous Mesaverde Group and minor Tertiary age units (Kottlowski, 1965; Beaumont, 1979). The Fruitland Hogback and La Ventana-Chacra Mesa fields both include widely distributed coal reserves (Hoffman, 1996), but these generally occur as relatively thin deposits in the vicinity of the loop pipeline segments. As with coal bed methane resources, the thicker and, therefore, more productive coal beds occur to the northeast, closer to the Colorado border (Ayers and Kaiser, 1994). The Cerrillos field is much smaller than the San Juan Basin fields and was used only at a local level for heating and blacksmithing. The Cerrillos Field was mined from 1888 to 1957

and 45,000 tons of coal were produced annually during this time. The field was closed in 1957 due to higher freight costs, mining difficulties and competition with the newly emerging resources of natural gas and fuel oil (Kottlowski, 1965; Beaumont, 1979).

Metallic Minerals. Segments 1 and 2 are located northeast of the Ambrosia Lake and Laguna uranium districts, which have produced significant quantities of uranium from Jurassic and Cretaceous strata (Hilpert, 1965). These segments are located in areas of low uranium potential (McLemore et al., 1986). Segment 3 is located southwest of the Ortiz Mountains, which have produced a notable quantity of gold and silver related to the emplacement of young igneous intrusive rocks. The Ortiz Mountains include several mines and the area is well known for gold, silver and copper resources. In fact, the region is known as the Old Placer district (or the Ortiz or Dolores districts) and is one of the oldest in the western United States (Bergendahl, 1965; Maynard, 1991, 1995, 2000; Milford, 1995). None of the other segments are located near metallic mineral deposits.

Sand and Gravel. The project cuts through the Rio Grande Valley, which contains abundant sand and gravel resources (Connell and Love, 2001) and the Pecos River Valley, which is also an important source of sand and gravel deposits (Lovelace, 1972b). The Llano Estacado, which is capped locally by Ogallala Formation caliche deposits, which are often mined for road aggregate (Carter, 1965; Lovelace, 1972a, b), coincides with the project area.

3.2.3.2 Proposed Action Alternative

3.2.3.2.1 Direct and Indirect Impacts

Oil and Gas. Segment 1 and the northern part of Segment 2 would pass through the San Juan Basin and Segments 6 and 7 would pass through the western Permian Basin. Construction could temporarily disrupt access to well sites by oil and gas field service vehicles. MAPL proposes to communicate with operators to ensure that any disruption is minimal and short-term. Operation would likely not interfere with existing operations because WEP III would parallel an existing pipeline. The Proposed Action would not interfere with future oil and gas operations because of flexibility in locating well pads and supporting infrastructure.

Coal Bed Methane. Segment 1 would cross 50 miles southwest of the Fruitland coal beds. No effects to coal bed methane operations are expected based on the location of the Proposed Action in relation to known, production-grade coal beds. As with conventional gas wells, there is flexibility in locating coal bed methane wells; thus, the Proposed Action would not preclude future coal bed methane extraction along the pipeline segments.

Coal. Segments 1, 2, and 3 would be located near known coal fields, including the Farmington Hogback, La Ventana-Chacra Mesa and Cerrillos fields; however, the Proposed Action would not coincide with any active coal mines. The proposed segments would not interfere with active surface or underground coal mines as none are located in the immediate vicinity.

Metallic Minerals. Segments 1 and 2 would be the closest segments to but do not coincide with the Ambrosia Lake and Laguna uranium districts. Segment 3 would be closest to but does not coincide with mining in the Ortiz Mountains. No effects to metallic mineral mining would be expected based on the location of the Proposed Action in relation to active mining areas. There is flexibility in locating surface facilities, and mining takes place well below the pipeline trench depth; therefore, the Proposed Action should not preclude future mining activities. None of the other segments would be located near metallic mineral deposits.

Sand and Gravel. Because the loop pipeline segments would parallel and overlap existing pipeline rights-of-way, any active sand and gravel operations in proximity to the Proposed Action would continue under the same limitations they operate under for the existing pipeline right-of-way.

Protective Design Features

No measures have been identified to reduce impacts to mineral resources.

3.2.3.2.2 Cumulative Impacts

The cumulative impacts resulting from the Proposed Action combined with continued operation of the existing pipeline rights-of-way would be minor except in areas where active mineral activity is occurring. There may be areas that would require site-specific actions to avoid or reduce impacts from other mineral activity, well pads, pipelines, etc.; however, the overall impacts would be expected to be localized and minor. Other development activities may result in localized impacts to mineral resource and impacts would be expected to be minor. Although unquantifiable, cumulative effects could occur due to the increased production of NGLs upstream from the Proposed Action and consumption of NGLs downstream from the Proposed Action.

3.2.3.3 No Action Alternative

3.2.3.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to mineral resources associated with the Proposed Action would not be caused because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to mineral resources would not be expected.

3.2.3.3.2 Cumulative Impacts

None would be expected.

3.2.4 Soils

3.2.4.1 Affected Environment

Soils in the project area were identified and described using the U.S. Department of Agriculture (USDA) Soil Survey Geographic (SSURGO) reports and published Soil Surveys for San Juan, Rio Arriba, Sandoval, McKinley, Bernalillo, Santa Fe, Torrance, Guadalupe, Lincoln, De Baca, Chaves, and Lea Counties. The SSURGO spatial data was reviewed in ARCMAP GIS, using U.S. Geological Survey (USGS) topographic quads and aerial photographs. The soil mapping unit descriptions were evaluated so that the detailed SSURGO soil mapping units could be accurately grouped by similar landform setting and characteristics. The general soil groups incorporated a number of detailed SSURGO soil mapping units composed of one or several soil series (soil complexes or associations). Each soil series is a unique, natural landscape with a distinctive pattern of soils, relief, and drainage.

Table 3.2-4 provides the total crossing length of the general soil groups by loop pipeline segment, county, and BLM field office and includes the miles of each sensitive soil group crossed within these general soil groups. To provide the highest level of detail in quantifying the soil properties and impacts, the analysis was based on the sensitive characteristics of the individual SSURGO soil mapping units crossed within each of the general soil groups.

Appendix D provides descriptions of the soil groups within the project area for each loop pipeline segment by BLM field office and by county.

Table 3.2-4
Soil Types and Limiting Soil Characteristics

Total Crossing Length (miles)	General Soil Group [1]	Sensitive Soil Groups and Estimated Crossing in Miles[1]										
		Erosion from										
		Water [2]	Wind [3]	Steep Slopes [4]	Large Stones [5]	Restrictive Layer [6]	Saline/sodic [7]	Soil Compaction [8]	Reclamation Sensitivity [9]	Flooding*Ponding [10]	Hydric Soils [11]	Prime Farmland [12]
BLM Farmington Field Office – Segment 1 (San Juan County)												
11.36	Soils on Drainageways, Floodplains, Stream Terraces, and Depressions	9.83	0.00	0.00	0.00	0.00	0.05	11.03	11.06	0.24	0.00	0.95
1.69	Soils on Dunes	0.00	1.69	0.00	0.00	0.00	0.00	0.00	1.69	0.00	0.00	0.00
21.81	Soils on Alluvial Fans, Fan Remnants, Piedmonts, Terraces	0.00	0.00	0.00	0.00	0.00	0.00	21.71	21.71	0.00	0.00	0.00
2.78	Soils on Breaks, Escarpments	0.00	0.00	2.78	0.00	2.78	0.00	2.78	2.78	0.00	0.00	0.00
2.91	Soils on Uplands: Hills, Mesas, Plateaus, Ridges	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.91	0.00	0.00	0.00 (2.91[13])
40.55	**Total**	**9.83**	**1.69**	**2.78**	**0.00**	**2.78**	**0.05**	**35.52**	**40.15**	**0.24**	**0.00**	**0.95 (2.91[13])**
BLM Farmington Field Office – Segment 1 (Rio Arriba County)												
3.12	Soils on Drainageways, Floodplains, Stream Terraces, and Depressions	0.00	0.00	0.00	0.00	0.00	3.12	3.12	3.12	0.00	0.00	0.00
0.40	Soils on Dunes	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.63	Soils on Breaks, Escarpments	0.00	0.00	0.00	0.00	1.63	0.00	1.63	0.00	0.00	0.00	0.00
5.15	**Total**	**0.00**	**0.04**	**0.00**	**0.00**	**1.63**	**3.12**	**4.75**	**3.12**	**0.00**	**0.00**	**0.00**
BLM Farmington Field Office – Segment 2 (McKinley County)												
5.86	Soils on Drainageways, Floodplains, Stream Terraces, and Depressions	0.00	0.00	0.00	0.00	0.00	5.91	5.91	5.91	0.00	0.00	0.00
0.78	Soils on Alluvial Fans, Fan Remnants, Piedmonts, Terraces	0.00	0.00	0.00	0.00	0.00	0.72	0.78	0.00	0.72	0.00	0.00 (0.72[13])
0.69	Soils on Hills and Ridges	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.00	0.00	0.00	0.00
7.33	**Total**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**6.63**	**7.38**	**5.91**	**0.72**	**0.00**	**0.00 (0.72[13])**
BLM Rio Puerco Field Office – Segment 2 (Sandoval County)												
6.09	Soils on Drainageways, Floodplains, Stream Terraces, and Depressions	0.00	0.00	0.00	0.00	0.00	2.99	6.09	2.22	0.51	0.00	0.00
6.93	Soils on Alluvial Fans, Fan Remnants, Piedmonts, Terraces	0.00	0.00	0.00	0.00	0.35	1.04	5.78	0.00	0.00	0.00	(1.04[13])
4.42	Soils on Dunes	0.00	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Total Crossing Length (miles)	General Soil Group [1]	Sensitive Soil Groups and Estimated Crossing in Miles[1]										
		Erosion from										
		Water [2]	Wind [3]	Steep Slopes [4]	Large Stones [5]	Restrictive Layer [6]	Saline/sodic [7]	Soil Compaction [8]	Reclamation Sensitivity [9]	Flooding*Ponding [10]	Hydric Soils [11]	Prime Farmland [12]
6.26	Soils on Breaks, Escarpments	0.14	0.00	3.10	0.00	5.40	2.96	0.00	5.40	0.85	0.00	0.00
8.39	Soils on Uplands: Hills, Mesas, Plateaus, Ridges	0.14	0.00	3.10	0.00	5.40	2.96	0.00	5.40	0.85	0.00	0.00
11.43	Soils on Hills and Ridges	0.00	0.00	0.00	0.00	11.45	3.58	4.25	7.87	0.00	0.00	0.00
43.52	**Total**	**0.28**	**4.42**	**6.20**	**0.00**	**22.60**	**13.53**	**16.12**	**20.89**	**2.21**	**0.00**	**(1.04[13])**
BLM Rio Puerco Field Office – Segment 3 (Sandoval County)												
7.39	Soils on Alluvial Fans, Fan Remnants, Piedmonts, Terraces	0.00	0.00	0.00	0.00	0.00	0.00	7.31	0.00	0.00	0.00	0.00
0.50	Soils on Breaks, Escarpments	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00
1.03	Soils on Uplands: Hills, Mesas, Plateaus, Ridges	0.00	0.00	1.03	0.00	0.00	0.00	1.03	0.00	0.00	0.00	0.00
0.07	Soils on Hills and Ridges	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
8.99	**Total**	**0.00**	**0.00**	**1.03**	**0.00**	**0.07**	**0.50**	**8.34**	**0.00**	**0.00**	**0.00**	**0.00**
BLM Rio Puerco Field Office – Segment 3 (Bernalillo County)												
1.11	Soils on Alluvial Fans, Fan Remnants, Piedmonts, Terraces	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.00	0.00	0.00	0.00
3.40	Soils on Hills and Ridges	2.03	0.00	2.03	0.00	2.25	0.00	1.38	2.03	0.00	0.00	0.00
4.51	**Total**	**2.03**	**0.00**	**2.03**	**0.00**	**2.25**	**0.00**	**2.49**	**2.03**	**0.00**	**0.00**	**0.00**
BLM Rio Puerco Field Office – Segment 3 (Torrance County)												
4.29	Soils on Drainageways, Floodplains, Stream Terraces, and Depressions	0.00	1.40	0.00	0.00	0.00	0.49	2.40	0.00	2.30	0.00	1.44 (1.82[13])
9.55	Soils on Alluvial Fans, Fan Remnants, Piedmonts, Terraces	0.00	0.00	0.00	0.00	0.00	0.00	6.56	0.00	0.00	0.00	3.74 (2.70[13])
2.32	Soils on Hills and Ridges	0.00	0.00	0.00	0.00	0.43	0.00	2.32	0.00	0.00	0.00	0.00
0.13	Soils on Playas	0.00	0.00	0.13	0.00	0.00	0.13	0.13	0.13	0.13*	0.13	0.00
16.29	**Total**	**0.00**	**1.40**	**0.13**	**0.00**	**0.43**	**0.62**	**11.41**	**0.13**	**2.43**	**0.13**	**5.18 (4.52[13])**
BLM Taos Field Office – Segment 3 (Santa Fe County) (The Proposed Action affects only private lands within the Taos Field Office boundary.)												
2.12	Soils on Drainageways, Floodplains, Stream Terraces, and Depressions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12	0.00	0.00
14.98	Soils on Alluvial Fans, Fan Remnants, Piedmonts, Terraces	0.00	0.00	0.00	0.00	0.00	0.00	2.69	0.00	0.00	0.00	0.00
17.10	**Total**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.69**	**0.00**	**2.12**	**0.00**	**0.00**
BLM Roswell Field Office – Segment 5 (Guadalupe County)												

Total Crossing Length (miles)	General Soil Group [1]	Sensitive Soil Groups and Estimated Crossing in Miles[1]										
		Erosion from										
		Water [2]	Wind [3]	Steep Slopes [4]	Large Stones [5]	Restrictive Layer [6]	Saline/sodic [7]	Soil Compaction [8]	Reclamation Sensitivity [9]	Flooding*Ponding [10]	Hydric Soils [11]	Prime Farmland [12]
0.18	Soils on Alluvial Fans, Fan Remnants, Piedmonts, Terraces	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00
7.60	Soils on Uplands: Hills, Mesas, Plateaus, Ridges	0.00	0.00	0.00	0.00	6.25	0.00	7.60	0.21	0.00	0.00	0.00
0.50	Soils on Hills and Ridges	0.00	0.00	0.00	0.50	0.50	0.00	0.50	0.00	0.00	0.00	0.00
8.28	**Total**	**0.00**	**0.00**	**0.00**	**0.50**	**6.75**	**0.00**	**8.28**	**0.21**	**0.00**	**0.00**	**0.00**
BLM Roswell Field Office – Segment 5 (Lincoln County)												
0.11	Soils on Drainageways, Floodplains, Stream Terraces, and Depressions	0.00	0.00	0.00	0.00	0.00	0.11	0.11	0.11	0.00	0.00	0.00
12.50	Soils on Plains	0.00	0.00	0.00	0.00	12.51	0.00	12.51	0.00	0.00	0.00	0.00
0.27	Soils on Uplands: Hills, Mesas, Plateaus, Ridges	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.27	0.00	0.00	0.00
4.02	Soils on Hills and Ridges	0.00	0.00	0.00	0.00	0.61	0.00	4.02	0.00	0.00	0.00	0.00
16.90	**Total**	**0.00**	**0.00**	**0.00**	**0.00**	**13.39**	**0.11**	**16.64**	**0.38**	**0.00**	**0.00**	**0.00**
BLM Roswell Field Office – Segment 5 (De Baca County)												
4.11	Soils on Uplands: Hills, Mesas, Plateaus, Ridges	0.00	0.00	0.00	0.00	4.12	0.00	4.12	4.12	0.00	0.00	0.00
0.92	Soils on Hills and Ridges	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.00	0.00	0.00	0.00
5.03	**Total**	**0.00**	**0.00**	**0.00**	**0.00**	**4.12**	**0.00**	**5.04**	**4.12**	**0.00**	**0.00**	**0.00**
BLM Roswell Field Office – Segment 6 (Chaves County)												
3.77	Soils on Drainageways, Floodplains, Stream Terraces, and Depressions	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00	1.02	1.02	0.00
3.21	Soils on Alluvial Fans, Fan Remnants, Piedmont, Terraces	0.00	1.38	0.00	0.00	0.00	0.00	2.63	0.79	0.00	0.00	0.00
1.13	Soils on Breaks, Escarpments	1.13	0.00	0.00	0.00	1.13	0.00	1.13	1.13	0.00	0.00	0.00
17.84	Soils on Uplands: Hills, Mesas, Plateaus, Ridges	0.00	1.93	0.00	0.00	4.06	0.00	15.99	0.00	0.00	0.00	0.00
1.35	Soils on Hills and Ridges	0.00	0.51	0.00	0.00	0.84	0.00	0.84	0.00	0.00	0.00	0.00
27.30	**Total**	**1.13**	**3.82**	**0.00**	**0.00**	**6.03**	**0.00**	**23.52**	**1.92**	**1.02**	**1.02**	**0.00**
BLM Carlsbad Field Office – Segment 7 (Lea County) (The Proposed Action affects only private lands within the Carlsbad Field Office boundary.)												
27.85	Soils on Plains	0.00	0.00	0.00	0.00	24.18	0.00	27.29	14.22	0.00	0.00	0.00
2.78	Soils on Hills and Ridges	0.00	0.00	0.00	0.00	2.78	0.00	2.78	2.70	0.00	0.00	0.00
2.16	Soils on Playas and Playa Rims	0.00	0.00	0.00	0.00	1.18	0.00	2.16	0.00	0.00	0.00	0.00
32.79	**Total**	**0.00**	**0.00**	**0.00**	**0.00**	**28.14**	**0.00**	**32.23**	**16.92**	**0.00**	**0.00**	**0.00**
233.74	**Grand Total**	**13.27**	**11.37**	**12.17**	**0.50**	**88.19**	**24.56**	**174.41**	**95.78**	**8.74**	**1.15**	**6.13 (9.20[13])**

Total Crossing Length (miles)	General Soil Group [1]	Sensitive Soil Groups and Estimated Crossing in Miles[1]										
		Erosion from										
		Water [2]	Wind [3]	Steep Slopes [4]	Large Stones [5]	Restrictive Layer [6]	Saline/sodic [7]	Soil Compaction [8]	Reclamation Sensitivity [9]	Flooding*Ponding [10]	Hydric Soils [11]	Prime Farmland [12]

[1] General soil group ratings are based on the dominant soil series for the soil map unit, and are grouped by similar landform setting. Inclusions of sensitive soil types may be found within soil map units that do not receive sensitive ratings.
[2] Water Erosion – soils sensitive to water erosion have a Natural Resources Conservation Service (NRCS) rating of high or severe.
[3] Wind Erosion – soils sensitive to wind erosion are in the NRCS wind erodibility groups 1 and 2. Soil textures include very fine sand, fine sand, sand, coarse sand, loamy very fine sand, loamy fine sand, loamy sand, and loamy coarse sand; very fine sandy loam and silt loam with 5 percent or less clay and 25 or less percent very fine sand; and sapric soil materials (as defined in Soil Taxonomy); except Folists.
[4] Steep Slopes – sensitive soils occur in soil map units when slopes are greater than 30 percent.
[5] Large Stones – soils with greater than 25 percent cobbles and/or stones in the soil profile can present problems with surface reclamation. Soil with large quantities of large stones hold less available water for plant growth and generally require broadcast seeding methods.
[6] Restrictive Soils – soils that have a lithic, paralithic, or other restrictive soil layer within 40 inches of the soil surface. These soils have shallow profiles and hold less available water for plant growth.
[7] Saline/Sodic Soils – includes soils with an electrical conductivity of 8 mmhos/cm or greater and/or a Sodium Adsorption Ratio (SAR) of 13 or greater. Saline/sodic soils may require special handling of materials and/or special seed mixes.
[8] Soil Compaction – sensitive soils include those with an NRCS rating of susceptible or very susceptible.
[9] Reclamation Sensitivity – soils having a NRCS rating of low reclamation opportunity.
[10] Flooding – NRCS rating for flooding is either rare, frequent or occasional. Ponding is frequent.
[11] Hydric Soils – at least one major named map unit soil is included on the county hydric soil list.
[12] Soils designated as prime farmland, if irrigated.
[13] Soils not designated prime or unique farmland, but are designated as farmlands of statewide importance.
Source: USDA, 2012.

3.2.4.2 Proposed Action Alternative

3.2.4.2.1 Direct and Indirect Impacts

Construction (i.e., clearing, grading, trenching, movement of heavy equipment, etc.) has the potential to adversely affect soil characteristics and, consequently, the restoration potential of disturbed areas. Potential soil effects include increased soil erosion from the loss/removal of vegetation which exposes soils and soil compaction. Soil compaction from heavy construction equipment traffic has the potential to damage soil structure, which decreases soil porosity and soil infiltration rates and increases runoff and the potential for erosion and offsite sedimentation. Other potential effects include the loss or mixing of topsoil through trenching and grading activities, structural damage to wet soils, and the introduction of large stones or blast rock into the topsoil. Construction would impact soils that are easily eroded and compacted, have steep slopes, have large stones in their profiles, are shallow to a restrictive layer, or are saline and/or sodic. The potential effects can decrease soil productivity and, in turn, decrease reclamation potential. Soil productivity can also be decreased when noxious weeds invade disturbed areas. The invasion of noxious weeds on disturbed areas can occur on all soil types but the potential for weed invasion is typically greater on soils that are difficult to reclaim because of their sensitive or droughty characteristics (low available water content, steep slopes, shallow profiles, coarse textures, saline or sodic characteristics).

Biological Soil Crusts. Surface disturbance would remove or bury Biological Soil Crusts (BSCs) where they occur (much of the area to be disturbed has been previously disturbed during installation of the existing pipelines) and would decrease organism diversity in these areas, which could decrease soil nutrients, soil stability, and organic matter in the soil horizon. Crusts are well adapted to severe growing conditions but poorly adapted to compressional disturbances and/or removal that would occur as a result of the Proposed Action. As areas are reclaimed, it is likely that BSCs would eventually recolonize disturbed areas. Replacement of topsoil and recruitment from adjacent sites would allow BSCs to return to most sites post disturbance. Full recovery of BSCs from disturbance is a slow process, particularly for mosses and lichens. Recovery of pre-disturbance crust thickness can take up to 50 years, and mosses and lichens can take up to 250 years to recover.

Compaction. About 174.41 miles (75 percent) of the Proposed Action would cross soils with high compaction potential. Soil compaction is the process where soil pore space is reduced in size because of physical pressure exerted on the soil surface. Compaction results in soil conditions that reduce infiltration, permeability, and gaseous and nutrient exchange rates of the soil. Physical resistance to root growth is also typical with high soil densities caused from compaction. Soil susceptibility to compaction is dependent on the number of passes of heavy equipment and the moisture content of the soil at the time of construction, with the soils' strength decreasing and the soils' potential for compaction increasing when wet. Unmitigated soil compaction can result in long-term impacts to soil productivity and the potential for increased erosion rates due to increased runoff. Construction would occur when soils would be dry, their strength would be highest, and their susceptibility to compaction would be low.

Reclamation Sensitivity. As shown in Table 3.2-4, construction would affect a total of about 95.78 miles of soils rated as having reclamation sensitivity (41 percent of the total soils affected). Soils in this group may have high or severe erosion potential, steep slopes, shallow soils, are saline and/or sodic, or have coarse soil textures or large rock fragments that minimize the soil's available water content. Reclamation and stabilization of these soils typically require site-specific recontouring, special seedbed preparation, appropriate seeding techniques and seed mixtures, as well as mulch, monitoring, and weed control to ensure success. Site-specific conditions may recommend techniques such as pitting or pocking the soil or the use of mulch to conserve moisture. Topsoil availability may be limited, so shredding of woody vegetation to be

salvaged with topsoil and then redistributed during reclamation may enhance organic matter content and water-holding capabilities of soils with sensitivity. Soils that are difficult to revegetate also tend to be more susceptible to noxious weed infestations.

Restrictive Layer. Soils that are rated as having a restrictive layer are shallow soils that have a lithic, paralithic, or other restrictive soil layer within 60 inches below the soil surface. These soils have thin profiles, restrictive root zones, and hold less available water for plant growth. Shallow soils and hard bedrock can also restrict construction or trenching operations and may require special equipment (rock hammers/saws) or blasting to efficiently excavate well pads or trenches to required design depths. Soils in this group are also included as soils that have reclamation sensitivity. As indicated in Table 3.2-4, construction would affect approximately 88.19 miles of soils that have a restrictive layer (38 percent of the total soils affected).

Saline/sodic soils. Sensitive soils in this group include soils that have an electrical conductivity of 8 micro mhos per centimeter (mmhos/cm) or greater and/or a Sodium Adsorption Ratio (SAR) of 13 or greater. Saline and sodic soils can be difficult to revegetate and generally require specially adapted seed mixes. Per Table 3.2-4, construction would affect about 24.56 miles of saline and sodic soils (11 percent of the total soils affected).

Steep Slopes. Based on the slope ranges of Natural Resources Conversation Service (NRCS) soil mapping units, construction would affect a total of about 12.17 miles (5 percent of the total soils affected) of soil mapping units that have slope ranges which exceed 35 percent. Soils on steep slopes (those exceeding 40 percent) are particularly susceptible to accelerated erosion and slumping when deep road cuts or other surface-disturbing activities take place.

Flooding/Ponding Hazard. As shown in Table 3.2-4, construction would affect about 8.74 miles of soils prone to seasonal flooding hazards or frequent ponding (3 percent of the total soils affected). These soils have an NRCS rating of rare, frequent, or occasional flooding. These soils occur along floodplains, drainageways, and stream terraces with the majority of the potentially flooding occurring during brief to very brief periods during seasonal thunder storms.

Large Stones. Profiled soils likely to be composed of more than 25 percent rock fragments are included as sensitive soils. Soils with large volumes of cobbles or stones can present problems with reclamation because they hold less available water for plant growth, and may require broadcast rather than drill seeding methods when large rocks on the surface prevent drill seeding methods. As indicated in Table 3.2-4, the Proposed Action would only cross 0.50 mile of soils in Guadalupe County (Segment 5) that contain large stones.

High Wind Hazard. Approximately 11.37 miles (5 percent of the total project length) would cross soils that have a high wind erosion hazard because of their fine sand or loamy sand soil textures. These soils have a high potential to generate fugitive dust during site preparation, grading, excavation activities and travel along the construction right-of-way.

Protective Design Features

The following measures would be implemented to minimize impacts to soil resources.

- Implementing the SWMP (see Appendix E to the POD);
- Scheduling construction to avoid periods when soils are saturated and more susceptible to compaction/rutting damage and increased runoff and potential erosion;
- Properly installing and maintaining erosion and sediment control devices in accordance with the SWMP;
- Salvaging 6-inches of topsoil from the trench line and construction right-of-way (working and non-working side unless otherwise directed by BLM or BIA), where available;

- Storing the topsoil on the edge of the construction right-of-way separately from the trench spoil and evenly distributing the topsoil over the areas it was salvaged from prior to seeding;
- Salvaging 12 inches of topsoil and vegetation in wetlands for replacement during restoration (no wetlands would be affected by the Proposed Action);
- Narrowing the construction right-of-way and utilizing equipment mats to minimize soil disturbance in wetlands;
- Regrading/recontouring all disturbed areas back to their approximate original contours during reclamation to restore original drainage patterns;
- Controlling the release of hydrostatic test water to prevent erosion;
- Scarifying or ripping where necessary to loosen/mitigate compacted areas;
- Preparing a roughened seedbed which would hold broadcasted seed, reduce runoff, promote infiltration, and minimize wind and water erosion potential;
- Utilizing appropriate seed mixtures and rates that are adaptable to the habitat/soil conditions disturbed to enhance plant establishment and soil protection (includes appropriate use of certified seed and tested seed, using rates based on Pure Live Seed [PLS], and doubling seeding rates where broadcast seeding occurs);
- Utilizing appropriate seeding methods and techniques (drilling, broadcast, hydroseeding) based on site-specific conditions (includes appropriate calibrated seeding equipment and lightly covering seed as site conditions/equipment allow);
- Seeding during the appropriate seeding window;
- Applying adequate weed free mulch during restoration at a rate to provide a temporary cover to protect disturbed soils and enhance revegetation success; and
- Monitoring restoration efforts and conducting maintenance actions, including weed control, as needed.
- Prohibiting construction or travel on roads during periods when the soil is too wet to adequately support construction equipment. The soil shall be deemed too wet to work if such equipment creates ruts in excess of 6 inches deep. Vegetation clearing and soil segregation activities shall also cease if ruts greater than 6 inches are observed in soils, unless approved by the BLM AO.
- Developing and implementing supplemental restoration measures to reestablish soil productivity if, after construction and reclamation are complete, the BLM determines that monitoring results indicate soil productivity has not been restored to its pre-disturbance condition.
- Addressing immediately after observation erosion features such as rilling, gullying, piping, and mass wasting on the right-of-way or adjacent to the right-of-way as a result of this action by contacting the BLM Realty Specialist and submitting a plan to assure successful soil stabilization with BMPs to address erosion problems.
- Prohibiting side casting of soils off slopes if the material may slide out of the right-of-way. Any side casted soil shall be retrieved for re-contouring during final reclamation.
- Minimizing fugitive dust by controlling traffic speeds on the construction right-of-way and spraying water on all appropriate areas as necessary as determined by MAPL or BLM's AO. Water spraying to control fugitive dust and soil loss maybe necessary on topsoil and spoil piles, the construction right-of-way, temporary use area and access roads.

3.2.4.2.2 Cumulative Impacts

Based on the increased surface disturbance, soil loss from wind and/or erosion could occur if future activities (recreation, oil and gas development, grazing) were to overlap with the project area. With implementation of BMPs for the Proposed Action and assumed BMPs for future activities, cumulative soil impacts should be minimal.

3.2.4.3 No Action Alternative

3.2.4.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to soil resources associated with the Proposed action would not be caused because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to soils would not be expected, assuming travel on paved roads.

3.2.4.3.2 Cumulative Impacts

If trucks were used to transport NGLs and traveled on paved roads, no cumulative impacts would be expected. If unpaved roads were traveled, erosion impacts could result.

3.2.5 Water Resources

3.2.5.1 Affected Environment – Surface Water

The Proposed Action would traverse the Rio Grande Basin (HUC 13020203). The climate of this basin is arid to semiarid; therefore, surface water is limited. Within this basin are several watersheds, including the Blanco Canyon (HUC 14080103), Chaco (HUC 14080106), Upper San Juan (HUC 14080101), Arroyo Chico (HUC 13020205), Jemez (HUC 13020202), Rio Puerco (HUC 13020204), Rio Granda-Santa Fe (HUC 13020201), Western Estancia (HUC 13050001), Upper Pecos (HUC 13060003), Long Arroyo (HUC 13060007) and Monument-Seminole Draws (HUC 12080003). The Pecos River in Chavez County is the only perennial stream crossed by the Proposed Action.

Every two years the New Mexico Environment Department (NMED), Surface Water Quality Bureau conducts analyses to determine whether water quality is sufficient to meet the designated uses assigned to New Mexico waters. To meet the requirements under the Clean Water Act, these analyses are compiled into a summary report called the State of New Mexico Integrated Report (IR), which is submitted biannually to the EPA for approval. This report provides a summary of the overall condition and significant water quality threats to the designated uses of New Mexico's waters (305(b) Report) and a list of impaired waters that fail to meet the water quality standards (303(d) Report). The current EPA approved IR for New Mexico is for 2012-2014. The designated uses include fish culture, public water supply, industrial water supply, domestic water supply, irrigation, primary and secondary contact (including cultural, religious or ceremonial purposes), livestock watering, wildlife habitat, and aquatic life.

Temperature, nutrient/eutrophication, and E. coli are the three major causes of river and stream water quality impairments in New Mexico. The majority of surface water quality impairments identified in New Mexico are due to nonpoint sources of water pollution. The probable sources are diverse, but include: agricultural activities, grazing by wild and domestic animals, construction, habitat and flow alterations, industrial and municipal discharges, waste disposal, stormwater run-off, recreation, resource extraction, silviculture, spills, unpermitted discharges, and atmospheric deposition (NMED, 2012).

Ecosphere conducted a wetland and waterbody survey of the project area during August and September 2011 and April through October 2012. Ecosphere identified 124 waterbodies that would be crossed by the Proposed Action. Nearly all the streams that would be crossed are intermittent or ephemeral or washes that primarily carry water during storm events in snowmelt periods. The majority of the waterbody crossings identified were in Segment 1 (47 crossings) and Segment 2 (43 crossings), and of the total 124 crossings, 107 have an ephemeral flow regime. Towards the southern end of Segment 2, 15 intermittent streams were identified where snowmelt from the Jemez Mountains east of Cuba, New Mexico supplemented surface and groundwater flow from large storm events; they include Rio Salado, Rio Puerco, and Cucho Arroyo. The Pecos River, crossed by Segment 6, would be crossed using a horizontal directional drill (HDD). Additionally, three other waterbodies would be crossed by HDD: Kutz Wash (MP 413.34); the Navajo Irrigation Canal (MP 411.10); and the Rio Puerco River (MP 320.20). All other streams would be open cut. Table C-4 in Appendix C provides a list of waterbodies by county and by milepost that would be crossed, as well as the crossing method. A summary by segment is provided below.

BLM Farmington Field Office (Segment 1)

The ultimate receiving water for the 47 waterbodies that would be crossed by Segment 1 is the Colorado River via the San Juan River, which is approximately 2.5 miles north of the beginning of Segment 1. All drainages are ephemeral except for the Navajo Irrigation Canal that transports water from the Navajo Reservoir to the Navajo Agricultural Products Industry. This waterbody will be crossed using HDD. The San Juan River, north of Segment 1 (segment Animas River to Canyon Largo), is listed as impaired on the current 303(d) list for sedimentation and turbidity (NMED, 2012).

The majority of waterbodies in Segment 1 have an OHWM ranging from 1 to 10 feet in width and are between 2 and 12 inches in depth. Named drainages in Segment 1 that would be crossed include Kutz Wash (by HDD) near the northern end and 12 crossings of Blanco Wash.

BLM Farmington and Rio Puerco Field Offices (Segments 2 and 3)

The ultimate receiving water for the water features crossed by Segment 2 is the Rio Grande. The proposed segment would cross 43 waterbodies and 2 wetlands. The northern end of Segment 2 crosses ephemeral drainages, and the southern end crosses intermittent drainages that receive additional surface and groundwater flow from the Jemez Mountains east of Hwy 550 (Rio Puerco, Cucho Arroyo, Querencia Arroyo, Canada de la Milpas, and Rio Salado).

The majority of waterbodies in Segment 2 are small ephemeral drainages with OHWMs ranging from 1 to 8 feet in width and are 1 to 8 inches in depth. Named drainages in Segment 2 include Rio Puerco, Ojito Arroyo, Cucho Arroyo, Encino Wash, Cuchilla Arroyo, Rio Salado, and Piedra Lumbre Arroyo. The two delineated wetlands are within the southern portion of Segment 2. One of the wetlands is associated with an unnamed spring and the other is associated with an unnamed intermittent drainage. A segment of the Rio Puerco River (non-pueblo Rio Grande to Arroyo chijuilla) is listed on the 303(d) list for impairment due to E. coli and mercury, not supporting two designated uses – public water supply and wildlife habitat. At the confluence with the Rio Puerco River, the Rio Grande River (downstream from the proposed HDD) is listed on the 303(d) list as impaired due to E. coli, temperature, and water quality, not supporting two designated uses – marginal warmwater aquatic life and primary contact (NMED, 2012).

BLM Rio Puerco and Taos Field Offices (Segment 3)

The ultimate receiving water for the 28 water features crossed by Segment 3 is the Rio Grande. All drainages are ephemeral; one named drainage, San Pedro Creek (MP 266.51), would be crossed. The segment of San Pedro Creek crossed by the proposed segment is listed on the current 303(d) list for impairment due to benthic-macroinvertebrate bioassessment and not supporting coldwater aquatic life (NMED, 2012). Waterbodies crossed by Segment 3 have OHWMs ranging from 3 to 20 feet in width and are 1 to 5 inches in depth. (Within the TFO boundary, only private and state lands would be crossed.)

BLM Roswell Field Office (Segments 5 and 6)

No waterbodies were delineated on Segment 5.

All water features crossed by Segment 6 flow toward the Pecos River. The Pecos River then flows toward the Rio Grande. The proposed segment would cross 12 waterbodies and 1 wetland adjacent to the Pecos River. All drainages are ephemeral except for the Pecos River. Ephemeral waterbodies have OHWMs ranging from 1 to 35 feet in width; are 1 to 12 inches in depth; and include one named drainage, Sand Creek.

The Pecos River is 300 feet wide at the proposed crossing. MAPL proposes to HDD the Pecos River and its adjacent wetland. A portion of the Pecos River (segment Salt Creek to Sumner Reservoir) is listed on the 303(d) list for impairment due to dissolved oxygen and not supporting one designated use – marginal warmwater aquatic life (NMED, 2012).

BLM Carlsbad Field Office (Segment 7)

No waterbodies were delineated on Segment 7. (Within the CFO boundary, only private and state lands would be crossed.).

3.2.5.2 Proposed Action Alternative – Surface Water

3.2.5.2.1 Direct and Indirect Impacts

Effects (Quality and Quantity). Surface water quality impacts could occur from surface disturbance and grading, vegetation clearing, landform modification, and earth movement during construction. Following construction, prompt and successful reclamation would minimize sediment yield and mobility. In the long term, if a healthy and diverse vegetation community becomes established quickly, surface water quality impacts would be very low. MAPL would follow the measures described in their Reclamation and Monitoring Plan (see Appendix D to the POD) and Integrated Noxious and Invasive Weed Management Plan (see Appendix G to the POD) to revegetate disturbed areas and minimize the occurrence and spread of noxious and invasive weeds.

Based on the climate, most stormwater can be expected to evaporate, infiltrate into the soil, or drain into nearby streams. The quality of water discharges from the site that could reach waterbodies would be maintained by vegetation and engineering controls. MAPL would follow measures described in their SWMP (see Appendix E to the POD) to minimize impacts to surface waters.

To avoid or minimize impacts to surface water, MAPL would obtain and follow the requirements in the COE's Nationwide 12 stream crossing permit for all waterbody crossings. MAPL would cross drainages without flowing water by standard construction methods. In the event that intermittent channels contain flowing water, sediment control measures would be applied downstream of the crossing to prevent sediment from being transported outside the construction right-of-way or construction would wait until channel flows abate. Sediment would be prevented from reaching stream channels through the use of erosion control measures outlined in the

SWMP (see Appendix E to the POD). Following pipeline installation, the channels would be restored to their approximate original contours.

Surface water quality could also be impacted as a result of spills of fuel, lubricants, and solvents that might enter surface waters during construction. MAPL would follow measures described in the Spill Prevention Control and Countermeasures (SPCC) Plan (see Appendix P to the POD) which describes measures to prevent spills of petroleum products and other waste materials during construction.

In the unlikely event of an HDD failure, drilling mud (bentonite) could come into contact with water in the Pecos or Navajo Irrigation Canal. Bentonite is a naturally-occurring, non-hazardous, cohesive water absorbing clay material, and would resist suspension when exposed to flowing water. Local, increased turbidity would occur in the event of drilling mud exiting the substrate, but would be a short-term (less than 1 day) event because drilling would immediately stop if a drilling mud extrusion were observed or was assumed to have occurred because of a sudden loss of fluid pressure. The Drilling Contingency Plan (see Appendix Q to the POD) details the steps that would be taken in the event of an HDD failure at any HDD location.

For hydrostatic testing and dust control, MAPL estimates that approximately 6.5 million gallons (19.3 acre-feet) of water would be required from surface water sources. All necessary permits would be obtained prior to water withdrawal. Table 2.2-3 summarizes the potential water sources and anticipated volumes. MAPL would cascade the test water during hydrostatic testing wherever possible between test segments in order to reduce total water volumes.

Several hydrostatic test water discharge locations have been identified (see Appendix A and Appendix F to the POD). All water would be sampled and analyzed in accordance with state permit requirements prior to discharge. The water would be discharged into a series of straw bale catch basins installed at each discharge location in order to control runoff and prevent erosion and sedimentation. MAPL's Environmental Monitor would ensure that the discharge structure is properly constructed and that the structures do not fail during discharge.

During operations, MAPL would follow measures described in the ERP (see Appendix L to the POD) to reduce impacts from leaks or breaks in the pipeline during operations. Accidental releases or leaks from the pipeline could impact surface water quality by introducing hydrocarbons into soil materials followed by surface runoff or directly into surface waters. If such a release occurred, the majority of the product (ethane, butane, and propane fractions) would vaporize immediately and escape to the atmosphere with little contact or absorption by water. This volatilization would occur because the boiling points of these components are below freezing. They are in the liquid phase in the pipeline because of the pressure under which they have been placed. The small percentage (2-4 percent) of pentane and hexane fractions would not volatilize as rapidly, because they are lighter than and insoluble in water and would rise rapidly to the surface and volatilize relatively quickly. None of these compounds would have the opportunity to mix to any great degree with ground or surface water (USGS, 1995). Routine daily inspections would be conducted to identify leaks and initiate corrective actions as necessary. Impacts should be minimal with implementation of these measures.

Protective Design Features

No measures have been identified to further reduce impacts to surface water resources.

3.2.5.2.2 Cumulative Impacts

Due to the absence of anticipated long-term impacts to both surface water quality and quantity, there would be no expected increase in cumulative impacts to water resources from construction and operation of the Proposed Action in combination with past, present, and

reasonably foreseeable actions in the project area. The only potential addition to cumulative water resource impacts is the increased probability of a pipeline accident because of the additional miles of pipeline that would be constructed in this multi-pipeline right-of-way. The potential for a pipeline failure release is remote (i.e., with less than 0.1 percent under waterbodies). Water sources for use in pipeline construction and integrity testing would be obtained from permitted sources which would consider or have already considered the effects of providing water for this type of use and have found them to be acceptable.

3.2.5.3 No Action Alternative – Surface Water

3.2.5.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to surface water resources associated with the Proposed Action would not be caused because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to surface water resources would not be expected, barring an accident resulting in a spill.

3.2.5.3.2 Cumulative Impacts

None expected, barring an accidental spill related to trucking or other forms of transportation for the NGLs.

3.2.5.4 Affected Environment – Groundwater

The Proposed Action crosses three physiographic provinces: the Colorado Plateau province where basins and broad river valleys form the intermountain topography; the Basin and Range province defined by small mountain ranges and intervening broad desert valleys; and the Great Plains province defined by flat to rolling prairie landscapes with scattered hills and bluffs. All three generally have abundant sunshine, moderate to high wind, low relative humidity, a large daily range in temperature, and little precipitation. Groundwater is predominantly derived from infiltration of precipitation. The principal groundwater aquifer systems crossed by the Project are the Colorado Plateau aquifers in San Juan and Sandoval Counties and the High Plains aquifer in Lea County. The Colorado Plateau aquifers are contained in a thick sequence of poorly to well-consolidated conglomerate, sandstone, siltstone, and shale. Volcanic rocks, carbonate rocks, and evaporate deposits can also yield water to wells. The High Plains aquifer is composed of unconsolidated to poorly consolidated sediments. Much of the Proposed Action would not cross major aquifers. In these areas, aquifers either do not exist or yield too little water to wells to be classified as a major aquifer. According to the USGS, only about 28 percent of water is supplied from groundwater in these physiographic provinces (USGS, 1995).

The vulnerability of aquifers is a function of the depth to groundwater and the permeability of the overlying soils. Because of the interconnections between karst and groundwater systems, areas where aquifers are located in karst terrain also represent vulnerable groundwater sources.

3.2.5.5 Proposed Action Alternative – Groundwater

3.2.5.5.1 Direct and Indirect Impacts

While routine operation of the pipeline would not affect groundwater, an accidental release of hydrocarbons could migrate through the overlying surface materials and enter the groundwater. Only those compounds that do not readily volatilize at atmospheric pressure (2-4 percent of the potential release) would be left to migrate. If a release were to occur, MAPL would be responsible for monitoring groundwater to ensure that contaminants did not reach receptors. In the unlikely event of a release, groundwater wells (non-industrial or mineral/gas exploration)

within one mile of the pipeline would be potential receptors. These wells are listed in Table C-5 in Appendix C.

The top of the pipe would be buried approximately 36 inches from the ground surface, which is too shallow to have a direct impact on the major aquifer systems underlying the proposed loop pipeline segments, and no producing aquifers would be encountered at this depth.

There is also the potential for spills of fuel, oils, and solvents during construction that could enter into shallow groundwater sources. Adherence to the SPCC Plan (see Appendix P to the POD) would minimize the occurrence and impacts of spills.

MAPL anticipates that approximately 21.5 million gallons (66 acre-feet) would be withdrawn from groundwater sources (see Table 2.2-3) for hydrostatic testing and dust abatement. MAPL would obtain any required approvals/permits prior to withdrawal. As stated above, MAPL would not seek new water rights but would negotiate to use existing water rights of the potential water sources.

Protective Design Features

See Section 3.2.2/Geologic Resources.

3.2.5.5.2 Cumulative Impacts

Due to the absence of anticipated long-term impacts to groundwater quality and quantity, there would be no expected increase in cumulative impacts to groundwater resources from construction and operation of the Proposed Action in combination with past, present, and reasonably foreseeable actions in the right-of-way. The only potential addition to cumulative water resource impacts is the increased probability of a pipeline accident because of the additional miles of pipeline that would be constructed in this multi-pipeline right-of-way. The potential for a pipeline failure release is remote. Water sources for use in pipeline construction and integrity testing would be obtained from permitted sources which would consider or have already considered the effects of providing water for this type of use and have found them to be acceptable.

3.2.5.6 No Action Alternative - Groundwater

3.2.5.6.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to groundwater resources associated with the Proposed Action would not be caused because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to groundwater resources would not be expected, barring an accident resulting in a spill.

3.2.5.6.2 Cumulative Impacts

None expected, barring an accident resulting in a spill related to trucking or other forms of transportation for the NGLs.

3.3 Biological Resources

3.3.1 Invasive, Non-Native Species

3.3.1.1 Affected Environment

The State of New Mexico Invasive and Non-Native Weeds list includes 45 species designated as noxious plant species (New Mexico Department of Agriculture - NMDA, 2009). The BIA

Navajo Region lists 18 species as noxious weeds. The BLM maintains a list of 25 invasive and non-native plant species of concern for the state (BLM, 2003b). Complete lists by agency can be found in the WEP III Biological Baseline Report (Ecosphere, 2012a). Each of these agencies classifies and manages the species differently.

The State of New Mexico has four noxious weed Class designations: A, B, C, and a Watch List. Class A species are described as species not currently documented or with limited distribution in the state, with the highest priority to control new and existing infestations (NMDA, 2009). State listed Class B weeds are non-native species that are presently limited to portions of the state (NMDA, 2009). These species are designated for control in regions where they are not yet widespread. Preventing infestations in these areas is a high priority. In areas where the species is already abundant, control is decided at the local level, and containment is the primary goal. Class C noxious weeds are wide-spread in the state. Management decisions for these species are determined at the local level, based on feasibility of control and level of infestation (NMDA, 2009). The BLM has three noxious weed class designations: A, B, and C. Class A species are identified as non-native with limited or no distribution. Eradication and prevention of infestation of these species is of the highest priority. Class B species are described as non-native plants that have been found in limited areas of the planning area, and containment and prevention are priorities. The Class C designation is defined as non-native plants currently widespread throughout the management area and “long-term programs” to control the species are encouraged (BLM, 2003b).

The BIA Navajo Region groups noxious weeds into three management classifications. Class A weeds are potential invaders not yet found on the Navajo Nation. Class B species are new invaders and management is required. Class C species are established and wide spread. For Class C species, management is limited to awareness.

Ten invasive, non-native species managed by the state, BLM, or BIA were recorded as occurring within the project area. The locations of state-, BLM-, and BIA-listed invasive, non-native species documented during the 2011 and 2012 biological surveys within the project area are listed in MAPL’s Integrated Noxious and Invasive Weed Management Plan (see Appendix G to the POD).

A list of common and scientific names is provided in Appendix E.

<u>BLM Farmington Field Office (Segments 1 and 2)</u>

No A-listed species were found within the project area; however, B- and C-listed species were observed (see Table 3.3-1). Russian Knapweed and Musk thistle were observed in Great Basin Desert Shrub habitat close to the 550 Hwy corridor. Halogeton occurred in small patches where soils were highly alkaline and where vegetation cover was sparse. Tamarisk occurred on moist sites and moist drainages. Other commonly observed nuisance weeds observed included cheatgrass and Russian thistle.

Table 3.3-1
Noxious Weeds and Non-Native Plant Species Observed in the Project Area within the BLM Farmington Field Office [1]

Common Name *Scientific Name*	NM State Class	BLM/FFO Class	BIA Class	Observation [1]
Russian knapweed *Acroptilon repens*	B	C	B	Present at nine locations near Huerfano
Musk thistle *Carduus nutans*	B	C	B	Present at four locations
Halogeton *Halogeton glomeratus*	B		B	Present near the town of Nageezi.
Saltcedar *Tamarix spp*.	C	C	C	Present in most drainages

[1]Source: Ecosphere, 2012a.

BLM Rio Puerco Field Office (Segments 2 and 3)

No A-listed species were found within the project area; however, B- and C-listed species were observed (see Table 3.3-2). Russian Knapweed was observed at one location in the Rio Puerco river drainage. Halogeton occurred in small and large patches throughout Segment 2. It occurred in strips of habitat as much as one-quarter mile long. Tamarisk occurred on moist sites and moist drainages. Siberian elm trees were located outside of the town of Bernalillo on Segment 3. Other commonly observed nuisance weeds observed included cheatgrass and Russian thistle.

Table 3.3-2
Noxious Weeds and Non-Native Plant Species Observed in the Project Area within the BLM Rio Puerco Field Office[1]

Common Name *Scientific Name*	NM State Class	BIA Class	Observation [1]
Russian knapweed *Acroptilon repens*	B	B	One location along the Rio Puerco river near Cabezon Peak
Russian olive *Elaeagnus angustifolia*	C		Present at 4 locations in Sandoval County.
Halogeton *Halogeton glomeratus*	B	B	Extensive distribution throughout the right-of-way on Segment 2
Saltcedar *Tamarix spp*.	C	C	Widely encountered throughout Sandoval County
Siberian elm *Ulmus pumila*	C		10 locations on private land and restricted to the north west corner of the right-of-way in Segment 3

[1]Source: Ecosphere, 2012a.

BLM Taos Field Office (Segment 3)

Within the TFO boundary the Project would cross only private or state lands. One occurrence of spotted knapweed (*Centaurea biebersteinii*) was identified at MP 253.

BLM Roswell Field Office (Segments 5 and 6)

No A-listed species were found within the project area; however, C-listed species were observed (see Table 3.3-3). Russian olive and tamarisk were observed along the Pecos River drainage.

Table 3.3-3
Noxious Weeds and Non-Native Plant Species Observed in the Project Area within the BLM Roswell Field Office[1]

Common Name ***Scientific Name***	**NM State Class**	**Observation [1]**
Russian olive *Elaeagnus angustifolia*	C	Present along the Pecos River
Saltcedar *Tamarix spp*.	C	Present along the Pecos River
[1]Source: Ecosphere, 2012a.		

BLM Carlsbad Field Office (Segment 7)

Within the CFO boundary the Project would cross only private or state lands. One A-listed species (Scotch thistle) was found scattered throughout Segment 7 directly north of Lovington (see Table 3.3-4), and two Watch List species (bull thistle and spiny cocklebur) were located.

Table 3.3-4
Noxious Weeds and Non-Native Plant Species Observed in the Project Area within the BLM Carlsbad Field Office[1]

Common Name ***Scientific Name***	**NM State Class**	**Observation [1]**
Bull thistle (*Cirsium vulgare*)	C	Present at MP 17 and 28
Spiny cocklebur *Xanthium spinosum*	C	Present near Hwy 83
Scotch thistle *Onopordum acanthium*	A	Present throughout right-of-way north of Lovington
Spotted knapweed (*Centaurea biebersteinii*)	A	Present at MP 17
[1]Source: Ecosphere, 2012a.		

3.3.1.2 Proposed Action Alternative

3.3.1.2.1 Direct and Indirect Impacts

The Proposed Action could affect abundance and diversity of noxious weeds through:

1. Clearing native vegetation and exposing bare ground surfaces to allow establishment and growth of weed species;
2. Translocating weeds from established infestations to newly cleared ground on personnel vehicles and construction equipment; and
3. Reducing vigor and reproduction of native plants through dust deposition, interference with photosynthesis, and impact to pollinator species that allows weeds to infiltrate and increase in affected locations.

Noxious weed species present in the immediate vicinity of the proposed construction right-of-way are assumed to be the species most likely to become established once vegetation has been cleared if weed control measures are not applied. Weed growth would likely occur from residual seed beds and possibly through vegetative propagation. Noxious weeds currently occurring within the construction right-of-way would also be the species most likely to be transported to new sites by personnel vehicles and construction machinery. The potential for these effects are addressed for each BLM field office below. In every field office area, tamarisk, located within the construction right-of-way but outside the pipeline trench area, would likely sprout back after construction because roots would remain intact.

As mandated by the Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (BLM, 2007c), oil and gas operators shall control noxious weeds on lands they disturb during oil and gas exploration and development, including well pads, facilities, pipelines, roads and any other disturbed areas on BLM-managed lands and private property. Controlling listed weeds could be difficult to achieve on disturbed surfaces after construction of the Proposed Action.

Protective Design Features

The following measures would be implemented to reduce or eliminate noxious weeds identified within the project area and prevent the spread of weeds into uninfested areas:

- Implementing MAPL's Integrated Noxious and Invasive Weed Management Plan (see Appendix G to the POD), which includes:
    - All equipment used at previous construction sites, or within sites with weed seed contaminated soil would be power-washed to remove mud, weed seeds, and propagules before entering the project area and/or moving to uncontaminated terrain. All maintenance vehicles would be regularly cleaned of soil.
    - MAPL would avoid vehicle travel through weed infested areas, where feasible.
    - Topsoil stockpiles would be seeded with non-invasive sterile hybrid grasses if stored longer than one growing season.
    - Treatment strategies for weedy species documented would consider effective methods and timing for preventing seed production of that species and could include hand/machine pulling, cutting roots just below soil level, treatment with herbicides, or mowing.
    - Surface disturbances would be reseeded at the appropriate time and with the recommended seed mix outlined in the Reclamation and Monitoring Plan (see Appendix D to the POD).
- Implementing MAPL's Reclamation and Monitoring Plan (see Appendix D to the POD).
- Treating or removing weeds documented within and/or adjacent to the project area prior to ground-disturbing activities to limit weed seed production and dispersal, as well as reduce the potential for expansion. Follow-up inventories and re-treatment during the same growing season may be necessary to provide additional control.
- Working in conjunction with BLM field offices to determine the best methods to control noxious weeds on lands disturbed during construction.
- Obtaining BLM approval for a Pesticide Use Proposal (PUP) prior to the use of herbicides on land managed by the BLM, and SPA approval shall be obtained for a PUP prior to the use of herbicides on Zia trust lands.
- Providing an annual report to respective BLM field offices and SPA (for Pueblo of Zia trust lands) that identifies the extent of noxious weed infestations and treatment used to eradicate or minimize undesirable species. Reports shall be provided by December 1, annually until the desired reclamation level is achieved as determined by the BLM or BIA.

3.3.1.2.2 Cumulative Impacts

Based on the increased surface disturbance, the introduction or spread of invasive species could occur if future activities (recreation, oil and gas development, grazing) were to overlap with the project area. With revegetation and the implementation of restoration BMPs for the Proposed Action and assumed BMPs for future activities, cumulative impacts from invasive species should be minor.

3.3.1.3 No Action Alternative

3.3.1.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts from invasive species associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts from invasive species would not be anticipated.

3.3.1.3.2 Cumulative Impacts

None would be expected.

3.3.2 Vegetation

3.3.2.1 Affected Environment

Eight major vegetation communities were identified within the survey area and are summarized in this section. The delineation areas were based on Dick-Peddie's *New Mexico Vegetation* classifications (Dick-Peddie, 1993), which have been field verified and refined where necessary. The miles crossed and acreages of disturbance within the dominant vegetation types were calculated using ArcGIS software based on the proposed 125-foot wide construction right-of-way.

Coniferous and Mixed Woodland. Segments 1, 2, and 3 contain areas classified as Coniferous and Mixed Woodland. In New Mexico, this vegetation community is primarily piñon-juniper woodland (*Pinus* sp.-*Juniperus* sp.) (Dick-Peddie, 1993). Scattered ponderosa pine (*Pinus ponderosa*) trees are present in the southern end of Segment 1. Segments 2 and 3 contain areas with Gambel oak (*Quercus gambelii*) intermixed within the piñon-juniper trees. The typical associated dominant species of Coniferous and Mixed Woodland communities include: piñon (*Pinus edulis)*, Utah juniper (*Juniperus osteosperma*), Gambel oak, big sagebrush *(Artemisia tridentata)*, mountain mahogany (*Cerocarpus montanus*), and blue grama (*Bouteloua gracilis*). Segments 1, 2, and 3 contain approximately 269 acres of Coniferous and Mixed Woodland.

Juniper Savanna. Juniper Savanna is characterized as a transitional zone between woodland and grassland (Dick-Peddie, 1993). Characteristics of Juniper Savanna include widely scattered low trees in a grass matrix. The transition from woodland to grassland involves a noticeable decrease in the density of trees, as well as the reduction to a single tree species, typically juniper. Most of the savanna in New Mexico is Juniper Savanna (Dick-Peddie, 1993). The dominant associated species in this community type includes one-seed juniper (*Juniperus monosperma)*, Utah juniper, big sagebrush*,* Bigelow sagebrush (*Artemisia bigelovii)*, and shadscale (*Atriplex confertifolia*). Segments 2 and 3 contain approximately 215 acres of Juniper Savanna, collectively (see Table 3.3-5).

Desert Grassland. Much of the Desert Grassland in New Mexico occupies land that was once another grassland type (Dick-Peddie, 1993). Desert Grassland vegetation, specifically forbs and shrubs, replaces other grassland grass species after high density grazing. Desert grassland communities where blue grama dominates are often communities that have recently changed from Plains-Mesa Grasslands to Desert Grassland (Dick-Peddie, 1993).

The composition of Desert Grassland communities is highly variable with high shrub and forb densities. Typically, forbs comprise greater than 10 percent of the vegetation, although no single forb stands out in this vegetation type. The dominant grass of Desert Grassland vegetation is black grama (*Bouteloua eriopoda)* in the southern part of the state (Segment 6), and blue grama in the northern part (Segments 1 and 2). Many different species of shrubs and

forbs are common, with most major shrub species also occurring in other vegetation types as well. Segments 1, 2, and 6 contain approximately 966 acres of Desert Grassland (see Table 3.3-5).

Plains-Mesa Grassland. Plains-Mesa Grassland is the most extensive grassland in New Mexico. It is composed nearly entirely of grasses, with shrubs and forbs comprising less than 10 percent of vegetation. With overgrazing and high stocking rates, there can be extensive and rapid succession from Plains-Mesa Grassland to Desert Grassland (Dick-Peddie, 1993). The Plains-Mesa Grassland indicates the southwestern boundary of the continental grassland (Dick-Peddie, 1993). Associated dominant species include: blue grama, buffalograss (*Buchloe dachtyloides),* western wheatgrass (*Pascopyrum smithii),* needle-and-thread (*Herostipa comata),* James' galleta (*Pleuraphis jamesii),* fringed sage *(Artemisia frigida),* Bigelow sagebrush, and fourwing saltbrush (*Atriplex canescens)*. Segments 3, 5, and 7 contain approximately 929 acres of Plains-Mesa Grassland (see Table 3.3-5).

Plains-Mesa Sand Scrub. This community type is dominated by shrub species that are able to obtain water and survive in deep sand. These shrub species have adapted to deep sand and low available-moisture conditions (Dick-Peddie, 1993). Dominant Sand Scrub species in New Mexico occur in both quartz and gypsum sands. The most common shrub of the Plains-Mesa Sand Scrub is sand sagebrush (*Artemisia filifolia).* Most deep sand grasses are also found throughout the state and are found in combination with other sand scrub vegetation. The majority of forbs and grasses in Plains-Mesa Sand Scrub are also associated with the Desert Grassland vegetation type and include sand sagebrush*,* broom snakeweed (*Gutierrezia sarothrae),* and fringed sage. Segment 2 contains approximately 4 acres of Plains-Mesa Sand Scrub vegetation (see Table 3.3-5).

Great Basin Desert Scrub. Great Basin Desert Scrub is limited to the northwestern corner of New Mexico, as well as a small sliver in north-central New Mexico. Annual precipitation in Great Basin Desert Scrub is approximately 9 inches (230 millimeter) (Dick-Peddie, 1993). It receives most of its moisture during the winter months in the form of snow. The dominant shrubs are big sagebrush*,* shadscale*,* greasewood (*Sarcobatus vermiculatus)*, and fourwing saltbrush. Shadscale is the best indicator of the Great Basin Desert Scrub community. Segments 1 and 2 contain approximately 678 acres of Great Basin Desert Scrub vegetation (see Table 3.3-5).

Closed Basin Scrub. Closed basins are typically flat, broad, and gentle sloping areas where water tends to spread, rather than form gullies. Closed Basin Scrub vegetation can be included under Scrubland vegetation (Dick-Peddie, 1993). Closed Basin Scrub vegetation is typically defined as large areas of dense fourwing saltbrush with sparse ground cover. The associated dominant species include: fourwing saltbrush*,* greasewood*,* pale wolfberry (*Lycium pallidum)*, and burro grass (*Scleropogon brevifolius)*. Segment 3 contains approximately 132 acres of Closed Basin Scrub (see Table 3.3-5).

Urban, Farmland, or Open Water. The vegetation type designated as Urban, Farmland, or Open Water, contains variable vegetation types and/or no vegetation. Urban and Farmland vegetation can be variable based on crop types or type of urban development. Open Water may have surrounding vegetation but cannot be calculated as a vegetation type. Segments 3 and 7 contain approximately 417 acres of Urban, Farmland, or Open Water (see Table 3.3-5). During the 2011 and 2012 biological inventories, Segment 7 was characterized as predominantly urban farmland across multiple acres of active farmland. Segment 3 field surveys included areas of urban development and farmland.

Arroyo Riparian. Although the GIS vegetation layer did not provide specific data for this vegetation community type, it was observed during the field surveys. The majority of the

documented arroyos within the project area contain this vegetation community type. Dick-Peddie (1993) describes Arroyo Riparian vegetation as a type of riparian vegetation that "occupies drainages that dissect bajadas and mesas of the state." This community type is typically dominated by certain shrubs, depending on the location within the state. The most common shrubs associated with Arroyo Riparian include greasewood, rabbitbrush (*Chrysothamnus* spp.), saltcedar *(Tamarisk* sp.*),* Apache plume *(Fallugia paradoxa),* littleleaf sumac *(Rhus microphylla)*, and brickellia (*Brickellia laciniata*).

Table 3.3-5
Summary of Major Vegetation Types

BLM Field Office and Segment	Vegetation Type	Linear Extent (miles)	Acres within Project Area [1]
Farmington Field Office Segment 1	Coniferous and Mixed Woodland	8.1	127
	Great Basin Desert Scrub	20.0	308
	Desert Grassland	17.6	264
	Total	**45.7**	**699**
Farmington and Rio Puerco Field Offices Segment 2	Great Basin Desert Scrub	24.1	370
	Desert Grassland	17.9	281
	Juniper Savanna	6.9	106
	Coniferous and Mixed Woodland	1.8	29
	Plains-Mesa Sand Scrub	0.2	4
	Total	**50.9**	**790**
Rio Puerco and Taos [2] Field Offices Segment 3	Plains-Mesa Grassland	5.8	90
	Juniper Savanna	7	109
	Coniferous and Mixed Woodland	7.2	113
	Urban, Farmland or Open Water	18.5	285
	Closed Basin Scrub	8.3	132
	Total	**46.8**	**729**
Roswell Field Office Segment 5	Plains-Mesa Grassland	30.2	465
	Total	**30.2**	**465**
Roswell Field Office Segment 6	Desert Grassland	27.3	421
	Total	**27.3**	**421**
Carlsbad [2] Field Office Segment 7	Plains-Mesa Grassland	24.4	374
	Urban, Farmland or Open Water	8.4	131
	Total	**32.8**	**505**
	Grand Total	**233.7**	**3,609**

[1] The project area includes the construction right-of-way (125 feet wide) and temporary use areas.
[2] WEP III would not cross BLM-managed lands within the Taos and Carlsbad field office boundaries.

BLM Farmington Field Office (Segments 1 and 2)

The majority of the loop pipeline segments lies adjacent to Hwy 550 and is split between the Desert Grassland (47 percent) and Great Basin Desert Scrub (38 percent) vegetation types (see Table 3.3-6). Elevation ranges from 5,600 to 7,350 feet, generally rising from north to south. Dominant shrubs include big sagebrush and shadscale. Dominant grasses include blue grama and James' galleta. At MP 378.4, the loop pipeline segment enters a small region of badlands before running along the Blanco wash. Small bands of juniper woodland are present, predominantly on the south end of the Segment 1.

Table 3.3-6
Vegetation Types that Occur within the BLM Farmington Field Office Boundary

Vegetation Type	Linear Extent (Miles)	Acres	Percent within FFO
Coniferous and Mixed Woodland	8.0	127	15.58
Desert Grassland (Ecotone)	25.0	378	46.50
Great Basin Desert Scrub	20.0	308	37.91
Total	**53.0**	**813**	**100.00**

BLM Rio Puerco Field Office (Segments 2 and 3)

The loop pipeline segments within the BLM RPFO support the most diverse array of vegetation communities (see Table 3.3-7). Great Basin Desert Scrub is dominant throughout the length of the segments (32 percent), but is interspersed with geological features that support a range of vegetation communities from plains mesa sand scrub (0.4 percent) to juniper savanna (19 percent) and coniferous and mixed woodland (11 percent). Elevation ranges from 5,400 to 6,900 feet.

Table 3.3-7
Vegetation Types that Occur within the BLM Rio Puerco Field Office Boundary

Vegetation Type	Linear Extent (miles)	Acres	Percent within RPFO
Closed Basin Scrub	8.3	132	11.62
Coniferous and Mixed Woodland	8.4	130	11.43
Desert Grassland (Ecotone)	10.5	167	14.67
Great Basin Desert Scrub	24.1	370	32.45
Juniper Savanna (Ecotone)	13.8	215	18.82
Plains-Mesa Grassland	5.9	90	7.86
Plains-Mesa Sand Scrub	0.2	4	0.35
Urban, Farmland or Open Water	2.1	32	2.79
Total	**73.3**	**1,140**	**100.00**

BLM Taos Field Office (Segment 3)

Within the TFO boundary, Segment 3 would cross private and state lands (no BLM-managed lands) and is dominated by urban farmland (96 percent), with a small area of open coniferous and mixed woodland (4 percent) in the northwest corner near the San Pedro Mountains (see Table 3.3-8). The loop pipeline segment winds through flat agricultural fields for its entire length. Elevation ranges from 6,200 to 7,000 feet.

Table 3.3-8
Vegetation Types that Occur within the BLM Taos Field Office Boundary

Vegetation Type	Linear Extent (miles)	Acres	Percent within TFO
Coniferous and Mixed Woodland	0.7	11	4.15
Urban, Farmland or Open Water	16.4	254	95.85
Total	**17.1**	**265**	**100.00**

BLM Roswell Field Office (Segments 5 and 6)

Segments 5 and 6 are dominated by grassland. Only two grassland types exist in this area: plains-mesa grassland (52 percent) dominates Segment 5, and desert grassland (48 percent) dominates Segment 6 (see Table 3.3-9). The terrain is flat to slightly rolling hills with riparian vegetation around the Pecos River. Shrub cover (big sagebrush and mesquite) increases slightly on the southern portion of Segment 6. Elevation ranges from 3,600 to 6,000 feet.

Table 3.3-9
Vegetation Types that Occur within the BLM Roswell Field Office Boundary

Vegetation Type	Linear Extent (miles)	Acres	Percent of Proposed Alignment
Desert Grassland (Ecotone)	27.3	421	47.52
Plains-Mesa Grassland	30.2	465	52.48
Total	**57.5**	**886**	**100.00**

BLM Carlsbad Field Office (Segment 7)

Within the CFO boundary, Segment 7 would cross private and state lands (no BLM-managed lands) and is dominated by grassland. Plains-mesa grassland accounts for 74 percent of coverage, with urban farmland comprising the remaining 26 percent (see Table 3.3-10). The terrain is extremely flat with no measurable slope. The landscape is urban farmland with elevation ranges from 3,700 to 4,200 feet.

Table 3.3-10
Vegetation Types that Occur within the BLM Carlsbad Field Office Boundary

Vegetation Type	Linear Extent (miles)	Acres	Percent of Proposed Alignment
Plains-Mesa Grassland	24.4	374	74.06
Urban, Farmland or Open Water	8.4	131	25.94
Total	**32.8**	**505**	**100.00**

3.3.2.2 Proposed Action Alternative

3.3.2.2.1 Direct and Indirect Impacts

The Proposed Action could affect vegetation through:

1. Direct removal of vegetation during clearing and grading the construction right-of-way and temporary use areas.

2. Damage or mortality of plants by dust deposited on photosynthetic surfaces during construction and operation.

3. Changes in herbivory by domestic and/or native herbivores caused by displacement from affected areas, or attraction to newly re-vegetated sites.

4. Introduction or an increase in noxious weeds could alter vegetation cover and species composition, potentially out-competing native plant species.

Construction would directly affect vegetation by removal. Direct effects to herbaceous vegetation would be expected to be short-term; saltbush, greasewood, and some desert shrub vegetation is expected to become re-established within five years of disturbance and would likely be similar to existing disturbed shrub vegetation within other pipeline rights-of-way adjacent to and within the construction right-of-way. Effects to forest-dominated riparian vegetation, pinyon-juniper woodland, and possibly other shrub-dominated vegetation would persist for more than five years. For example, sagebrush can take up to 10 to 15 years to become reestablished (West, 1988). To increase successful revegetation within disturbed surfaces, MAPL would revegetate within one year of surface disturbing activities and prior to the season of greatest precipitation (late fall/winter) as described within their Reclamation and Monitoring Plan (see Appendix D to the POD).

Dust from construction and related traffic could impair photosynthesis, gas exchange, transpiration, leaf morphology, and stomata function (Farmer, 1993; Sharifi et al., 1997; Rai et

al., 2009). Dust from construction and related traffic could also interfere with plant reproduction by affecting pollinators during the flowering season. Dust suppression on access roads and the construction right-of-way (as described in the POD), limiting vehicle speeds along the construction right-of-way, and limiting clearing when during periods of high wind would minimize effects of dust produced during construction and operation of the pipeline on adjacent vegetation.

Indirect effects to vegetation might occur if native and domestic herbivores are displaced, causing excessive browsing and/or grazing on vegetation resources that otherwise would not occur. Alternatively, herbivores could be attracted to unaffected vegetation adjacent to newly revegetated locations, causing excessive browsing and/or grazing following restoration. Excluding domestic livestock grazing within the revegetated right-of-way, especially areas that are highly vulnerable to livestock grazing (i.e., areas along streambanks) would accelerate successful reclamation of the right-of-way and reduce the potential for weed infestations. Placing salt licks away from revegetated areas could also reduce the livestock use of the reclaimed right-of-way.

Indirect effects to native vegetation could occur if invasive, non-native species become established in cleared, disturbed areas, resulting in infestations that might limit or prohibit growth of native and/or desirable species. Weed seeds or cuttings of some species could be transported naturally (wind and water) or accidentally (vehicles or other equipment) to the disturbed areas. Weed seeds may be present in the native soil materials and the removal of vegetative cover and soil disturbance might promote weed establishment at the expense of desirable species. Implementation of MAPL's Integrated Noxious and Invasive Weed Management Plan (see Appendix G to the POD) would minimize the spread or introduction of invasive, non-native plant species.

BLM Farmington Field Office (Segments 1 and 2)

The Proposed Action would clear 813 acres of vegetation, predominantly in Desert Grassland (47 percent) and Great Basin Desert Scrub (38 percent) communities (see Table 3.3-11). The majority of effects from construction and operation would be to previously disturbed shrublands associated with existing pipeline rights-of-way.

Table 3.3-11
Vegetation Types Affected within the BLM Farmington Field Office Boundary

Vegetation Type	BLM	BIA	Private	State	Total	Percent of Total Vegetation Affected
Coniferous and Mixed Woodland	34	70	20	2	127	16
Desert Grassland	225	85	51	18	379	47
Great Basin Desert Scrub	229	37	25	17	308	38
Total	**488**	**192**	**96**	**37**	**813**	**100**

BLM Rio Puerco Field Office (Segments 2 and 3)

The Proposed Action would clear 1,140 acres of vegetation, predominantly in Great Basin Desert Scrub (32 percent) communities (see Table 3.3-12). The majority of effects from construction and operation would be to disturbed shrublands associated with existing pipeline rights-of-way.

Table 3.3-12
Vegetation Types Affected within the BLM Rio Puerco Field Office Boundary

Vegetation Type	BLM	BIA	Private	State	Total	Percent of Total Vegetation Affected
Closed Basin Scrub	0	0	111	21	132	12
Coniferous and Mixed Woodland	29	0	102	0	131	11
Desert Grassland	116	30	12	10	168	15
Great Basin Desert Scrub	122	166	33	47	368	32
Juniper Savanna	113	0	90	11	214	19
Plains-Mesa Grassland	0	0	41	49	90	8
Plains-Mesa Sand Scrub	0	4	0	0	4	0
Urban, Farmland or Open Water	0	0	32	0	32	3
Total	**380**	**200**	**421**	**138**	**1139**	**100**

BLM Taos Field Office (Segment 3)

The Proposed Action would clear 265 acres of vegetation, almost entirely within the Urban Farmland community (see Table 3.3-13).

Table 3.3-13
Vegetation Types Affected within the BLM Taos Field Office Boundary

Vegetation Type	BLM	BIA	Private	State	Total	Percent of Total Vegetation Affected
Coniferous and Mixed Woodland	0	0	11	0	11	4
Urban, Farmland or Open Water	0	0	247	8	254	96
Total	0	0	**258**	**8**	**265**	**100**

BLM Roswell Field Office (Segments 5 and 6)

The Proposed Action would clear 886 acres of vegetation with all disturbance occurring either in Desert Grassland (48 percent) or Plains-Mesa Grassland (52 percent) communities (see Table 3.3-14). The majority of effects from construction and operation would be to grass dominated vegetation associated with existing pipeline rights-of-way.

Table 3.3-14
Vegetation Types Affected within the BLM Roswell Field Office Boundary

Vegetation Type	BLM	BIA	Private	State	Total	Percent of Total Vegetation Affected
Desert Grassland	65	0	302	54	421	48
Plains-Mesa Grassland	81	0	273	111	465	52
Total	**146**	0	**575**	**165**	**886**	**100**

BLM Carlsbad Field Office (Segment 7)

The Proposed Action would clear 505 acres of vegetation, predominantly on the Plains-Mesa Grassland (74 percent) community (see Table 3.3-15). The majority of effects by construction and operation would be to grass dominated vegetation associated with existing pipeline rights-of-way.

Table 3.3-15
Vegetation Types Affected within the BLM Carlsbad Field Office Boundary

Vegetation Type	BLM	BIA	Private	State	Total	Percent of Total Vegetation Affected
Plains-Mesa Grassland	0	0	299	75	374	74
Urban, Farmland or Open Water	0	0	111	19	130	26
Total	0	0	**410**	**94**	**504**	**100**

Protective Design Features

The following measures would be implemented to further reduce impacts to vegetation affected by the Proposed Action:

- Erecting exclusion fencing along the revegetated right-of-way in highly vulnerable areas to exclude livestock, accelerate reclamation of surface disturbances, and minimize weed infestations, until monitoring has determined reclamation is successful (see Reclamation and Monitoring Plan, Appendix D the POD). The BLM AO shall determine areas for potential exclusion.
- Placing salt licks away from the revegetated right-of-way to reduce livestock use of the reclaimed right-of-way and increase the likelihood for successful reclamation within areas highly used for livestock grazing.

3.3.2.2.2 Cumulative Impacts

Based on the increased surface disturbance, vegetation impacts could occur if future activities (recreation, oil and gas development, grazing) were to overlap with the project area. With revegetation and the implementation of restoration BMPs for the Proposed Action and assumed restoration BMPs for future activities, cumulative impacts to vegetation should be minor.

3.3.2.3 No Action Alternative

3.3.2.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to vegetation associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to vegetation would not be anticipated.

3.3.2.3.2 Cumulative Impacts

None would be expected.

3.3.3 Wetlands, Riparian Areas, and Floodplains

3.3.3.1 Affected Environment

Wetlands are subject to protection under federal law and Executive Order (EO) 11990, regardless of land ownership. The EPA and the COE use the following wetland definition to administer the Clean Water Act's Section 404 permit program for dredge and fill activities: those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (40 CFR §230.3 and 33 CFR §328.3).

Ecosphere conducted WoUS and wetland delineations within 300 feet of the segment centerlines during August and September of 2011, and April through October 2012 (Ecosphere,

2012a). On the basis of wetland vegetation, soils, and hydrologic characteristics present at the site, Ecosphere identified potentially jurisdictional wetlands associated with three different drainages, which were located within either the BLM RPFO or RFO boundaries. These wetlands are included in the Pre-Construction Notification for a Nationwide Permit #12 Utility Line Activities submitted to the COE.

Forest- and shrub-dominated riparian vegetation that does not exhibit characteristics necessary to be considered jurisdictional wetlands also occurs within the project area, often times adjacent to permanent or ephemeral drainages.

For administrative purposes, the 100-year floodplain serves as the basis for floodplain management on BLM-managed lands. It is based on Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency which describe a Zone A as the "Area of the 100-year flood."

BLM Farmington Field Office (Segments 1 and 2)

Along Kutz Wash, the riparian corridor is characterized by large cottonwoods with an understory composed of tamarisk, willow, and rubber rabbitbrush.

Portions of Segments 1 and 2 are located within the 100-year floodplains of several ephemeral waterbodies. Current development on the floodplains consists of the existing adjacent pipelines.

BLM Rio Puerco Field Office (Segments 2 and 3)

One of the delineated wetlands along Segment 2 (near MP 312) was in an unnamed drainage with intermittent flow and was characterized by high cover (80 percent) of saltgrass (*Distichlis spicata*) (Ecosphere, 2012b). The second wetland (near MP 305) was associated with an unnamed spring near the southern terminus of Segment 2. It was characterized by cover of slender arrowgrass (*Triglochin concinna*), was 0.03 acre in size, and contained highly saline soils with salt crusts evident throughout the wetland (Ecosphere, 2012b).

Along the Rio Puerco, the riparian area is lined with tamarisk and coyote willow and the floodplain terrace is characterized by Russian olive.

Portions of Segments 2 and 3 are located within the 100-year floodplains of several ephemeral and intermittent waterbodies. Current development on the floodplains consists of the existing adjacent pipelines.

BLM Roswell Field Office (Segment 6)

One wetland was delineated adjacent to the Pecos River (MP 105.6) along Segment 6. It was characterized by rushes (*Juncus* sp.) and tamarisk (*Tamarix* sp.) and was 0.4 acre in size.

Portions of Segment 6 are located in the 100-year floodplain of the Pecos River. Current development on the floodplain consists of two-track roads, pipelines, and boundary fences located in the area.

3.3.3.2 Proposed Action Alternative

3.3.3.2.1 Direct and Indirect Impacts

MAPL has co-located the proposed loop pipeline segments with existing pipelines to minimize disturbance to previously undisturbed areas. To further minimize and/or avoid effects to wetlands, riparian areas, and floodplains, MAPL proposed the HDD crossing method to avoid trenching and grading activities across the Rio Puerco and Pecos rivers. MAPL would also comply with the general and special conditions in the COE Nationwide Permits, and would

implement their Reclamation and Monitoring Plan (see Appendix D to the POD) and Integrated Noxious and Invasive Weed Management Plan (see Appendix G to the POD).

BLM Farmington Field Office (Segments 1 and 2)

Impacts to Kutz Wash and the associated riparian corridor would be avoided by use of the HDD crossing method.

BLM Rio Puerco Field Office (Segments 2 and 3)

The wetland near MP 312 would not be impacted by Segment 2 because, while within the survey area, it is outside the proposed construction right-of-way. The second wetland near MP 305 would not be affected because MAPL configured the proposed construction right-of-way to avoid impacting the unnamed spring.

Impacts to the Rio Puerco and the associated riparian corridor would be avoided by use of the HDD crossing method.

BLM Roswell Field Office (Segment 6)

The wetland associated with the Pecos River would be crossed by HDD and would, therefore, not be affected.

Surface disturbance from the proposed Project could result in impairment of the floodplain values from removal of vegetation, removal of wildlife habitat, impairment of water quality, decreased flood water retention and decreased groundwater recharge. A portion of the floodplain would be avoided by use of an HDD to cross the Pecos River.

Protective Design Features

No measures have been proposed to reduce impacts to wetland and riparian areas. The following would be implemented to reduce impacts to floodplains:

- Reseeding surface disturbance within the 100-year floodplains at the appropriate time and with the recommended seed mix outlined in the Reclamation and Monitoring Plan (see Appendix D to the POD).

3.3.3.2.2 Cumulative Impacts

Due to the absence of impacts to wetlands and the minimal impacts to riparian areas and floodplains, cumulative impacts to these resources are not anticipated.

3.3.3.3 No Action Alternative

3.3.3.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to wetlands, riparian areas, and floodplains associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to these resources would not be anticipated, barring an accident resulting in a spill.

3.3.3.3.2 Cumulative Impacts

None expected, barring an accidental spill related to trucking or other forms of transportation for the NGLs.

3.3.4 Special Status Species

3.3.4.1 Affected Environment - Special Status Animal Species

Endangered, Threatened, and Candidate Animal Species. Threatened and endangered animal species discussed in this section include both terrestrial and aquatic species that are listed by the FWS under the ESA, including experimental, nonessential populations, as well as those species listed by the state of New Mexico Wildlife Conservation Act. Species that are candidate species for listing under the ESA are also discussed in this section and included in Table 3.3-16. FWS-listed species were obtained from the FWS Southwest Region Endangered Species List (FWS, 2012). State-listed species were obtained from the Natural Heritage New Mexico (NHNM) and the Biota Information System of New Mexico (BISON-M) websites (NHNM, 2011, 2012; and BISON-M, 2011, 2012).

BLM, State, and Tribal Special Status Animal Species. BLM special status species were compiled from BLM RMPs and Instruction Memorandums. Additionally, each field office was contacted to obtain guidance and information on special status species and habitat within their management areas. A coordination meeting was held at the FFO on July 17, 2012, which included representatives from MAPL, Ecosphere, and the four other BLM field offices.

State-listed special status species were obtained from the NHNM and the BISON-M websites (NHNM, 2011, 2012; and BISON-M, 2011, 2012).

Navajo Nation species discussed in this section were obtained from the Navajo Nation Department of Fish and Wildlife's Navajo Endangered Species List (NNDFW, 2008). The Navajo Endangered Species List designates the listed species into four main groups (NNDFW, 2008). Group 1 is a list of species that are no longer found on the Navajo Nation. Groups 2 and 3 are considered Endangered and are distinguished as being any species or subspecies whose prospects of survival or recruitment within the Navajo Nation are in jeopardy or are likely within the foreseeable future to become so. Group 4 species are those in which the Navajo Nation needs additional data to assign them to Groups 1 through 3 (see Appendix G).

Geographic Information System (GIS) data were provided to Ecosphere by the BLM field offices, and a desktop review was conducted to determine if the Proposed Action crossed or came in proximity to any BLM Specially Designated Areas, Areas of Critical Environmental Concern (ACECs), special management species habitat, or other areas of concern. Using existing GIS data, the desktop review evaluated the survey area for potential special status species habitat based on vegetation, soils, and geology, or species records of occurrence. General vegetative communities in the survey area were identified using a dataset created by Earth Data Analysis Center based on Dick-Peddie's *New Mexico Vegetation: Past, Present, and Future* (Dick-Peddie 1993). Soils information was derived from the USDA and NRCS (USDA, 1980a), and geology information was derived from USGS data (Green and Jones, 1997). Species occurrence records were obtained from the respective BLM field offices. Special status species' habitats were field-verified during the 2011 and 2012 biological surveys.

According to the FWS, State of New Mexico, BLM, and Navajo Nation, there are 121 special status species with potential to occur in the 12 counties crossed by the Proposed Action. These species include 26 mammals, 37 birds, 4 amphibians, 3 reptiles, 19 fish, 7 mollusks, crustaceans or invertebrates, and 25 plants. These species, their conservation status, habitat associations, and potential to occur in the survey area are analyzed in the WEP III Biological Baseline Report (see Appendix F) (Ecosphere, 2012a). Species that were eliminated from detailed evaluation are not discussed further in this report.

Of the 121 species, 27 species have the potential to occur in the project area (see in Table 3.3-16). Their potential to occur is based on the known habitat associations of the listed species

and evaluation of the habitats within the project area during the biological surveys. Six of the listed species were documented within the project area: black-tailed prairie dog, Gunnison's prairie dog, golden eagle, burrowing owl, gray vireo, and prairie falcon. Suitable habitat for the remaining 22 species was documented within the survey area; however, none of these species was visually observed. Animal species are discussed here; plant species are discussed in Section 3.3.4.3/Special Status Plant Species.

Table 3.3-16
Special Status Species that are Known or Have Potential to Occur within the Project Area

Common Name ***Scientific Name***	**ESA Status**	**State of New Mexico Status**	**Navajo Nation Status**	**BLM Status**	**Species and/or Critical Habitat Listed in County**	**BLM Field Office**
Mammals						
Black-footed Ferret *Mustela nigripes*	Endangered		Group 2 [1]		All	All
Black-tailed prairie dog *Cynomys ludovicianus*	Species of Concern			Proposed Sensitive	Chaves De Baca Guadalupe Lea Lincoln	Roswell Carlsbad
Gunnison's prairie dog (prairie populations) *Cynomys gunnisoni gunnisoni*	Candidate			Proposed Sensitive	Bernalillo McKinley Rio Arriba Sandoval San Juan Santa Fe Torrance	Farmington Rio Puerco
Kit fox *Vulpes macrotis*			Group 4 [2]		McKinley Rio Arriba Sandoval San Juan	Farmington Rio Puerco
Pale Big-Eared Townsend's Bat *Corynorhinus townsendii pallescens*	Species of Concern			Sensitive	Bernalillo Chaves Lincoln Rio Arriba Sandoval San Juan Santa Fe	Farmington Rio Puerco Taos Roswell
Pecos River Muskrat *Ondatra zibethicus ripensis*	Species of Concern			Sensitive	Chaves Guadalupe Lincoln	Roswell
Red fox *Vulpes vulpes fulva*		Species of Concern			All	All
Swift fox *Vulpes velox velox*	Species of Concern				Chaves De Baca Guadalupe Lea	Roswell Carlsbad
Birds						
Aplomado Falcon *Falco femoralis septentrionalis*	Nonessential Experimental Population	Endangered		Sensitive	Bernalillo Chaves Lea	Rio Puerco Taos Roswell Carlsbad

Common Name ***Scientific Name***	**ESA Status**	**State of New Mexico Status**	**Navajo Nation Status**	**BLM Status**	**Species and/or Critical Habitat Listed in County**	**BLM Field Office**
Baird's Sparrow *Ammodramus bairdii*	Species of Concern	Threatened		Sensitive	Bernalillo Chaves De Baca Guadalupe Lea Lincoln Rio Arriba Sandoval San Juan Santa Fe Torrance	All
Bald eagle *Haliaeetus leucocephalus*		Threatened	Group 3	Sensitive	Chaves San Juan Torrance	Farmington Rio Puerco
Bell's vireo *Vireo bellii arizonae*	Species of Concern	Threatened			Bernalillo Chaves De Baca Lea	Rio Puerco Taos Roswell Carlsbad
Burrowing Owl *Athene cunicularia hypugaea*	Species of Concern		Group 4	Sensitive	All	All
Common Ground-dove *Columbina passerina pallescens*		Endangered			Chaves	Roswell
Ferruginous Hawk *Buteo regalis*			Group 3	Sensitive	All	All
Gray Vireo *Vireo vicinio*r		Threatened			Bernalillo Chaves Guadalupe Lincoln McKinley Rio Arriba Sandoval San Juan Santa Fe	Farmington Rio Puerco Taos Roswell
Golden eagle *Aquila chrysaetos*			Group 3	Sensitive	All	All
Loggerhead Shrike *Lanius ludovicianus excubitorides*		Sensitive			All	All
Mountain Plover *Charadrius montanus*		Sensitive	Group 4		Rio Arriba McKinley San Juan Sandoval	Farmington Rio Puerco Taos
Prairie falcon *Falco mexicanus*				Sensitive	All	All
Peregrine falcon *Falco peregrinus anatum*	Species of Concern	Threatened	Threatened Group 3	Sensitive	Rio Arriba San Juan	Farmington Rio Puerco
Sprague's Pipit *Anthus spragueii*	Candidate				All	All

Common Name *Scientific Name*	ESA Status	State of New Mexico Status	Navajo Nation Status	BLM Status	Species and/or Critical Habitat Listed in County	BLM Field Office
Southwest willow flycatcher *Empidonax traillii extimus*	Endangered (critical habitat designated)	Endangered	Endangered Group 2		Sandoval	Rio Puerco
Reptiles						
Texas horned lizard *Phrynosoma cornutum*				Sensitive	Chaves De Baca Guadalupe Lea Lincoln Santa Fe Torrance	Rio Puerco Taos Roswell Carlsbad
Fish						
Bigscale logperch *Percina macrolepida*		Threatened			Chaves De Baca Guadalupe	Roswell
Gray redhorse *Moxostoma congestum*	Species of Concern	Endangered			Chaves	Roswell
Pecos bluntnose shiner *Notropis simus pecosensis*	Threatened	Endangered			Chaves De Baca	Roswell

[1] Groups 2 and 3 are considered Endangered and are distinguished as being any species or subspecies whose prospects of survival or recruitment within the Navajo Nation are in jeopardy or are likely within the foreseeable future to become so.

[2] Group 4 species are those in which the Navajo Nation needs additional data to assign them to one of the aforementioned groups.

BLM Farmington Field Office (Segments 1 and 2)

Endangered, Threatened, and Candidate Animal Species. Black-footed ferret is the only listed or candidate species with potential to occur in the project area within the BLM FFO boundary. Black-footed ferret is a federally-listed, endangered species, as well as a Group 2 Navajo Nation species. Suitable habitat was identified within Segments 1 and 2 during the 2011 biological surveys. Black-footed ferret specific nighttime surveys were completed in September 2012 with negative results.

BLM, State, and Tribal Special Status Animal Species. Species with habitat and or occurrences documented in or adjacent to Segments 1 or 2 are discussed below.

Gunnison's Prairie Dog. Gunnison's prairie dog within the montane range of its distribution is currently listed as a federal candidate species, while the prairie population is currently listed as a BLM sensitive species. Gunnison's prairie dogs were identified during 2011 biological surveys in Segment 1. Both active and inactive colonies were delineated during the 2012 follow-up surveys.

Pale big-eared Townsend's Bat. Pale big-eared Townsend's bat is a federal species of concern and a BLM sensitive species. While no bats were observed during the 2011 biological surveys, rocky outcrops and other habitat were identified along Segment 1.

Kit Fox. Kit fox is a Navajo Nation Group 4 species. No kit fox were seen during 2011 and 2012 surveys. Three fox dens were recorded during 2012 prairie dog colony delineations in Segment 1. The dens were located more than 1,500 feet from the proposed segment centerline but inhabitant species were not identified.

Red Fox. Red fox is a State of New Mexico species of concern. Much of Segments 1 and 2 would be considered potential habitat for red fox. No red fox were seen during 2011 and 2012 surveys. Three fox dens were recorded during 2012 prairie dog colony delineations in Segment 1. The dens were located more than 1,500 feet from Segment 1 but inhabitant species were not identified.

Burrowing Owl. Burrowing owl is a federal species of concern, Navajo Nation Group 4, and BLM Sensitive species. Active burrowing owl nests were located within along Segment 1 and the north end of Segment 2. Occupancy was confirmed at 7 of 12 sites in 2012 (Ecosphere 2012).

Other Bird species. Bird species listed within the BLM FFO boundary that may be present but were not observed include: Baird's sparrow, Ferruginous hawk, gray vireo, mountain plover, loggerhead shrike, and Sprague's pipit (see Table 3.3-16 for regulatory status).

<u>BLM Rio Puerco Field Office (Segments 2 and 3)</u>

Endangered, Threatened, and Candidate Animal Species. Black-footed ferret is the only listed or candidate terrestrial animal species with potential to occur within the project area in the BLM RPFO boundary. Black-footed ferret is a federally-listed endangered species, as well as a Group 2 Navajo Nation species. Suitable habitat was identified within Segment 2 during the 2011 biological surveys. Black-footed ferret specific nighttime surveys were completed in October 2012 with negative results.

Southwest willow flycatcher is the only endangered avian species identified within in the vicinity of Segment 2. Though this species was not identified during WEP III biological surveys, locations of an individual (no nest site identified) were documented during breeding bird surveys (Hawks Aloft, 2010 and 2011) in suitable habitat at the Rio Puerco River crossing HDD site. Several individuals were located 0.7 mile away from Segment 2 within a continuous band of riparian habitat. There were several locations of southwest willow flycatcher near San Ysidro, but they were isolated to riparian habitat that was greater than ½ mile from Segment 2.

BLM, State, and Tribal Special Status Animal Species. Species with habitat and or occurrences documented in or adjacent to Segments 2 or 3 are discussed below.

Gunnison's Prairie Dog. Gunnison's prairie dog within the montane range of its distribution is currently listed as a federal candidate species, while the prairie population is currently listed as a BLM sensitive species. Gunnison's prairie dogs were identified during 2011 biological surveys along Segments 2 and 3. Both active and inactive colonies were delineated during the 2012 follow-up surveys.

Pale big-eared Townsend's Bat. Pale big-eared Townsend's bat is a federal species of concern and a BLM sensitive species. While no bats were observed during the 2011 biological surveys, rocky outcrops and other habitat were identified along Segments 2 and 3.

Kit Fox. Kit fox is a Navajo Nation Group 4 species. No kit fox were seen during 2011 and 2012 surveys. No Kit fox or their dens were located within the BLM RPF boundary.

Red Fox. Red fox is a State of New Mexico species of concern. Much of Segments 2 and 3 would be considered potential habitat for red fox. No red fox were seen during 2011 and 2012 surveys.

Texas Horned Lizard. The Texas horned lizard is a BLM sensitive species that inhabits flat, open, generally dry country with little plant cover. No Texas horned lizards were observed during biological surveys conducted in 2011.

Burrowing Owl. Burrowing owl is a federal species of concern, Navajo Nation Group 4, and BLM Sensitive species. One burrowing owl was observed, but no nest located along Segment 2 within the BLM RPFO. An older site with potential burrows was inactive in 2011 and 2012 on Segment 3.

Other Bird species. Bird species listed in the BLM RPFO boundary that may be present but were not observed include: Aplomado falcon, Baird's sparrow, Bell's vireo, Ferruginous hawk, gray vireo, mountain plover, and Sprague's pipit (see Table 3.3-16 for regulatory status). An individual loggerhead shrike was observed on Segment 3.

BLM Taos Field Office (Segment 3)

No federal, state, or tribal listed species were identified or are expected to occur within the BLM TFO boundary.

BLM Roswell Field Office (Segments 5 and 6)

Endangered, Threatened, and Candidate Animal Species. Black-footed ferret is the only listed or candidate animal species with potential to occur within the project area in the BLM RFO boundary. Black-footed ferret is a federally-listed endangered species. Suitable habitat occurs within the BLM RFO boundary but was not identified within Segments 5 and 6 during the 2011 biological surveys.

Gray Redhorse. The gray redhorse is a federal species of concern and is a state listed endangered species. Gray redhorse historically occupied the Pecos River from the south upstream to Roswell, New Mexico, but have been extirpated from the Pecos River above Brantley Dam (Sublette et al., 1990; Propst, 1999). The gray redhorse has the potential to occur within the Pecos River, which would be crossed by Segment 6. Gray redhorse was not observed by Ecosphere during 2011 biological surveys.

Pecos Bluntnose Shiner. The Pecos bluntnose shiner is federally-listed as threatened and is considered endangered by the State of New Mexico. The Pecos bluntnose shiner is a threatened freshwater fish that is restricted to approximately 300 kilometers of the Pecos River in eastern New Mexico. It has been documented in Chaves County. The Pecos bluntnose shiner was documented in the survey area during fish surveys conducted until 2009 (Davenport, 2009). Fish surveys were not conducted by Ecosphere during 2011 biological surveys.

BLM, State, and Tribal Special Status Animal Species. Species with habitat and or occurrences documented in or adjacent to Segments 5 or 6 are discussed below.

Black-tailed Prairie Dog. Black-tailed prairie dog is a federal Species of Concern and a BLM sensitive species. No prairie dogs were identified during the 2011 biological surveys in the BLM RFO boundary.

Pale big-eared Townsend's Bat. Pale big-eared Townsend's bat is a federal species of concern and a BLM sensitive species. While no bats were observed during the 2011 biological surveys, cave and karst habitat was identified along Segment 6.

Pecos River muskrat. The Pecos River muskrat is a federal species of concern, as well as a BLM sensitive species that occurs along watercourses. While potential habitat was identified along the Pecos River, no muskrats were observed during the 2011 biological surveys.

Red Fox. Red fox is a State of New Mexico species of concern and may commonly be found in a variety of habitats including open woodlands, pasture and agricultural lands, and riparian areas. Much of Segments 5 and 6 would be considered potential habitat for red fox. No red fox were seen during 2011 surveys in the BLM RFO boundary.

Swift Fox. The swift fox is a State of New Mexico species of concern with potential habitat located within Segments 5 and 6. No swift fox or dens were observed during the 2011 biological surveys.

Texas Horned Lizard. The Texas horned lizard is a BLM sensitive species that inhabits flat, open, generally dry country with little plant cover. No Texas horned lizards were observed during biological surveys conducted in 2011.

Bigscale Logperch. The bigscale logperch is a state-listed threatened species. In the Pecos River drainage of New Mexico, bigscale logperch is locally common in Santa Rosa, Sumner and Brantley reservoirs (Koster, 1957; Sublette et al., 1990). Bigscale logperch is rare in mainstem Pecos River collections between Sumner Dam and Roswell (Propst, 1999; FWS, unpublished data) which includes the section where Segment 6 would cross the river. While Bigscale perch has the potential to occur in the Pecos River, it is a tributary species and has always been uncommon in the mainstem Pecos River (Davenport, 2008). Bigscale logperch was not observed by Ecosphere during 2011 biological surveys.

Burrowing Owl. Burrowing owl is a federal species of concern and BLM Sensitive species. No burrowing owls or burrows were identified in the BLM RFO boundary.

Other Bird species. Bird species listed in the BLM RFO boundary that may be present but were not observed include: Aplomado falcon, Baird's sparrow, Bell's vireo, common ground-dove, Ferruginous hawk, gray vireo, and Sprague's pipit (see Table 3.3-16 for regulatory status). Individual loggerhead shrikes were observed on Segment 5.

<u>BLM Carlsbad Field Office (Segment 7)</u>

Endangered, Threatened, and Candidate Animal Species. Black-footed ferret is the only listed or candidate animal species with potential to occur within the project area in the BLM CFO boundary. Black-footed ferret is a federally-listed endangered species. Suitable habitat was identified within Segment 7 during the 2011 biological surveys. Black-footed ferret specific nighttime surveys were completed in October 2012 with negative results.

BLM, State, and Tribal Special Status Animal Species. Species with habitat and or occurrences documented in or adjacent to Segment 7 are discussed below.

Black-tailed Prairie Dog. The Black-tailed prairie dog is a federal species of concern and a BLM sensitive species. Black-tailed prairie dogs were identified by Ecosphere during the 2011 biological surveys along Segment 7, and Black-tailed prairie dog colonies were delineated within Segment 7 in 2012. The colonies identified were located on private land.

Red Fox. Red fox is a State of New Mexico species of concern and may commonly be found in a variety of habitats including open woodlands, pasture and agricultural lands, and riparian areas. Much of Segment 7 would be considered potential habitat for red fox. No red fox were seen during 2011 surveys in the BLM RFO boundary.

Swift Fox. The swift fox is a State of New Mexico species of concern with potential habitat located along Segment 7. No swift fox or dens were observed during the 2011 biological surveys.

Texas Horned Lizard. The Texas horned lizard is a BLM sensitive species that inhabits flat, open, generally dry country with little plant cover. No Texas horned lizards were observed during biological surveys conducted in 2011.

Burrowing Owl. Burrowing owl is a federal species of concern and BLM Sensitive species. Two burrows were identified within the BLM CFO boundary as active in 2011 but were found to be inactive in 2012.

Other Bird species. Bird species listed in the BLM CFO boundary that may be present but were not observed include: Aplomado falcon, Baird's sparrow, Bell's vireo, Ferruginous hawk, loggerhead shrike, and Sprague's pipit (see Table 3.3-16 for regulatory status).

3.3.4.2 Proposed Action Alternative – Special Status Animal Species

3.3.4.2.1 Direct and Indirect Impacts

Endangered, Threatened, and Candidate Animal Species. Impacts to special status animal species that were observed or could occur in the project area (see Table 3.3-16) are discussed here. Effects to BLM-sensitive bird species observed within the project area are discussed in Section 3.3.5/Migratory Birds.

Black-footed ferret is the only federally-listed terrestrial species with potential to occur in the project area. This species is considered extirpated in the area. Presence or absence surveys were conducted according to FWS guidelines (FWS, 1989) in potentially suitable habitat with negative results. The survey clearance is current for one year prior to the start of the Proposed Action.

The Proposed Action would use an HDD to cross the Rio Puerco and Pecos rivers; thereby avoiding effects to federally-listed Pecos River fish species and effects to southwest willow flycatcher habitat. During construction, erosion control measures would be installed to prevent sedimentation from disturbed areas to the waterbodies.

Water depletions would utilize existing water rights for water withdrawal for hydrostatic testing and dust control (see Table 2.2-3). MAPL would not obtain new water rights; therefore, potential effects would be accounted for under the existing water rights. If water were pumped directly from the Pecos River, MAPL would screen the hoses to prevent fish entrainment. To prevent and minimize the effects of a spill, MAPL would implement the measures in the SPCC Plan (see Appendix P to the POD). Herbicide use would follow the Integrated Noxious and Invasive Weed Management Plan (see Appendix G to the POD) and would be BLM-approved.

The Proposed Action would result in no effect to federally-listed ESA species.

BLM State and Tribal Special Status Animal Species. The location and orientation of the Proposed Action relative to existing pipeline rights-of-way and access roads would help minimize effects to special status animal species, since species potentially utilizing the area may be habituated to disturbance. However, habitat loss, increased fragmentation, temporary individual displacement, and possible direct impacts to individuals (e.g., mortality, harassment) would be possible.

Construction would remove approximately 3,609 acres of habitat (see Table 2.2-1) that could potentially be used by special status species. Special status species could be displaced from habitats that are cleared of vegetation and from adjacent habitats. Previously disturbed vegetation would become reestablished to some degree within one to three growing seasons after construction, but shrub-dominated habitat would take longer (see Section 3.3.2/Vegetation). Displacement from adjacent habitats would also be a short-term effect once construction and revegetation of the right-of-way is complete and human activity is absent. Removal of forested habitat and sagebrush would be a long-term effect, possibly affecting summer and/or winter bat roosts, cavity-nesting species, and sagebrush-dependent species.

Some special status wildlife species may be directly impacted by construction of the Proposed Action if they are killed by vehicles traveling to and from construction sites. Species most susceptible to vehicle-related mortality include those that are inconspicuous (lizards, frogs, snakes, and small mammals), and those with limited mobility (amphibians). Observing speed

limits and limiting most construction traffic to daylight hours should minimize the potential for vehicle collisions with special status species.

Direct effects to fossorial species (those living underground), such as prairie dogs and foxes, could occur during construction. Prairie dogs often burrow in previously disturbed areas (Koford, 1958; Knowles, 1982) and inhabit portions of existing pipeline rights-of-way that would be disturbed by construction. Direct mortality could also occur during right-of-way maintenance operations, such as mowing or brush-hogging. Gunnison's and black-tailed prairie dog towns observed within and adjacent to the proposed construction right-of-way have been previously fragmented from other pipelines and would experience additional fragmentation; however, prairie dogs would most likely reestablish within and adjacent to the right-of-way.

Swift, kit, and red fox within the project area could be affected by destruction of natal dens and escape burrows, reduction of prey sources including prairie dogs, increased risk of vehicle-caused mortality, and human disturbance during breeding and pup-rearing that may also increase risk of predation (Meaney et al., 2006). MAPL would implement mitigation measures within their Biological Resources Protection Plan to minimize or avoid disturbance to active fox dens, including construction outside of the denning period where dens are located (see Appendix H to the POD).

General effects described above could occur to species that potentially occur within the project area, if the species is present or using habitat removed during construction on or adjacent to the project.

BLM Farmington Field Office (Segments 1 and 2)

Endangered, Threatened, and Candidate Animal Species. Although suitable habitat was identified, black-footed ferrets have not been documented in the project area. Presence or absence surveys were conducted to ensure black-footed ferrets have not re-established in the area. The survey clearance is current for one year prior to the start of the Proposed Action.

BLM State and Tribal Special Status Animal Species. Special status animal species that may be affected by the Proposed Action are addressed individually below.

Gunnison's Prairie Dog. Active Gunnison's prairie dog towns were documented on BLM-managed lands during the 2011 biological surveys along the northern end of Segment 1. Construction would affect approximately 25.9 acres of occupied prairie dog habitat within Segment 1 and 3.9 acres of inactive prairie dog habitat (see Table 3.3-17). The BLM manages Gunnison's prairie dogs indirectly, mainly through the burrowing owl special status species management policy. This policy includes pre-construction surveys for burrowing owls, timing restrictions, and avoidance measures (see Section 3.3.5/Migratory Birds).

Table 3.3-17
Acres of Active and Inactive Prairie Dog Habitat Delineated within the Project Area

BLM Field Office [1]	Active	Inactive	Total
Farmington (CYGU[2])	25.9	3.9	29.8
Rio Puerco (CYGU[2])	86.9	4.1	91.0
Taos (CYGU[2])	0.0	1.2	1.2
Carlsbad (CYLU[3])	5.9	1.3	7.2
Grand Total	**118.7**	**10.5**	**129.2**

[1] No habitat was delineated within the RFO boundary.
[2] CYGU - Gunnison's prairie dog (prairie populations) (*Cynomys gunnisoni gunnisoni*)
[3] CYLU - Black-tailed prairie dog (*Cynomys ludovicianus*)

Pale big-eared Townsend's Bat. No pale big-eared Townsend's bats were observed during the 2011 biological surveys. Segments 1 and 2 pass through but do not destroy low lying cliff areas with caves; thus, no substantial impact is expected to occur to Pale big-eared Townsend's bats.

Red and Kit Fox. No red fox, kit fox, or their dens were identified within Segments 1 or 2. Potential direct effects could occur during trenching activities if a fox remained in a den while large machinery excavated the pipeline trench. Indirect effects would be minor due to the narrow, linear nature of the impact.

BLM Rio Puerco Field Office (Segments 2 and 3)

Endangered, Threatened, and Candidate Animal Species. While suitable habitat was identified, black-footed ferrets have not been documented in the project area. Presence or absence surveys were conducted to ensure black-footed ferrets have not re-established in the area. The survey clearance is current for one year prior to the start of the Proposed Action.

Southwest willow flycatchers have not been documented in the project area; however, suitable habitat occurs within Segment 2 near the Rio Puerco River. Habitat associated with southwest willow flycatchers has been categorized by the FWS as Critical Habitat Designation. This designation "does not necessarily restrict further development. It is a reminder to Federal agencies that they must make special efforts to protect the important characteristics of these areas" (FWS, 2012). The area with suitable habitat would be crossed by HDD; therefore the habitat would not be affected. Additionally, though no nests are known to have ever been located in the area, pre-construction surveys would occur prior to construction to identify any potential nesting sites.

BLM State and Tribal Special Status Animal Species. Special status animal species that may be affected by the Proposed Action are addressed individually below.

Gunnison's Prairie Dog. Active Gunnison's prairie dog towns were documented on BLM-managed lands during the 2011 biological surveys along Segment 2. Construction would affect approximately 86.9 acres of occupied prairie dog habitat in Segment 2 and 4.1 acres of inactive prairie dog habitat (see Table 3.3-17). The BLM manages Gunnison's prairie dogs indirectly, mainly through the burrowing owl special status species management policy. This policy includes pre-construction surveys for burrowing owls, timing restrictions, and avoidance measures (see Section 3.3.5/Migratory Birds).

Texas Horned Lizard. No Texas horned lizards were observed but presence within the proposed construction right-of-way is possible. Direct impacts to Texas horned lizards could occur from vehicle traffic and trenching activities by large machinery. Posted speed limit signs should reduce the impacts of vehicle traffic, while lizard mobility would allow for individuals to avoid direct impacts from large machines engaged in pipeline installation.

Red and Kit Fox. No red fox, kit fox, or their dens were identified within Segments 2 or 3. Potential direct effects could occur during trenching activities if a fox remained in a den while large machinery excavated the pipeline trench. Indirect effects would be minor due to the narrow, linear nature of the impact.

BLM Roswell Field Office (Segments 5 and 6)

Endangered, Threatened, and Candidate Animal Species. The only federally-listed species expected to occur is the Pecos bluntnose shiner. The portion of the Pecos River where this species occurs would be crossed using an HDD to avoid potential direct and indirect impacts.

BLM State and Tribal Special Status Animal Species. Special status animal species that may be affected by the Proposed Action are addressed individually below.

Pale big-eared Townsend's Bat. No pale big-eared Townsend's bats were observed during the 2011 biological surveys. Segment 6 would pass through cave and karst habitat. No substantial impact is expected to occur to Pale big-eared Townsend's bats.

Pecos River muskrat. The Pecos River muskrat could occur in the Pecos River. Because the river corridor would be avoided using an HDD, there would be no impacts to the Pecos River muskrat.

Red Fox. No red fox or red fox dens were identified within Segments 5 or 6. Potential direct effects could occur during trenching activities if a fox remained in a den while large machinery excavated the pipeline trench. Indirect effects would be minor due to the narrow, linear nature of the impact.

Swift Fox. No swift fox or swift fox dens were identified along Segments 5 or 6. Potential direct effects could occur during trenching activities if a swift fox remained in a den while large machinery excavated the pipeline trench. Indirect effects would be minor due to the narrow, linear nature of the impact.

Texas Horned Lizard. No Texas horned lizards were observed but presence within the proposed construction right-of-way is possible. Direct impacts to Texas horned lizards could occur from vehicle traffic and trenching activities by large machinery. Posted speed limit signs should reduce the impacts of vehicle traffic, while lizard mobility would allow for individuals to avoid direct impacts from large machines engaged in pipeline installation.

BLM Carlsbad Field Office (Segment 7)

Endangered, Threatened, and Candidate Animal Species. While suitable habitat was identified, black-footed ferrets have not been documented in the project area. Presence or absence surveys were conducted to ensure black-footed ferrets have not re-established in the area. The survey clearance is current for one year prior to the start of the Proposed Action.

BLM State and Tribal Special Status Animal Species. Special status animal species with potential to occur in the project area are addressed individually below.

Black-tailed Prairie Dog. Active black-tailed prairie dog towns were documented on private land during the 2011 biological surveys along Segment 7. Construction would affect approximately 5.9 acres of occupied prairie dog habitat and 1.3 acres of unoccupied habitat (see Table 3.3-17). The BLM manages black-tailed prairie dogs indirectly, mainly through the burrowing owl special status species management policy. This policy includes pre-construction surveys for burrowing owls, timing restrictions, and avoidance measures (see Section 3.3.5/Migratory Birds).

Red Fox. No red fox or red fox dens were identified within Segment 7. Potential direct effects could occur during trenching activities if a fox remained in a den while large machinery excavated the pipeline trench. Indirect effects would be minor due to the narrow, linear nature of the impact.

Swift Fox. No swift fox or swift fox dens were identified along Segment 7. Potential direct effects could occur during trenching activities if a swift fox remained in a den while large machinery excavated the pipeline trench. Indirect effects would be minor due to the narrow, linear nature of the impact.

Texas Horned Lizard. No Texas horned lizards were observed but presence within the proposed construction right-of-way is possible. Direct impacts to Texas horned lizards could occur from vehicle traffic and trenching activities by large machinery. Posted speed limit signs should reduce the impacts of vehicle traffic, while lizard mobility would allow for individuals to avoid direct impacts from large machines engaged in pipeline installation.

Protective Design Features

No measures have been proposed to further reduce effects to Special Status Animal Species.

3.3.4.2.2 Cumulative Impacts

Because the Proposed Action would be constructed adjacent to existing pipeline rights-of-ways, portions of the proposed disturbance would have been previously affected by past construction activities. Due to the limited disturbance to suitable special status animal species habitat and the large amount of habitat available in lands adjacent to the proposed construction right-of-way, adverse cumulative impacts to special status animal species are not anticipated in the area from reasonably foreseeable future actions (i.e., recreation, oil and gas development, grazing). Total habitat disturbance represents less than 1 percent of the adjacent occupied ranges available in the region. With restoration of the Proposed Action and restoration of future actions, cumulative impacts to special status animal species would be expected to be minimal.

3.3.4.3 No Action Alternative – Special Status Animal Species

3.3.4.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to special status animal species associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts from mortality due to increased traffic could occur.

3.3.4.3.2 Cumulative Impacts

Cumulative impacts would depend on the means of transport, the routes that would be used, and the presence of special status animal species in the areas the routes would traverse. Effects are not quantifiable in a meaningful way for purposes of this analysis.

3.3.4.4 Affected Environment - Special Status Plant Species

Endangered, Threatened, Proposed, Petitioned, and Candidate Plant Species. Threatened and endangered plant species include only those species listed by the FWS under the ESA. Species that have been proposed, petitioned, and which are candidate species for listing are also considered here. Section 3.3.4.1/Special Status Species provides a description of how the species lists were developed. Aztec gilia is the only federally-listed plant species (Species of Concern) expected to occur in the project area.

BLM Sensitive, State of New Mexico, and Navajo Nation Plant Species. Available information from various national and regional databases was compiled for each plant species. Section 3.3.4.1/Special Status Species provides a description of how the species lists were developed. Table 3.3-18 provides the current status of species which occur or are expected to occur in the project area. A complete list of special status plants with potential to occur in the project area is provided in Appendix F. Evaluations for those special status plant species with known or potential occurrence in the project area are included for each BLM field office below.

Table 3.3-18
Federal, State, or Tribal Plant Species Known or with Potential to Occur within the Project Area

Common Name ***Scientific Name***	**ESA Status**	**State of New Mexico Status**	**BIA Navajo Nation Status**	**BLM Status**	**County**	**BLM Field Office**
Aztec gilia *Aliciella formosa*	Species of Concern	Endangered		Sensitive	San Juan	FFO
Brack's hardwall cactus *Sclerocactus cloveriae* var. *brackii*		Endangered		Sensitive	San Juan	FFO
San Juan milkweed *Asclepias sanjuanensis*			Group 4[1]	Sensitive	San Juan	FFO
Galisteo sand verbena *Abronia bigelovii*				Sensitive	Sandoval, Santa Fe, Rio Arriba	RPFO

[1] Group 4 species are those in which the Navajo Nation needs additional data before assigning them to Groups 1-3.

Listed plant species were recorded within the BLM FFO and RPFO.

BLM Farmington Field Office (Segment 1)

Endangered, Threatened, Proposed, Petitioned, and Candidate Plant Species. Aztec gilia (Species of Concern) is the only listed, proposed, petitioned or candidate species that occurs in the project area. Aztec gilia is a perennial flowering plant blooming annually between the months of April and June. The species is endemic to New Mexico and is only found on Nacimiento-derived soils in the San Juan Basin (BLM 1995). Surveys were conducted during the April to May flowering season in 2012 when the plants are more readily observed. The follow-up pedestrian surveys were conducted using a team of five crew members walking linear transects spaced approximately 10 feet apart within the 200- to 300-foot wide survey area, the size of the survey depending on the potential habitat in the area. Four individual Aztec gilia plants were identified within the proposed survey area on the south side of Kutz Wash, south of MP 413 on Segment 1. This population continued to the northwest of the proposed construction right-of-way. No other Aztec gilia populations were documented during biological surveys conducted in 2011 or 2012.

In 2001, the BLM FFO implemented formal management of Aztec gilia populations, which includes:

- pre-construction surveys in potential habitat;
- fencing and monitoring during construction activities within close proximity to individuals or populations;
- stockpiling the top 6 inches of soil in potential habitat prior to construction activities and redistribution of topsoil during reclamation;
- requiring projects to avoid individual plants and populations.

BLM Sensitive, State of New Mexico, and Navajo Nation Plant Species. Brack's hardwall cactus (BLM Sensitive, State of New Mexico Endangered) was identified in the project area. Brack's hardwall cactus is typically found only on the Nacimiento geological layer (BLM, 2003a). Brack's hardwall cactus typically blooms in late April into May (BLM, 2003a). The BLM FFO has

delineated suitable habitat for Brack's hardwall cactus within the planning area. Follow-up surveys were conducted during the April to May flowering season in 2012 when the plants are more readily observed. The follow-up pedestrian surveys were conducted using a team of five crew members walking linear transects spaced approximately 10 feet apart within the 200- to 300-foot wide survey area, the size of the survey depending on the potential habitat in the area. Eight populations of Brack's hardwall cactus were recorded in Segment 1 during the 2011 and 2012 field surveys. A total of 654 individual Brack's hardwall cacti were recorded within the 300-foot wide survey corridor, and a total of 289 individuals were located within the proposed construction right-of-way (see Table 3.3-19).

Table 3.3-19
Brack's Hardwall Cactus Locations Documented within the Segment 1 Construction Right-of-Way in 2011 and 2012

Location of Population	Number of Cactus Delineated in 300-foot wide Survey Area	Number of Cactus in Construction Right-of-Way	MP	Land Ownership	County	Potential Habitat within Construction Right-of-Way (acres)
T28N, R11W, S24NW	7	5	414.95 to 414.99	BLM	San Juan	2.4
T28N, R11W, S25NW	6	3	413.74-413.75	BLM	San Juan	1.5
T28N, R11W, S36NW	95	67	412.91-412.97	BLM	San Juan	2.0
T24N, R9W, S17NW	1	1	388.35-388.53	BLM	San Juan	4.2
T24N, R9W, S20NE	9	5	387.65-387.79	BLM	San Juan	3.5
T23N, R8W, S3NE	78	14	378.28-378.10	BLM	San Juan	4.8
T23N, R8W, S1NE	423	165	375.77-377.67	State, BLM, Tribal	San Juan	29.7
T23N, R9W, S15NW	35	29	371.63-371.72	Tribal	Rio Arriba	2.1
Total	**654**	**289**				**50.2**

To insure the viability of Brack's hardwall cactus, individual plants as well as the habitat that supports these plants receive special management. The BLM FFO management of Brack's hardwall cactus habitat typically includes stripping the top 6 inches of topsoil and stockpiling it separately during construction. A total of 50.2 acres of occupied habitat (see Table 3.3-19) and a total of 25.6 acres of potential but unoccupied habitat (see Table 3.3-20) occurs within the proposed construction right-of-way.

Table 3.3-20
Potential but Unoccupied Brack's Hardwall Cactus
Habitat within the Proposed Construction Right-of-Way

Location	Land Ownership	County	Potential Habitat within Construction Right-of-Way (acres)
T28N, R11W, S25NW	BLM	San Juan	1.6
T24N, R9W, S8SW	Private	San Juan	1.8
T24N, R9W, S20SE	BLM	San Juan	1.3
T24N, R9W, S28SE	BLM	San Juan	2.1
T24N, R9W, S28SE B	BLM	San Juan	1.6
T24N, R9W, S34NE A	Tribal	San Juan	5.8
T24N, R9W, S34NE B	Tribal	San Juan	4.3
T24N, R9W, S35SE	BLM	San Juan	6.9
T23N, R8W, S4NE B	BLM	San Juan	0.1
T23N, R8W, S4NE C	BLM	San Juan	0.1
		Total	**25.6**

Current BLM FFO management for Brack's hardwall cactus includes:

- attempting to relocate proposed projects to minimize disturbance;
- transplanting where appropriate;
- stockpiling the top 6 inches of soil in potential habitat prior to construction activities and redistribution of topsoil during reclamation;
- contracting an onsite biological monitor for mitigation and/or construction.

San Juan milkweed is listed by the Navajo Nation as a Group 4 species and is a BLM proposed sensitive species. Habitat for San Juan milkweed is described as sandy soils located within Great Basin grassland and piñon-juniper woodlands. The species is restricted to San Juan County at elevations ranging between 5,000 to 6,000 feet (Ecosphere, 2012a). The blooming period is late April into early May (Ecosphere, 2012a). Potential habitat for San Juan milkweed was identified within Segment 1 in 2011 and was surveyed in April 2012; no San Juan milkweed was recorded during surveys in 2012.

<u>BLM Rio Puerco Field Office (Segments 2 and 3)</u>

The Galisteo sand verbena (*Abronia bigelovii*) is a BLM RPFO sensitive status species that occurs in hills and ridges of gypsum in the Todilto Formation at elevations between 5,700 and 7,400 feet. This species flowers from May to October and has been reported in Sandoval, Santa Fe, and Rio Arriba Counties. The northernmost section of Segment 3 has been delineated by the BLM RPFO as potential habitat for this species.

No Galisteo sand verbena plants were observed within this survey area during the 2011 or 2012 botanical surveys. Several small populations of Galisteo sand verbena were identified during 2013 spring reconnaissance surveys in the gypsum outcrops at the base of White Mesa south of San Ysidro. This area is within the RPFO but outside any previously identified suitable habitat area. The pipeline centerline and 25 feet on either side of the centerline was surveyed. Thirty-three individuals were observed on the gypsum outcrops within the right-of-way. All gypsum outcrops within at least 300 feet of the right-of-way were also surveyed to document whether larger populations of Galisteo sand verbena exist outside of the right-of-way. More than 400 individuals were observed on these gypsum outcrops outside of the construction right-

of-way. The survey was conducted during a period when the plant was dormant; thus, not all individuals would have been documented during the survey.

3.3.4.5 Proposed Action Alternative – Special Status Plant Species

3.3.4.5.1 Direct and Indirect Impacts

The Proposed Action could directly or indirectly (FWS, 2011) affect special status plant species through:

1. Direct mortality of plants and/or destruction of seed banks during clearing and grading.
2. Fragmentation and isolation of existing populations and areas of suitable habitat.
3. Damage or mortality of plants and/or seed banks due to increased off-road vehicle use in the project area.
4. Increased human access to occupied habitats and destruction of plants through illegal collection.
5. Increased populations of invasive noxious weed species that interfere with growth and survival of special status plants.
6. Damage or mortality of individual plants by dust deposited on photosynthetic surfaces during construction and operation.
7. Changes in characteristics (shade, temperature, soil moisture, species composition, etc.) that alters suitable habitat.
8. Loss of pollinators due to habitat alteration, dust, and/or increased presence of invasive, noxious weeds.
9. Accidental release of toxic compounds during construction and/or operation.

Similar to effects to vegetation in general, any special status plant species within the construction right-of-way and temporary use areas would be directly removed. In several locations, individual plants that can be would be transplanted out of the project impact area.

Implementation of measures outlined within the Integrated Noxious and Invasive Weed Management Plan, Biological Resources Protection Plan, Reclamation and Monitoring Plan, and SWMP (see Appendices G, H, D, and E to the POD, respectively) would minimize effects to the special status plants documented within the project area. During construction, MAPL would implement dust suppression methods along access roads and the construction right-of-way, limit vehicle speeds along the construction right-of-way and access roads, and limit clearing during periods of high winds which would minimize fugitive dust effects to special status plants and habitat and potential pollinators within the project area.

<u>BLM Farmington Field Office (Segment 1)</u>

Given the number of Brack's hardwall cacti within the proposed construction right-of-way, a mitigation and monitoring plan would be developed (see Biological Resources Protection Plan in Appendix H to the POD). The plan would include transplanting some number of the cacti into monitoring plots that would be monitored for a minimum of 5 years. Because the populations are located on tribal and state lands, specific management decisions are still being considered by the BLM FFO, Navajo Nation, and New Mexico State Land Office. The monitoring and mitigation plan would detail these decisions.

For both Aztec gilia and Brack's hardwall cactus, if Proposed Action activities are not initiated within one year of a biological survey, a new survey may be needed depending on the location of the project area. A new biological survey would be determined by a BLM FFO biologist on a case by case basis.

BLM Rio Puerco Field Office (Segments 2 and 3)

BMP's for sensitive species as described above would be applied, where appropriate, to reduce impacts to Galisteo sand verbena, including dust prevention and fencing off populations during construction.

Protective Design Features

No measures have been proposed to further reduce effects to Special Status Plant Species.

3.3.4.5.2 Cumulative Impacts

Because the Proposed Action would be constructed adjacent to existing pipeline rights-of-ways, portions of the proposed disturbance would have been previously affected by past construction activities. With implementation of BMPs (avoiding, transplanting, and monitoring) for the Proposed Action and assumed BMPs for reasonably foreseeable future activities (i.e., recreation, oil and gas development, grazing), cumulative impacts to special status plant species should be minimal.

3.3.4.6 No Action Alternative – Special Status Plant Species

3.3.4.6.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to special status plant species associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to special status plant species would not be anticipated, assuming travel occurs on paved roads.

3.3.4.6.2 Cumulative Impacts

None would be anticipated.

3.3.5 Migratory Birds

3.3.5.1 Affected Environment

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, implements treaties for the protection of migratory birds. The FWS has primary responsibility for administering the MBTA, which prohibits taking, killing, or possessing migratory birds, their parts (feathers, talons), nests or eggs. EO 13186, issued in 2001, directed actions that would further implement the MBTA. EO 13186 directed federal agencies to avoid take under the MBTA, whether intentional or unintentional (with BCC as priorities), and implementing conservation measures to restore and enhance habitat for migratory birds, including the development of surface operating standards for oil and gas developments, management of invasive species to benefit migratory birds, minimizing/preventing pollution, or detrimental alteration of habitats utilized by migratory birds, among other commitments.

In 2007, BLM published interim guidance for implementing EO 13186, which included analysis, through NEPA, of project effects on migratory birds and effects relative to land health in the project area (BLM, 2007a). As required by MBTA and EO 13186, BLM signed a Memorandum of Understanding (MOU) with the FWS in April 2010, which is intended to strengthen migratory bird conservation efforts by identifying and implementing strategies to promote conservation and reduce or eliminate adverse impacts on migratory birds. Migratory bird species at conservation risk are identified and protected by various laws, regulations, and guidelines.

As a BMP pursuant to implementing EO 13186, BLM's Instruction Memorandum (IM) No. 2008-050 (BLM, 2007a) suggested that impacts to nesting migratory birds could be minimized or

avoided by imposing a timing limitation on use authorizations to mitigate vegetative disturbing activities during the primary portion of the nesting season (May 15 to July 31) when most migratory birds nest, but cautioned that dates should be adjusted for the timing or intensity of breeding activity by BCC and migratory bird species affected by a project and species' environmental conditions (BLM, 2007a).

The BLM IM No. NM-200-2008-001 *Special Management Species Policy 2008 Update* (BLM, 2008) provides special management guidance for burrowing owl, which includes the following:

- Prairie dog towns will be considered designated potential habitat for burrowing owls.
- Proposed project activities will seasonally avoid negative impacts and disturbance to burrowing owls.
- A preconstruction survey for burrowing owls is required for proposed projects scheduled to be constructed within designated potential habitat during the nesting season of April 1 to July 31.
- Occupied burrowing owl nests will not be disturbed within a 50-meter (165 feet) radius from April 1 to August 15. After August 15, any project that will cause destruction of the nest burrow can only begin after confirmation that the nest burrow is no longer occupied.

On the Navajo Nation:

- No activity within 0.4 km (1/4 mile) of active nest burrow between March 1 and August 15.
- No habitat alteration year-round within 0.4 km (1/8 mile) of nest site.

For the Proposed Action, the following special status bird lists were reviewed:

- FWS – Species listed under the ESA;
- State of New Mexico – Endangered and Threatened Species;
- FWS – The Bald and Golden Eagle Protection Act;
- BLM – FFO, RPFO, RFO, and CFO Sensitive Species lists;
- Tribal – Navajo Endangered Species List;
- FWS – Birds of Conservation Concern (BCC); and
- New Mexico Partners In Flight (NMPIF) Bird Conservation Plan – Priority Species.

There is a large overlap of species on federal and state endangered species lists, the BCC list (FWS, 2008), the BLM and Navajo Nation sensitive species lists, and those identified in the NMPIF (2007) Bird Conservation Plan. This section focuses on bird species with high conservation concern that occur on the FWS BCC list with habitat in the project area.

Birds identified by the FWS BCC list are state conservation priority species listed by Bird Conservation Region (BCR), which are broad ecological regions. WEP III would be located within three BCRs: BCR 16 – Southern Rockies/Colorado Plateau; BCR 18 – Shortgrass Prairie; and BCR 35 – Chihuahuan Desert. A list of migratory bird species associated with these BCRs with potential to occur in the project area is provided in Tables 3.3-21 through 3.3-23.

Additionally, NMPIF defines 20 separate habitat types within the state, based on both bird assemblages and vegetative associations. In many respects, these coincide with the principal vegetative cover types recognized by Dick-Peddie (1993). The 20 habitats comprise six major categories: Grasslands, Shrublands, Non-riparian Woodlands, Forests, Wetlands, and Other

(NMPIF, 2007). To further refine the list of birds, the New Mexico Bird Conservation Plan was cross-referenced with the BCC list to identify habitat associations of each species. GIS analysis of the dominant vegetation types within the proposed loop pipeline segments is presented in Table 3.3-5 and was used to identify which segments may contain potential habitat for species. Listed species without habitat within the project area were ruled out and excluded from consideration. For example, because the proposed segments would not cross alpine tundra within BCR 16, brown-capped rosy finch (*Leucosticte australis*) and white-tailed ptarmigan (*Lagopus leucurus*) were excluded.

Finally, each bird species' distribution and habitat association were reviewed in species accounts from the New Mexico Avian Conservation Partners, Cornell Lab of Ornithology's Birds of North America, and BISON-M to determine the final list of birds with potential habitat in the project area.

Table 3.3-21
Presence of Bird Species Listed in the Bird Conservation Region 16
(Southern Colorado/Colorado Plateau)

Common Name ***Scientific Name***	**Habitat Association[1]**	**Documented in Survey Area[1] (Segment)**	**Pipeline Segment with Potential Habitat[1]**	**Southern Rockies/Colorado Plateau (BCR 16)**	
				BCR Trend [2] 1966 to 2000	**BCR Trend [2] 2000 to 2010**
Bendire's thrasher *Toxostoma bendirei*	Piñon-juniper woodland; Great Basin shrub; Plains-Mesa grassland; Chihuahuan Desert shrub.	No	1, 2, 3, 5	Decreasing	Decreasing
Black-chinned sparrow *Spizella atrogularis*	Piñon-juniper woodland; montane shrub.	No	1, 2, 3	Increasing	Increasing
Brewer's sparrow *Spizella breweri*	Great Basin shrub.	No	1, 2, 3	Decreasing	Decreasing
Burrowing owl *Athene cunicularia hypugaea*	Plains-Mesa sand shrub; Plains-Mesa grassland; Chihuahuan Desert shrub; Chihuahuan Desert grassland; agricultural; urban.	Yes 1, 2, 3, 6, 7	1 - 7	Decreasing	Increasing
Cassin's sparrow *Aimophila cassinii*	Plains-Mesa sand shrub; Plains-Mesa grassland; Chihuahuan Desert shrub; Chihuahuan Desert grassland.	No	1 - 7	Decreasing	Increasing
Chestnut-collared longspur *Calcarius ornatus*	Winter only. Plains-Mesa grassland; Chihuahuan Desert grassland.	No	3,5, 6, 7	Decreasing	Decreasing
Ferruginous hawk *Buteo regalis*	Piñon-juniper woodland; Great Basin shrub;	No	1, 2, 3	Increasing	Increasing

Common Name *Scientific Name*	Habitat Association[1]	Documented in Survey Area[1] (Segment)	Pipeline Segment with Potential Habitat[1]	Southern Rockies/Colorado Plateau (BCR 16)	
				BCR Trend [2] 1966 to 2000	BCR Trend [2] 2000 to 2010
	Plains-Mesa grassland; Chihuahuan Desert shrub; agricultural.				
Flammulated owl *Otus flammeolus*	Mixed conifer forest; ponderosa pine forest; Madrean pin-oak woodland.	No	Limited habitat on 2	No Data	No Data
Golden eagle *Aquila chrysaetos*	Cliff/cave.	Yes 1	1 - 7	Decreasing	Decreasing
Grace's warbler *Dendroica graciae*	Mixed conifer forest; ponderosa pine forest; Madrean pin-oak woodland.	No	Limited habitat on 2	Decreasing	Increasing
Grasshopper sparrow *Ammodramus savannarum*	Chihuahuan Desert shrub; Chihuahuan Desert grassland; agricultural.	No	5, 6, 7	Decreasing	Decreasing
Gray vireo *Vireo vicinior*	Piñon-juniper woodlands; montane shrub; Great Basin shrub; Chihuahuan Desert shrub.	No	1, 2, 3	Increasing	Increasing
Juniper titmouse *Baeolophus ridgwayi*	Piñon-juniper woodlands; Madrean pine-oak woodland.	No	1, 2, 3	Increasing	Increasing
Lark bunting *Calamospiza melanocorys*	Plains-Mesa grasslands.	Yes 5, 6, 7	5, 6, 7	Decreasing	Decreasing
Lewis' woodpecker *Malenarpes lewis*	Ponderosa pine forest; montane riparian; middle-elevation riparian; agricultural.	No	Limited on 2, 3	Decreasing	Decreasing
Loggerhead shrike *Lanius ludovicianus*	Piñon-juniper woodland; Great Basin shrub; Plains-Mesa sand shrub; Plains-Mesa grassland; Chihuahuan Desert shrub; Chihuahuan Desert grassland; agricultural.	Yes 3, 5, 6	1 - 7	Decreasing	Decreasing
Long-billed curlew *Numenius americanus*	Plains-Mesa grassland.	No	3, 5	Increasing	Increasing

Common Name *Scientific Name*	Habitat Association[1]	Documented in Survey Area[1] (Segment)	Pipeline Segment with Potential Habitat[1]	Southern Rockies/Colorado Plateau (BCR 16)	
				BCR Trend [2] 1966 to 2000	BCR Trend [2] 2000 to 2010
McCown's longspur *Rhynchophanes mccownii*	Winter only. Chihuahuan Desert grassland; agricultural.	No	3, 5, 6, 7	Decreasing	Increasing
Mountain plover *Charadrius montanus*	Plains-Mesa grassland; Chihuahuan Desert grassland.	No	1, 2, 3, 7	Decreasing	Decreasing
Piñon jay *Gymnorhinus cyanocephalus*	Ponderosa pine forest; piñon-juniper woodland.	Yes 1	1, 2, 3	Decreasing	Decreasing
Prairie falcon *Falco mexicanus*	Cliffs/caves.	Yes 3, 2, 6, 7	1 - 7	Increasing	Increasing
Sprague's pipit *Anthus spragueii*	Winter only. Chihuahuan desert grassland.	No	5, 6, 7	Increasing	Increasing
Virginia's warbler *Vermivora virginiae*	Mixed conifer forest; ponderosa pine forest; piñon-juniper woodland; Madrean pine-oak woodland; montane shrub.	No	1, 2, 3	Decreasing	Decreasing
Yellow warbler *Setophaga petechial sonorana ssp.*	Middle-elevation riparian; southwestern riparian.	Yes 6	3, 6	Decreasing	Decreasing

Notes:
[1] Habitat Association is based on 20 different habitat types in the state defined in NMPIF Bird Conservation Plan (2007).
[2] Segments with potential habitat were determined through cross-reference of GIS analysis of dominant vegetation, habitat descriptions, species' distributions, and species accounts from the following sources: New Mexico Avian Conservation Partners, accessed October 2012; Cornell Lab of Ornithology, Birds of North America, accessed October 2012; BISON-M, accessed October 2012.

Table 3.3-22
Presence of Bird Species Listed in the Bird Conservation Region 35 (Short Grass Prairie) and/or Region 18 (Chihuahua Desert)

Common Name *Scientific Name*	Habitat Association[1]	Documented in Survey Area[1] (Segment)	Pipeline Segment with Potential Habitat[1]	Short Grass Prairie (BCR 35) and Chihuahua Desert (BCR 18)	
				BCR Trend [2] 1966 to 2000	BCR Trend [2] 2000 to 2010
Baird's sparrow *Ammodramus bairdii*	Winter only; Chihuahuan Desert grasslands.	No	5, 6, 7	Decreasing	Increasing
Bald eagle *Haliaeetus leucocephalus*	Primarily winter resident. Middle-elevation riparian; southwestern riparian; emergent wetlands and lakes.	No	6	Increasing	Increasing
Bell's vireo *Vireo bellii*	Middle-elevation riparian; southwestern riparian; Chihuahuan Desert shrub.	No	6	Increasing	Increasing
Burrowing owl *Athene*	Plains-Mesa sand shrub; Plains-Mesa grassland;	Yes 1, 2, 3, 6, 7	1 - 7	Flat	Increasing

Common Name *Scientific Name*	Habitat Association[1]	Documented in Survey Area[1] (Segment)	Pipeline Segment with Potential Habitat[1]	Short Grass Prairie (BCR 35) and Chihuahua Desert (BCR 18)	
				BCR Trend [2] 1966 to 2000	BCR Trend [2] 2000 to 2010
cunicularia hypugaea	Chihuahuan Desert shrub; Chihuahuan Desert grassland; agricultural; urban.				
Cassin's sparrow *Aimophila cassinii*	Plains-Mesa sand shrub; Plains-Mesa grassland; Chihuahuan Desert shrub; Chihuahuan Desert grassland.	No	1 - 7	Decreasing	Decreasing
Chestnut-collared longspur *Calcarius ornatus*	Winter only. Plains-Mesa grassland; Chihuahuan Desert grassland.	No	3, 5, 6, 7	Increasing	Decreasing
Golden eagle *Aquila chrysaetos*	Cliff/cave.	Yes 1	1 - 7	Increasing	Increasing
Grasshopper sparrow *Ammodramus savannarum*	Chihuahuan Desert shrub; Chihuahuan Desert grassland; agricultural.	No	5, 6, 7	Decreasing	Increasing
Lark bunting *Calamospiza melanocorys*	Plains-Mesa grasslands.	Yes 5, 6, 7	5, 6, 7	Decreasing	Decreasing
Lesser prairie chicken *Tympanuchus pallidicinctus*	Plains-Mesa sand shrub.	No	6	No Data	No Data
Loggerhead shrike *Lanius ludovicianus*	Piñon-juniper woodland; Great Basin shrub; Plains-Mesa sand shrub; Plains-Mesa grassland; Chihuahuan Desert shrub; Chihuahuan Desert grassland; agricultural.	Yes 3, 5, 6	1 - 7	Decreasing	Decreasing
McCown's longspur *Rhynchophanes mccownii*	Winter only. Chihuahuan Desert grassland; agricultural.	No	3, 5, 6, 7	Increasing	Increasing
Prairie falcon *Falco mexicanus*	Cliffs/caves.	Yes 3, 2, 6, 7	1 - 7	Increasing	Increasing
Sprague's pipit *Anthus spragueii*	Winter only. Chihuahuan desert grassland.	No	5, 6, 7	Increasing	Increasing
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	Middle-elevation riparian; southwestern riparian; agricultural; urban.	No	6	Decreasing	Increasing
Yellow warbler *Setophaga petechial sonorana ssp.*	Middle-elevation riparian; southwestern riparian.	Yes 6	3, 6	Increasing	Increasing

Notes:
[1] Habitat Association is based on 20 different habitat types in the state defined in NMPIF Bird Conservation Plan (2007).
[2] Segments with potential habitat were determined through cross-reference of GIS analysis of dominant vegetation, habitat descriptions, species' distributions, and species accounts from the following sources: New Mexico Avian Conservation Partners, accessed October 2012; Cornell Lab of Ornithology, Birds of North America, accessed October 2012; BISON-M, accessed October 2012.

Table 3.3-23
Presence of Bird Species Listed in the Bird Conservation Region 18 (Chihuahua Desert)

Common Name *Scientific Name*	Habitat Association[1]	Documented in Survey Area[1] (Segment)	Pipeline Segment with Potential Habitat[1]	Chihuahua Desert (BCR 18)	
				BCR Trend [2] 1966 to 2000	BCR Trend [2] 2000 to 2010
Baird's sparrow *Ammodramus bairdii*	Winter only; Chihuahuan Desert grasslands.	No	5, 6, 7	Decreasing	Increasing
Burrowing owl *Athene cunicularia hypugaea*	Plains-Mesa sand shrub; Plains-Mesa grassland; Chihuahuan Desert shrub; Chihuahuan Desert grassland; agricultural; urban.	Yes 1, 2, 3, 6, 7	1 - 7	Increasing	Increasing
Cassin's sparrow *Aimophila cassinii*	Plains-Mesa sand shrub; Plains-Mesa grassland; Chihuahuan Desert shrub; Chihuahuan Desert grassland.	No	1 - 7	Increasing	Increasing
Chestnut-collared longspur *Calcarius ornatus*	Winter only. Plains-Mesa grassland; Chihuahuan Desert grassland.	No	3,5, 6, 7	Decreasing	Decreasing
Golden eagle *Aquila chrysaetos*	Cliff/cave.	Yes 1	1 - 7	Decreasing	Increasing
Grasshopper sparrow *Ammodramus savannarum*	Chihuahuan Desert shrub; Chihuahuan Desert grassland; agricultural.	No	5, 6, 7	Increasing	Increasing
Lark bunting *Calamospiza melanocorys*	Plains-Mesa grasslands.	Yes 5, 6, 7	5, 6, 7	Decreasing	Decreasing
Loggerhead shrike *Lanius ludovicianus*	Piñon-juniper woodland; Great Basin shrub; Plains-Mesa sand shrub; Plains-Mesa grassland; Chihuahuan Desert shrub; Chihuahuan Desert grassland; agricultural.	Yes 3, 5, 6	1 - 7	Decreasing	Decreasing
McCown's longspur *Rhynchophanes mccownii*	Winter only. Chihuahuan Desert grassland; agricultural.	No	3, 5, 6, 7	Decreasing	Increasing
Mountain plover *Charadrius montanus*	Plains-Mesa grassland; Chihuahuan Desert grassland.	No	1, 2, 7	Decreasing	Decreasing
Prairie falcon Falco mexicanus	Cliffs/caves.	Yes 3, 2, 6, 7	1 - 7	Increasing	Increasing
Sprague's pipit *Anthus spragueii*	Winter only. Chihuahuan desert grassland.	No	5, 6, 7	Increasing	Increasing

Notes:
[1] Habitat Association is based on 20 different habitat types in the state defined in NMPIF Bird Conservation Plan (2007).
[2] Segments with potential habitat were determined through cross-reference of GIS analysis of dominant vegetation, habitat descriptions, species' distributions, and species accounts from the following sources: New Mexico Avian Conservation Partners, accessed October 2012; Cornell Lab of Ornithology, Birds of North America, accessed October 2012; BISON-M, accessed October 2012.

The FWS proposed developing Raptor Conservation Measures for implementation by BLM as part of the 2010 MOU with BLM. Though not yet published, FWS has developed guidelines for raptor conservation in the western United States (Whittington and Allen, 2008), which they recommend be applied for consistency and compliance with environmental laws regarding raptor protection, including MBTA and the Bald and Golden Eagle Protection Act. Table 3.3-24 summarizes the nesting periods and recommended spatial buffers to minimize impact from surface disturbances to nesting raptors. The recommended spatial buffers in Table 3.3-25 have been modified by the BLM FFO, but these modifications would also be observed at the other field offices.

Table 3.3-24
FWS-Recommended Spatial Buffers and Nesting Seasonal Buffers for Raptors Observed, or with Potential to Occur within the Project Area [1]

Common Name ***Scientific Name***	**Seasonal Nesting Stipulations**	**Spatial Buffer Around Nest Site (miles)**
Red-tailed Hawk *Buteo jamaicensis*	March 15 to August 15	0.5
Golden Eagle [1] *Aquila chrysaetos*	January 1 to August 31	0.5
Peregrine Falcon [1] *Falco peregrinus*	February 1 to August 31	1.0
Prairie Falcon *Falco mexicanus*	April 1 to August 31	0.25
Burrowing Owl *Athene cunicularia*	March 1 to August 31	0.25
Swainson's Hawk *Buteo swainsoni*	Determined by local field office	0.25
Northern Aplomado[1] Falcon *Falco femoralis*	Determined by local field office	0.25

Source: Whittington and Allen, 2008.
[1] Nests were not observed in project area during 2011 or 2012.

Table 3.3-25
Farmington Field Office Recommended Spatial Buffers and Nesting Seasonal Buffers for Raptors with Potential to Occur within the Project Area [1]

Common Name	**Seasonal Nesting Stipulations**	**Spatial Buffer Around Nest Site (miles)**
Golden eagle[1]	February 1 to June 30	0.3[2]
Burrowing owl[3]	April1 to August 15	50 meters
Peregrine falcon[1]	March 1 to June 30	0.3
Prairie falcon[1]	March 1 to June 30	0.3
Ferruginous hawk[1]	March 1 to June 30	0.3

Source: Romin and Muck, 2002; BLM, 2011.
[1] Habitat present but nests were not observed in project area during 2011.
[2] FFO may release the Proposed Action Feb.1-June 30 if FFO determines that the young of the year have fledged and left the area, or that surveys have conclusively determined the nest is not active.
[3] After August 15, any project that will cause destruction of the nest burrow can only begin after confirmation that the nest burrow is no longer occupied.

Migratory bird species observed within each BLM field office area are discussed below.

BLM Farmington Field Office (Segments 1 and 2)

The only raptor species observed within 0.3 mile of Segments 1 and 2 was burrowing owls. Seven occupied burrowing owl nests were documented within ¼ mile of Segments 1 and 2 during surveys in 2012 (Ecosphere, 2012a). Other BCC observed in pinyon-juniper woodland and sagebrush shrubland along the Segments 1 and 2 included golden eagle and Pinon jay; no nests for these species were observed (Ecosphere, 2012a).

BLM Rio Puerco Field Office (Segments 2 and 3)

Raptor species observed within 0.3 mile of Segment 2 included burrowing owls (one individual) and prairie falcon (no nest identified). Mountain plover habitat is present within Segment 2, but the delineated habitat was less than one acre (Ecosphere, 2012a).

BLM Taos Field Office (Segment 3)

No species of migratory birds were observed along Segment 3 within the BLM TFO boundary.

BLM Roswell Field Office (Segments 5 and 6)

One active prairie falcon nest was documented within 0.3 mile of Segment 6 (Ecosphere, 2012a). Other BCC observed along the segments included lark bunting, loggerhead shrike, and yellow warbler; no nests for these species were observed (Ecosphere, 2012a).

BLM Carlsbad Field Office (Segment 7)

Four species of migratory birds were observed along Segment 7 (Ecosphere, 2012a). Raptor species observed within 0.3 mile of the segment included burrowing owls (no confirmed nests but nesting inferred at one site) and one prairie falcon (no nest identified). Other BCC observed along Segment 7 included lark bunting and Sprague's pipit; no nests for these species were observed (Ecosphere, 2012a).

3.3.5.2 Proposed Action Alternative

3.3.5.2.1 Direct and Indirect Impacts

Construction during the core nesting season (May 15 through July 31) could result in nest abandonment, displacement of birds, and possible mortality of nestlings. Nest abandonment by ground-nesting passerines and raptors due to human disturbances is more likely early in the nesting season (egg laying, incubation) than late in the season (Romin and Muck, 2002; Winter et al., 2003), although many species will re-nest at alternate sites if abandonment occurs early. Risk of mortality of nestlings and dependent fledglings is greater if adults abandon nests late in the season or nests are destroyed prior to fledging young, and could increase if predators are attracted to areas occupied by humans (Andren, 1994; Chalfoun et al., 2002). Displacement of nesting migratory birds from adjacent nesting habitats due to noise, human activity, and dust during construction could also occur (Ingelfinger and Anderson, 2004; Knick and Rotenberry, 2002; Gilbert and Chalfoun, 2011); however, displacement/avoidance of these habitats is expected to be short-term with birds returning once equipment has left the area.

Additionally, noise produced by machinery and other human activities may interfere with bird vocalizations used for territory establishment, mate attraction and selection, food begging, and predator alarms (Marler, 2004). To minimize effects to documented nesting BCC bird species, vegetation clearing and pipeline construction in those areas should begin after July 15 (see Biological Resources Protection Plan, Appendix H to the POD), effectively avoiding the core migratory bird nesting period for most species. The Proposed Action may affect late or second nesting attempts, but in general would have little direct influence on nesting success. MAPL

has routed the WEP III adjacent to existing pipeline(s), which may have affected the current use of habitat by migratory birds.

Construction of the Proposed Action would remove potentially suitable migratory bird nesting habitat including shrubland habitat – disturbed and unaltered, forested habitat, and forested and non-forested wetland/riparian habitat (see Tables 3.3-6 through 3.3-10). These habitats are expected to support nesting by BCC (e.g., pinyon jay and Brewer's sparrow) and other migratory birds that were observed in the project area. Although the Proposed Action would traverse multiple vegetation communities, it would be located within and adjacent to an existing pipeline right-of-way that has been cleared and reclaimed and consists primarily of small shrubs and grasses.

Successful revegetation is expected to occur within three growing seasons of construction, which should provide nesting and/or foraging habitat for some passerine migratory species; however, reestablishment of sagebrush and forested habitat would be longer. Under natural succession regimes it would take at least 20 years to replace a mature sagebrush stand (West, 1988) and more than 140 years to replace mature pinyon-juniper habitat (Miller et al., 2008). MAPL would use brush-hogging techniques within the construction right-of-way and TUAs to leave big sagebrush, greasewood, rabbitbrush, and other shrubs roots intact, and to promote revegetation and increase restoration of potential migratory bird nesting shrubland habitat. Additionally, the BLM has signed a Memorandum of Understanding with the FWS regarding compliance with the MBTA. The BLM has specific stipulations to protect migratory birds on federal lands.

- If vegetation clearing must occur during the bird breeding season (May 15 to July 31), qualified biologists should conduct pre-construction nest surveys 7 days prior to any ground disturbance during the breeding season.
- If active nests are found, coordinate with the appropriate agencies to determine protection measures and construction implications.

The Proposed Action could have a minor effect on bird species through degradation of nesting habitats due to noxious weed infestations that could alter native vegetation cover and plant species composition. Implementation of the Integrated Noxious and Invasive Weed Management Plan (see Appendix G to the POD) should minimize weed infestations.

MAPL would revisit nests documented within the spatial buffer zones of the proposed loop pipeline segments during 2013 surveys to determine status prior to construction. If a nest is determined to be occupied, MAPL would adhere to the spatial and temporal buffers for each species as identified in the Biological Resources Protection Plan (see Appendix H to the POD). New nests may be built and occupied between the initial surveys and project implementation, and construction during the nesting season dates may result in the "take" of birds or active nests, including nest failure caused by noise and human activity. Application of appropriate spatial and temporal protection buffers to occupied nests should provide protection for raptor species potentially nesting within the project area.

<u>BLM Farmington Field Office (Segments 1 and 2)</u>

In 2013 prior to construction, MAPL would revisit the seven nests to determine status, as well as potential cliff nesting raptor habitat located with ½ mile of Segments 1 and 2. Preconstruction surveys and timing restrictions would be implemented at the burrowing owl sites according to the BLM IM No. NM-200-2008-001 discussed above, including the following measures:

- A preconstruction survey for burrowing owls is required for proposed projects scheduled to be constructed within designated potential habitat during the nesting season of April 1 to July 31.
- Occupied burrowing owl nests will not be disturbed within a 50 meters radius from April 1 to August 15.
- After August 15, any project that will cause destruction of the nest burrow can only begin after confirmation that the nest burrow is no longer occupied.

Six of the seven occupied burrowing owl nests documented were directly within the construction right-of-way and could be affected during construction. Though an individual nest burrow may be lost during construction, the nesting "territory" should remain viable because there are numerous suitable burrows within the nesting territory.

Mountain plover were not located within Segments 1 and 2; however, potential habitat is present. A preconstruction survey for mountain plover is required for proposed projects scheduled to be constructed within designated potential habitat during the nesting season of April 1 to July 31. Occupied mountain plover designated habitat would not be disturbed from April 1 to July 31 (BLM 2008).

<u>BLM Rio Puerco Field Office (Segments 2 and 3)</u>

A preconstruction survey and timing restrictions would be implemented at the 2012 documented burrowing owl site within Segment 2 according to BLM IM No. NM-200-2008-001 (discussed above). No other raptor nests were identified (Ecosphere, 2012a). In 2013 and prior to construction, MAPL would revisit the burrowing owl location to determine status, as well as potential cliff nesting raptor habitat located with ½ mile of Segment 2. Any occupied burrowing owl nests documented directly within the construction right-of-way could be affected during construction. Though an individual nest burrow may be lost during construction, the nesting "territory" should remain viable because there are numerous suitable burrows within the nesting territory.

<u>BLM Roswell Field Office (Segments 5 and 6)</u>

One prairie falcon nest was identified approximately ¼ mile northeast of Segment 6. In 2013 and prior to construction, MAPL would revisit the documented nest to determine status. If a nest is determined to be occupied, MAPL would adhere to the spatial and temporal buffers recommended by the BLM and identified in the Biological Resources Protection Plan (see Appendix H to the POD) or construct after young have fledged and dispersed to minimize or avoid effects to raptors nesting during construction.

<u>BLM Carlsbad Field Office (Segment 7)</u>

One burrowing owl was documented but successful nesting was not confirmed, though nesting was inferred due to the presence of the owl during several visits in 2012. One active Swainson's hawk nest was observed in Segment 7. In 2013 and prior to construction, MAPL would revisit the nests documented to determine status. If a nest is determined to be occupied, MAPL would adhere to the spatial and temporal buffers recommended by the BLM and identified in the Biological Resources Protection Plan (see Appendix H to the POD), or construct after young have fledged and dispersed to minimize or avoid effects to raptors nesting during construction.

Any occupied burrowing owl nests documented directly within the construction right-of-way could be affected during construction. Though an individual nest burrow may be lost during

construction, the nesting "territory" should remain viable because there are numerous suitable burrows within the nesting territory.

Protective Design Features

No measures have been proposed to further reduce impacts to migratory birds.

3.3.5.2.2 Cumulative Impacts

Because the Proposed Action would be constructed adjacent to and within existing pipeline rights-of-ways, portions of the disturbance would have been previously affected by construction activities. Due to the implementation of applicable spatial and timing restrictions and the limited disturbance to vegetation and the large amount of habitat available in lands adjacent to the proposed construction right-of-way, adverse cumulative impacts to bird species are not anticipated. It is assumed that reasonably foreseeable future actions that may overlap with the Proposed Action area would be required to implement spatial and timing restrictions and revegetate disturbance. Total habitat disturbance represent less than 1 percent of the adjacent occupied ranges available in the region.

3.3.5.3 No Action Alternative

3.3.5.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to migratory birds associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts from mortality due to increased traffic could occur.

3.3.5.3.2 Cumulative Impacts

Cumulative impacts would depend on the means of transport, the routes that would be used, and the presence of migratory birds in the areas the routes would traverse. Effects are not quantifiable in a meaningful way for purposes of this analysis.

3.3.6 Wildlife

3.3.6.1 Affected Environment – Terrestrial Wildlife

White Nose Syndrome and Identified Hibernacula. Many RFO caves are identified or potential bat hibernation sites and are optimum sites for White Nose Syndrome (WNS), a fungal disease that has killed more than five million bats across the past six years and continues unchecked (BLM, 2013). Any karst area north of Roswell is subject to this situation. Some of the proposed segments would be located approximately 200 miles southwest of a confirmed WNS location near Guymon, Oklahoma. WNS was first documented on hibernating bats at Howe caverns in 2006 in New York and by 2012 it had moved more than 2,000 miles across 23 eastern and southern states, and 2 Canadian provinces. By spring of 2010, WNS had been found near Guymon, Oklahoma on cave myotis (*Myotis velifer incautus*), the first evidence of it infecting a western bat species. Infection is bat-to-bat and humans are suspected of transporting the spores.

Big Game. Big game species occurring within the project area include mule deer, cougar, and pronghorn antelope. Big game populations are managed in Game Management Units (GMU) by the New Mexico Department of Game and Fish (NMGFD).

BLM Farmington Field Office (Segments 1 and 2)

The project area coincides with GMUs 2C and 7. Hunting is allowed in these areas for mule deer, pronghorn antelope, and cougar, as well as other species. Harvest in these two regions

was estimated at 51 deer in GMU 2C and 43 deer in Wildlife Management Unit (WMU) 7 for the 2010-2011 season (NMGFD, 2012). Antelope and cougar numbers were unavailable for GMUs.

BLM Rio Puerco Field Office (Segments 2 and 3)

The project area coincides with GMUs 7, 6A, and 9 for Segment 2, and 8, 43, and 39 for Segment 3. Hunting is allowed in these areas for mule deer, pronghorn antelope, and cougar, as well as other species. Harvest in the two regions located in Segment 2 was estimated at 92 deer in GMU 2C and 10 deer in WMU 9 for the 2010-2011 season (NMGFD, 2012). Harvest in the three regions located in Segment 3 was estimated at 89 deer in GMU 8, 124 in WMU 43, and 174 in 39 for the 2010-2011 season (NMGFD, 2012). Antelope and cougar numbers were unavailable for GMUs.

BLM Taos Field Office (Segment 3)

The BLM TFO is predominantly private land with no GMUs.

BLM Roswell Field Office (Segments 5 and 6)

The project area coincides with GMUs 38, 32, and 33 for Segments 5 and 6. Hunting is allowed in these areas for mule deer, pronghorn antelope, and cougar, as well as other species. Harvest in these regions was estimated at 989 deer in GMU 38, 1,393 in WMU 32, and 412 for 33 in the 2010-2011 season (NMGFD, 2012). Antelope and cougar numbers were unavailable for GMUs.

BLM Carlsbad Field Office (Segment 7)

The project area coincides with GMU 31 for Segment 7. Hunting is allowed in this area for mule deer, pronghorn antelope, and cougar, as well as other species. Mule deer harvest in this region was estimated at 1,041 deer in GMU 31 for the 2010-2011 season (NMGFD, 2012). Antelope and cougar numbers were unavailable for GMUs.

3.3.6.2 Proposed Action Alternative – Terrestrial Wildlife

3.3.6.2.1 Direct and Indirect Impacts

WNS and Identified Hibernacula. The Proposed Action would not be expected to affect caves, and, therefore, effects from the Proposed Action spreading WNS would not be anticipated

Big Game. Construction activities would temporarily displace big game animals from active construction areas and would result in the short-term loss of habitat of 3,609 acres (see Section 3.3.2/Vegetation). The Proposed Action would be constructed within and adjacent to an existing, previously disturbed right-of-way. Combined with the narrow, linear nature of the proposed disturbance, the loss of forage should be minimal, depending on the success of the reclamation efforts. If the disturbed area does not completely recover to native forage, and non-native weed species invade, then the forage loss over the long-term could be moderate in scale. Following completion of initial reclamation and departure of work crews from the area, big game animals would return to the area.

Protective Design Features

In addition to the design features listed in Section 3.5.3/Range Management, the following measures would be implemented to reduce potential impacts caused by WNS.

- Proposing formally any entry whatsoever of hibernation sites on BLM-managed lands to the BLM (BLM, 2011) because pursuant to Federal Register Notice, Vol. 76, No. 16, page 4373, January 23, 2011, all known hibernacula are temporarily closed to public entry to monitor for the presence of WNS and attempt to prevent its spread if it arrives.

- Ensuring that anyone entering non commercial caves or mines on federally-managed lands in New Mexico must follow the most current USFWS White-Nose Syndrome Decontamination Protocols and gear dedication procedures (BLM, 2010a).

3.3.6.2.2 Cumulative Impacts

Because the Proposed Action would be constructed within and adjacent to existing pipeline rights-of-ways, portions of the proposed disturbance would have been previously affected by past construction activities. Due to the limited disturbance to vegetation and the large amount of habitat available in lands adjacent to the proposed construction right-of-way, adverse cumulative impacts to terrestrial wildlife species are not anticipated in the area from reasonably foreseeable future actions (i.e., recreation, oil and gas development, grazing). Total habitat disturbance represents less than 1 percent of the adjacent occupied ranges available in the region. With restoration of the Proposed Action and restoration of future actions, cumulative impacts to terrestrial wildlife would be expected to be minimal.

3.3.6.3 No Action Alternative – Terrestrial Wildlife

3.3.6.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to terrestrial wildlife species associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts from mortality due to increased traffic could occur.

3.3.6.3.2 Cumulative Impacts

Cumulative impacts would depend on the means of transport, the routes that would be used, and the presence of terrestrial wildlife species in the areas the routes would traverse. Effects are not quantifiable in a meaningful way for purposes of this analysis.

3.3.6.4 Affected Environment – Aquatic Species

There is limited data available specific to fish presence in the Rio Puerco or Pecos river corridors within the project area. Potential occurrence of fish in the project area has been inferred from documented distribution patterns of fish in hydrologic units, fish species' characteristic habitats, and major drainage basins that coincide with the project area. Fish presence also depends on water quality and flow characteristics of the waterbodies within the project area and these data have been taken into consideration when evaluating aquatic habitats. There are no currently listed fish populations expected to be encountered in the Rio Puerco River drainage. Several listed species may occur in the Pecos River, and these are addressed below.

More than 60 fish species have been documented within the Pecos drainage, although many inhabit specific habitats such as springs or are restricted to upstream locales (Sublette et al., 1990). The native fish fauna in the Pecos drainage has declined over the past century to the extent that 18 fish are considered "Species of Greatest Conservation Need" in the New Mexico Comprehensive Wildlife Strategy (NMDGF, 2006); 8 are listed as threatened or endangered in New Mexico; 2 are federally-listed; and 3 species are considered extirpated (NMGF 2006). Of these species, the bigscale logperch, gray redhorse, and Pecos bluntnose shiner have potential to occur in the project area and were discussed under Section 3.3.4.1/Special Status Species.

3.3.6.5 Proposed Action Alternative – Aquatic Resources

3.3.6.5.1 Direct and Indirect Impacts

The Proposed Action would use an HDD to cross the Rio Puerco and Pecos rivers; thereby avoiding effects to aquatic resources. During construction, erosion control measures would be installed to prevent sedimentation from disturbed areas to the waterbodies.

Water depletions would utilize existing water rights to withdraw water for hydrostatic testing and dust control (see Table 2.3-3). MAPL would not obtain new water rights; therefore, potential effects would be accounted for under the existing water rights. If water were pumped directly from the Pecos River, MAPL would screen the hoses to prevent fish entrainment. To prevent and minimize the effects of a spill, MAPL would implement the measures in the SPCC Plan (see Appendix P to the POD). Herbicide use would follow the Integrated Noxious and Invasive Weed Management Plan (see Appendix G to the POD) and would be BLM-approved.

Implementation of the SWMP, the Biological Resources Protection Plan, and measures provided in the Reclamation and Monitoring Plan (Appendices E, H, and D to the POD, respectively), would minimize effects to fisheries and aquatic resources.

Protective Design Features

No measures have been identified to further reduce effects to aquatic resources.

3.3.6.5.2 Cumulative Impacts

The Pecos River would be crossed using an HDD, and, therefore, aquatic resources would not be affected by construction of the Proposed Action; thus, not contributing to or being affected by larger scale aquatic resource impacts. Cumulative effects would not be anticipated.

3.3.6.6 No Action Alternative – Aquatic Species

3.3.6.6.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to aquatic resources associated with the Proposed Action would not be caused because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to aquatic resources would not be expected, barring an accident resulting in a spill.

3.3.6.6.2 Cumulative Impacts

None expected, barring an accidental spill related to trucking or other forms of transportation for the NGLs.

3.4 Heritage Resources and Human Environment

3.4.1 Cultural Resources

3.4.1.1 Affected Environment

A large number of federal laws and implementing regulations pertain to the evaluation and protection of significant cultural resource properties and preservation of cultural values. Several of these require consultation with local Native American tribes when dealing with applicable antiquities. Among the most significant of these laws and regulations are:

- Antiquities Act of 1906, as amended (16 U.S.C. 431-433);
- Preservation of American Antiquities (43 CFR 3);

- National Historic Preservation Act of 1966 (NHPA), Section 106, as amended (16 U.S.C. 470, Executive Order 13007);
- National Register of Historic Places (NRHP) (36 CFR 60);
- National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321-4361, 40 CFR 1500-1508);
- Protection and Enhancement of the Cultural Environment, 1971 (Executive Order 11593);
- Federal Land Policy and Management Act of 1976 (FLPMA) (43 U.S.C. 1701 *et seq*.);
- American Indian Religious Freedom Act Amendments of 1978, as amended (AIRFA) (42 U.S.C. 1996, 43 CFR 7);
- Archeological Resources Protection Act of 1979 (ARPA) (16 U.S.C. 470aa-47011, 43 CFR 7);
- Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) (25 U.S.C. 3001, 43 CFR 10).

The portion of New Mexico traversed by the Proposed Action has been continuously inhabited by indigenous people since at least 12,000 years before the present (B.P.). The project area encompasses portions of the San Juan Basin, the Middle Rio Grande Valley, the Estancia Basin/Central New Mexico, the Middle Pecos Valley, and the Llano Estacado. Each of these regions is characterized by a different culture history, including shifts in demography, subsistence, and technology.

Management of cultural resources on BLM lands within the project area is determined by policy directives contained in BLM RMPs applying to field offices affected by the Proposed Action. Management of cultural resources on Navajo tribal trust lands is determined by the Navajo Nation Tribal Historic Preservation Office, and the involvement of the BIA Navajo Region office is required for this project. Management of cultural resources on the Pueblo of Zia is their tribal governmental responsibility, and the involvement of the BIA Southwest Regional Office is required for this project. The BLM may make land use decisions that would limit access or require modifications to the Proposed Action to reduce impacts to cultural resources. A factor in these decisions would be potential effects to Native American cultural values as protected by many of the laws and regulations listed above. Many natural features of the American West continue to be regarded as places of spiritual and cultural significance to Native Americans.

The Office of Contract Archeology of the University of New Mexico in Albuquerque conducted Class I and Class III inventories of the six loop pipeline segments (196.6 miles), including 226 TUAs. The Class I inventory revealed 64 previously discovered sites located within the Proposed Action's Area of Potential Effect (APE). Class III inventory field surveys were conducted between September 6, 2011 and December 21, 2012. The survey was conducted by a four-person crew over a corridor consisting of the segment centerline located a minimum of 25 feet from the existing MAPL pipeline, a 25-foot wide spoils area between the existing MAPL pipeline and the proposed segment centerline, and a 100-foot wide temporary right-of-way on the opposite side of the segment centerline. This survey strategy allowed for coverage of the proposed construction right-of-way and the required BLM 50-foot wide cultural buffer, as well as most of the 50-foot wide buffers around TUAs. TUAs extending beyond the survey d were also surveyed with a 50-foot buffer.

In total, the Class III inventory located 205 sites, including 21 multi-component sites; 186 sites are located along the pipeline right-of-way. Nine sites were located along access roads, one which was newly recorded. Two sites were documented by inventory of a proposed re-route; one of these was previously documented. The survey relocated 60 previously identified sites and discovered 126 new cultural sites on the proposed alignment. Ten previously recorded

sites were not re-located and have likely been removed by previous construction or erosion. Of the previously recorded sites, 36 were listed in the NMCRIS database as eligible for inclusion in the NRHP; no changes to these determinations were made based on field visitation. Fourteen additional previously recorded sites for which no eligibility information was provided in the NMCRIS database were recommended as eligible to the NRHP. Two previously recorded sites have been determined not eligible in previous consultation; however, newly exposed features and cultural materials indicate there is further research potential, and it is recommended that the eligibility status be changed to eligible. Of the newly identified sites, 70 were recommended as eligible for listing in the NRHP (Gerow and Mattson, 2012). In addition, 504 isolated occurrences were documented during the survey; these resources lack additional data potential and are recommended as not eligible to the NRHP.

3.4.1.2 Proposed Action Alternative

3.4.1.2.1 Direct and Indirect Impacts

Surface disturbance and increased human access can produce unexpected discoveries and cultural resource damage. Trenching and surface blading activities associated with pipeline construction could result in direct impacts to cultural and historic resources in the form of soil displacement, loss of integrity of cultural deposits, loss of information, and altering the site setting. The Proposed Action would have an adverse effect on historic properties, requiring the development of a Programmatic Agreement including a Treatment Plan and a Monitoring and Discovery Plan. Mitigation measures may include but not be limited to data recovery excavation, blading monitor, open trench inspection, padding, fencing, and recontouring. The protection and mitigation measures (Conditions of Approval) will be finalized as consultation is completed for site eligibility and effect, and treatments are conducted under provisions of the Programmatic Agreement. Additional measures may be developed during project construction in the event new cultural resource sites are identified under the Monitoring and Discovery Plan.

Impacts to cultural resources were analyzed with respect to several criteria, including:

- Destruction of artifacts and features by construction or maintenance activities;
- Loss of contributing elements from sites that would otherwise be eligible for NRHP listing;
- Degradation of visual integrity in the area of resources included in, or eligible for inclusion in, the NRHP; and
- Disturbance of sites of cultural and spiritual significance to Native Americans.

Avoidance of cultural sites is generally the preferred course of action, although mitigation measures must be considered on a site-by-site basis.

The BLM has prepared a Programmatic Agreement for the Proposed Action that provides provide specific guidelines for Section 106 consultation under the NHPA and for consultation with Native American tribes, as described in 36 CFR 800.2(c)(2)(ii)(E). The agreement will include the New Mexico State Historic Preservation Officer (SHPO), the BLM, the BIA SW Regional and the Navajo Regional Office, the New Mexico State Land Office (SLO), Pueblo of Zia, Pueblo of Santa Ana, and the Navajo Nation as formal consulting parties. The Advisory Council on Historic Preservation has been afforded an opportunity to consult, and may participate if requested by the Tribes or the NM-SHPO. The agreement will allow consulting parties to develop consensus on determinations of eligibility and determination of effect for cultural resources, as well as the mitigation measures to be employed in the Treatment Plan required under the agreement.

The cultural resource survey conducted for the Proposed Action discovered or relocated 186 archaeological sites, including 106 prehistoric sites, 63 historic sites, 13 sites with both historic and prehistoric components, and 4 sites were of unknown cultural origin. A total of 120 sites were recommended as eligible for listing in the NRHP and two sites were recommended as having undetermined eligibility. Of the prehistoric sites, most are artifact scatters without features, followed by small campsites, residential sites, agricultural locales, and lithic procurement sites. The majority of the historic sites are residences and trash dumps, followed by road segments and railroad grades. Three historic sites may be considered of concern relating to traditional Native American values, including the Dzil'na'oodlii (Huerfano Mesa) ACEC. Specific monitoring and/or mitigation measures were proposed for 118 of the sites (Gerow and Mattson, 2013).

After completion of the cultural resource inventory report, a Treatment Plan would be formulated in consultation with the SHPO, BLM, BIA, SLO, and affected Native American tribes as specified in the Programmatic Agreement developed for the Proposed Action. Mitigation measures would apply to cultural sites recommended as eligible for listing in the NRHP. As indicated in 36 CFR 60.4, "eligible sites are those cultural properties that possess integrity of location, design, setting, materials, workmanship, feeling, and association and are associated with events that have made a significant contribution to the broad patterns of history" (Criterion A); "are associated with the lives of persons significant in our past" (Criterion B); "embody distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or possess high artistic value" (Criterion C); or that "have yielded, or may be likely to yield, information important in prehistory or history" (Criterion D). The majority of potentially eligible sites in the project area may be only eligible under Criterion D, and with the use of data recovery techniques and analysis and reporting proposed in the Treatment Plan, the loss of important data these sites retain would be minimized where possible.

Visual impacts are short term during construction of the project, and would be restored through reclamation, including re-contouring and re-seeding. None of the sites documented exhibits qualities which would be impacted by these short term activities.

Because construction activities could adversely impact eligible cultural resources, all loop pipeline segments have been or would be surveyed prior to construction. Eligible resources not avoided by the Proposed Action would be subject to mitigating measures.

Mitigation Measures

Construction stipulations would be developed to reduce potential impacts to eligible sites and ensure avoidance by placing construction barriers and monitoring of construction. Treatment of eligible sites would follow the treatment plan developed under provisions of the Programmatic Agreement. Treatment may involve data recovery methods, including surface collection and excavation; archival research; construction monitoring; and the use of temporary fences or barriers. Archaeological excavation removes archaeological materials and while collecting important information from the sites serves to mitigate project impacts; these methods result in adverse effects to eligible properties. A Monitoring and Discovery plan has been developed as a component of the Programmatic Agreement, which defines procedures for construction monitoring and open trench inspection to identify sub-surface cultural resources exposed by construction, and to reduce or eliminate potential indirect or inadvertent impacts.

3.4.1.2.2 Cumulative Impacts

Compliance with monitoring and data recovery plans would prevent loss of important cultural artifacts and information. This reduces the impacts of the project, though the loss of archaeological sites is a cumulative impact when combined with the effects from previously

constructed adjacent pipelines, and is considered an adverse effect to the values which render these properties eligible to the National Register of Historic Places under Criterion D. The increase in the cumulative impacts to cultural resources that would occur due to the partial or complete loss of these sites is typical for a project of this type and scale in New Mexico. It is assumed that reasonably foreseeable future projects would be required to implement measures to protect cultural resources and that cumulative impacts would be minor.

3.4.1.3 No Action Alternative

3.4.1.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to cultural resources associated with the Proposed Action would not be caused because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to cultural resources would not be expected.

3.4.1.3.2 Cumulative Impacts

None would be expected.

3.4.2 Tribal and Native American Religious Concerns

3.4.2.1 Affected Environment

Archaeological and historic sites and certain landscape features may be important to Native American religious beliefs and cultural concerns. Native American Traditional Cultural Properties (TCPs) are eligible for listing with the NRHP as a result of their continuing importance to existing communities. NEPA, Section 106 of NHPA, ARPA, NAGPRA, and AIRFA have various directives requiring consultation with designated representatives of federally-recognized Native American tribes for federal projects.

Numerous Navajo individuals and families were contacted by ethnographers to identify specific concerns for any properties in the vicinity of the Proposed Action on Segment 1 and Segment 2. Two properties were identified of concern, which will be avoided by project impacts through construction stipulations. Dzil'na'oodlii (Huerfano Mesa) ACEC boundary is also located along the Proposed Action, designated for its values as a traditional cultural property, though the actual mesa is far from the project area.

As part of the scoping process for the Proposed Action, scoping notices describing the project were sent to leaders of interested, recognized tribes (see Appendix H and the scoping report). One written response, from the Hopi Tribe, has been received. The Hopi Tribe has indicated interest in the Treatment Plan and may wish to be involved in consultation under ARPA and NAGPRA for the Proposed Project.

A Programmatic Agreement for Section 106 compliance with the NHPA has been developed for the Proposed Project, and the Pueblo of Zia, the Pueblo of Santa Ana, and the Navajo Nation have indicated their interest in formal consultation under the agreement. The Pueblo of Jemez has been provided additional information as informally requested and has not expressed an interest in participating in the Programmatic Agreement. The Pueblo of Jemez will be afforded an opportunity to consult under provisions of the agreement if cultural properties are identified which may be of interest to their Tribe.

3.4.2.2 Proposed Action Alternative

3.4.2.2.1 Direct and Indirect Impacts

Segments 1 and 2 would cross lands managed by the Navajo Nation and the Pueblo of Zia; these tribes would be involved in consultation for all phases of the Proposed Action. For consultation under Section 106 of NHPA, BLM is in the process of preparing a Programmatic Agreement regarding Native American consultation as described in 36 CFR 800.2(c)(2)(ii)(E). A draft Programmatic Agreement has been provided to the Pueblo of Zia, the Pueblo of Santa Ana Tribal Historic Preservation Officer, the Navajo Nation Tribal Historic Preservation Officer as well as the NM-SHPO. BLM has informally initiated consultation with these tribes and with the New Mexico SHPO for comments on the Programmatic Agreement. Consultation with the signatories to the Programmatic Agreement and other interested tribes will continue throughout the project, as needed to address Native American concerns.

The Proposed Action was designed to ensure avoidance of Traditional Cultural Properties and sites of potential Native American traditional or religious concern. Design measures included route adjustments for avoidance, and construction barriers and monitoring to ensure avoidance, which would eliminate impacts to these properties.

Protective Design Features

No measures have been identified to further reduce impacts to Native American sites of traditional or religious concern.

3.4.2.2.2 Cumulative Impacts

No cumulative impacts would be anticipated.

3.4.2.3 No Action Alternative

3.4.2.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to Native American sites of traditional or religious concern associated with the Proposed Action would not be caused because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to these Native American sites would not be expected.

3.4.2.3.2 Cumulative Impacts

No cumulative impacts would be anticipated.

3.4.3 Paleontological Resources

3.4.3.1 Affected Environment

Paleontological resources include the remains or traces of any prehistoric organism preserved by natural processes in the earth's crust. BLM manages paleontological resources for their scientific, educational, and recreational values in compliance with the Antiquities Act of 1906 and the Paleontological Resources Preservation Act (PRPA) of 2009. The PRPA affirms the authority for many policies BLM already has in place to manage paleontologic resources, such as issuing permits for collecting paleontologic resources, curation of resources, and confidentiality of locality data. The law also defines prohibited acts, such as damaging or defacing resources, and establishes both criminal and civil penalties for those acts.

BLM classifies geologic formations to indicate the likelihood of significant fossil occurrence (usually vertebrate fossils of scientific interest) according to the Potential Fossil Yield

Classification System (PFYC) for Paleontological Resources on Public Lands (BLM, 2007b). These classifications determine the procedures to be followed prior to the granting of a paleontological clearance to proceed with a project. Section 3.2.2 summarizes geological formations expected within the project area and by BLM field office.

The project area crosses bedrock exposures that vary considerably in lithology, age, and the potential for vertebrate fossil resources. The BLM uses a three-part ranking system with subsequent secondary divisions to classify areas of potential concern in terms of vertebrate fossil occurrence (BLM, 2007b).

- **Condition 1:** Area is known to contain vertebrate fossils <u>or</u> noteworthy occurrences of invertebrate or plant fossils (includes PFYC Class 4 and 5).
- **Condition 2:** Area contains exposures of geologic units that have high potential to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils (includes PFYC Class 3, 4 and 5).
- **Condition 3**: Area is unlikely to produce vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils (includes PFYC 1 and 2).

The PFYC System classes are broken down as follows:

- PFYC Class 1: Very low – Geologic units are not likely to contain recognizable fossil remains.
- PFYC Class 2: Low – Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant nonvertebrate fossils (plant and invertebrate).
- PFYC Class 3: Moderate or unknown – Fossiliferous sedimentary units where fossil content may vary in significance, abundance and/or predictable occurrence, or sedimentary units with unknown fossil potential.
- PFYC Class 4: High – Geologic units containing a high occurrence of significant fossils. Vertebrate or scientifically significant invertebrate or plant fossils are known to occur, have been documented, but may vary in occurrence and predictability. In Class 4 areas, surface disturbing activities may adversely affect these resources.
- PFYC Class 5: Very high – Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils of scientifically significant invertebrate or plant fossils. These areas are at risk of human-caused adverse impacts and/or natural degradation.

In New Mexico, Segments 1 and 2 would cross through the San Juan Basin, which is designated as PFYC Classes 4 and 5, due to the abundance of vertebrate and fossil plant material that has been documented in the region. Numerous fossils pertaining to dinosaurs and early mammals have been discovered throughout the San Juan Basin (Lucas and Zidek, 1993; Lucas et al., 1997; Sullivan and Williamson, 1999; Lucas, 1999; Lucas and Heckert, 2000, among others). Segment 2 crosses the southeastern San Juan Basin and southern Jemez Mountains, which locally should be classified as PFYC Classes 3 and 4. Vertebrate, invertebrate and fossil material has been documented along this route. Segment 3 would cross through highly deformed strata along the northeastern flank of the Sandia Mountains and has been classified as primarily PFYC Class 2. The only strata of concern for this segment are tilted Triassic and Jurassic sedimentary rocks. This area is not known to be an area of common fossil occurrence. Segment 5 would cross the Pecos Slope, which is primarily Permian limestone with thin caps of Tertiary to Quaternary sedimentary deposits. This area is classified as PFYC Classes 1 and 2. The Tertiary to Quaternary deposits are of mild importance as they may

produce mammal fossils (Lucas et al., 1997, 2005; Lucas, 1999), although this area is not known for vertebrate fossil occurrences. Segment 7 would cross the Ogallala Formation of the Llano Estacado and is classified as PFYC Class 3 due to the possibility of the occurrence of mammal fossils in the Ogallala Formation.

3.4.3.2 Proposed Action Alternative

3.4.3.2.1 Direct and Indirect Impacts

The Proposed Action would not affect any known scientifically significant paleontological resources; however, construction could produce unexpected discoveries and potential resource damage. Direct impacts would include theft, damage, or destruction of scientifically significant fossils with subsequent loss of information. Indirect effects would include fossil damage or destruction by erosion due to surface disturbance. Because of the surficial geology underlying the Proposed Action and the known relative scarcity of resources in the area, direct and/or indirect effects to paleontological resources are not anticipated. MAPL has prepared and would implement the Unanticipated Discovery Plan for Paleontological Resources (see Appendix J to the POD). If paleontological resources are uncovered during construction, all operation would be suspended to prevent further disturbance of such materials and the respective BLM AO would be immediately contacted.

Spot inspection and monitoring would be conducted to mitigate potential impacts to fossil resources in sedimentary rock deposits that have a PFYC of 3 or greater. PFYC of 3 would be spot inspected and PFYC of 4 or 5 would be monitored. A qualified paleontologist would be onsite during all excavation and surface disturbance in these areas. During spot inspection, a qualified paleontologist would visually inspect specific trench spoils after excavation.

Protective Design Features

The following measures would further reduce effects to paleontological resources under the Proposed Action:

- Implementing the Unanticipated Discovery Plan for Paleontological Resources (see Appendix J to the POD).
- Informing all persons associated with project that they would be subject to prosecution for knowingly disturbing paleontological sites, or for collecting fossils. Personnel shall be informed about the types of fossils they could encounter. If fossil materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the direct area of the find and immediately contact the BLM AO, as outlined in MAPL's POD.
- Preparing and submitting a final technical report following completion of the paleontological surveys. The final report shall contain the results of mitigation work conducted, including a record of fossils collected listing locality and disposition of the fossils. The report shall also contain a discussion of the scientific significance of the specimens and geologic and paleontological setting of the fossils and their localities.
- Monitoring during construction in PFYC Class 4 or 5 areas.

3.4.3.2.2 Cumulative Impacts

Impacts would occur if paleontological resources were removed from their natural environment. Compliance with monitoring and data recovery plans would prevent loss of scientifically important paleontological information. Future uses that are permitted and have monitoring and data plans should also avoid or minimize impacts to these resources. Therefore, cumulative impacts would be minor.

3.4.3.3 No Action Alternative

3.4.3.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to paleontological resources associated with the Proposed Action would not be caused because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to paleontological resources would not be expected.

3.4.3.3.2 Cumulative Impacts

None would be expected.

3.4.4 Visual Resources

3.4.4.1 Affected Environment

Major landscapes in the project area include a portion of the San Juan Basin and high plains of New Mexico. The general visual character of the western plains region includes natural landscape features consisting of rolling to rugged hills, with some steep ridges, incised drainages, hogbacks, cuestas, and flat mesa tops. Playas and sinkholes punctuate the visual landscape in southeastern New Mexico.

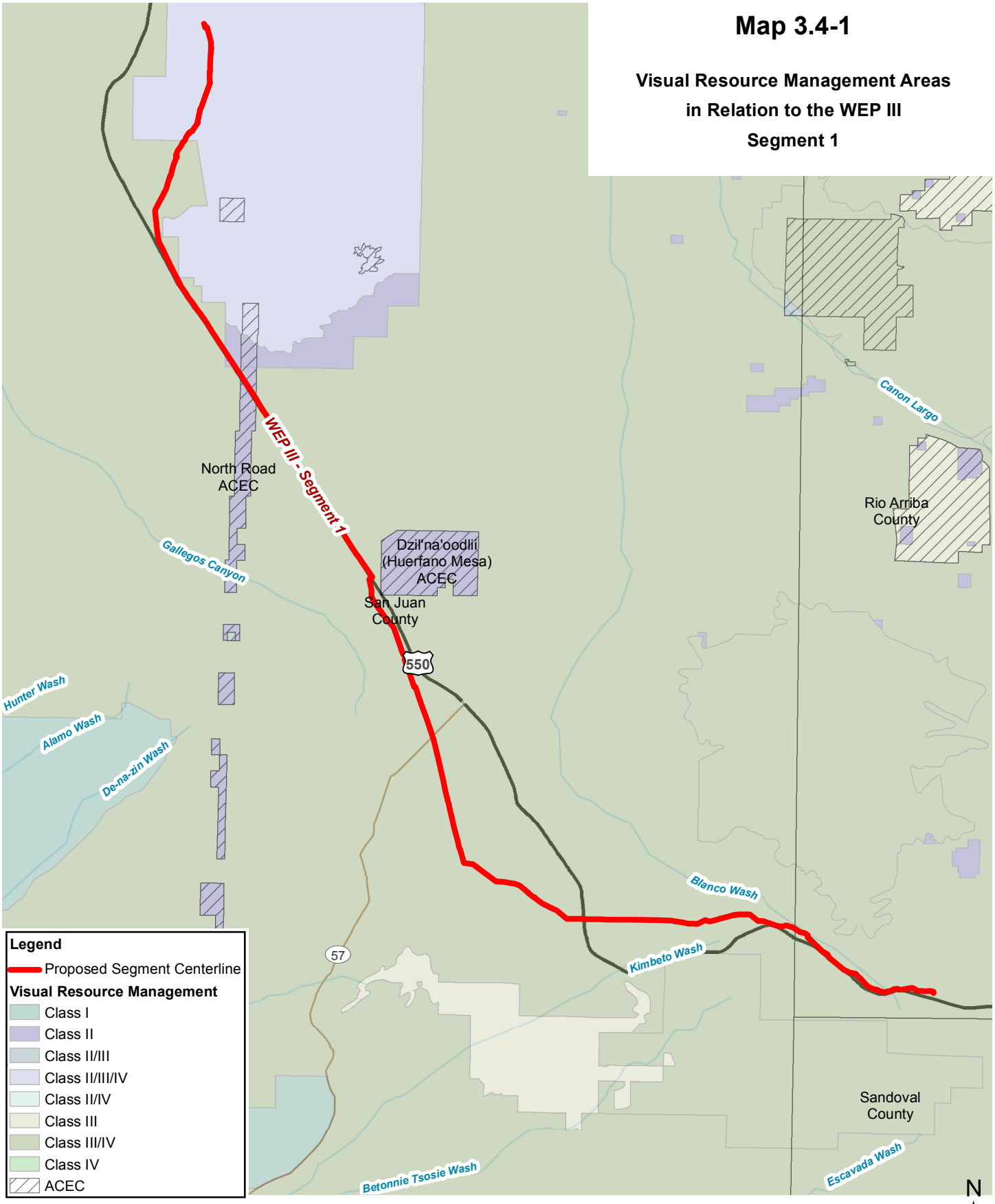
BLM's visual resource management (VRM) classification system is designed with the goals of minimizing visual impacts of surface-disturbing activities and maintaining scenic values for the long term. Visual resources in the BLM New Mexico field offices have been classified according to VRM analysis criteria. Modifications to the visual resource must follow the guidelines for the types of change suitable for each class. Approximately 97 percent of the BLM lands in the project area are VRM classes Ill and IV. VRM Class III area objectives allow for a moderate level of change to the existing landscape. Management objectives for VRM Class IV allow for major modification of the existing character of the landscape. Maps 3.4-1 and 3.4-2 show the Proposed Action in relation to visual resource management areas.

A smaller portion of the project area on BLM-managed lands is VRM Class II designation. These areas are associated with the Angel Peak SMA and North Road, Dzil'na'oodlii (Huerfano Mesa), and Ojito ACECs. The objective of VRM Class II is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Currently, the existing right-of-way contrasts with the texture and color of the landscape in the VRM Class II areas, and tends to attract the attention of north-bound travelers on Highway 44 (near the Ojito ACEC). This contrast in color is not uncharacteristic of the desert region, where geological and erosional processes, such as those that shaped the adjacent areas, have resulted in the exposure of several different formations with varying hues.

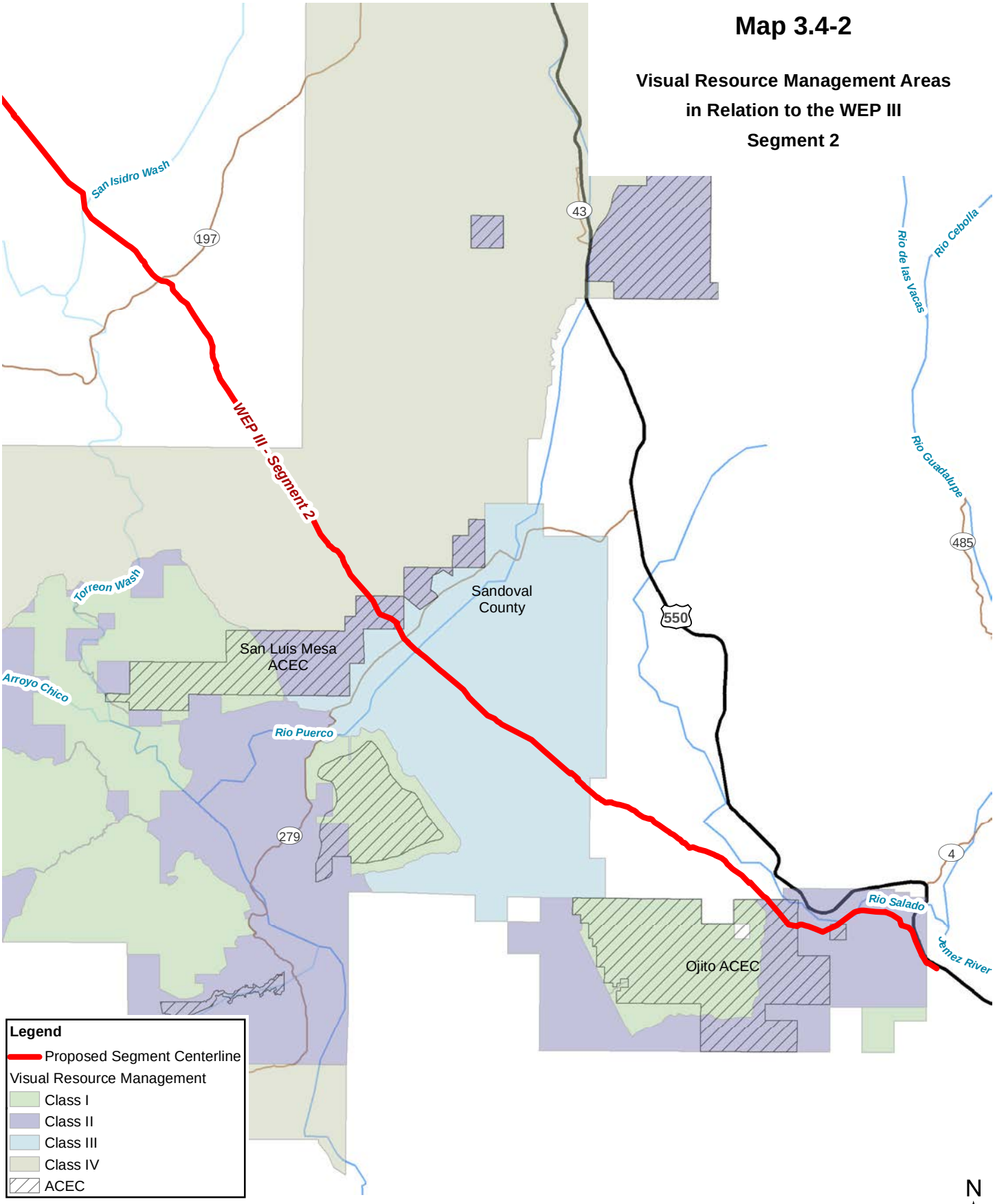
The Proposed Action parallels an existing right-of-way that contains multiple buried pipelines. The right-of-way has already induced visual impacts on the landscape, creating a textural contrast and horizontal line forms within the natural environment due to reduced or absent vegetation. Other human modifications along portions of the route include transmission lines, highways, railroads, unimproved county roads, small communities, scattered farms, ranches, and ancillary facilities to the rights-of-way.

Map 3.4-1

Visual Resource Management Areas in Relation to the WEP III Segment 1



No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM



No warranty is made by the Bureau of Land Management
for use of the data for purposes not intended by the BLM

The BLM FFO is currently in the process of developing a Visual Resource Management Plan Amendment to determine if some VRM objectives need to be updated. The BLM FFO conducted a Visual Resource Inventory (VRI) in 2009. These inventory classes represent the relative value of visual resources found on BLM lands within the field office. Classes I and II are the most valued scenic landscapes; Class III represents a moderate value; and Class IV is considered the least value. Inventory classes are informational and can provide the basis for considering VRM values in the RMP revision process. VRI uses three components (scenic quality, sensitivity, and distance zone) to aid in classifying visual resources. Scenic quality is a measure of the visual appeal of a tract of land. In the VRI process, BLM-managed lands are given an A, B, or C rating based on the apparent scenic quality. Areas with the most visual appeal are rated A, while areas with the least visual appeal are rated C. Sensitivity is a measure of the public concern for scenic quality. During the sensitivity rating, public lands are assigned high, medium, or low sensitivity by analyzing six indicators of public concern: type of user, amount of use, public interest, adjacent land uses, special areas, and other factors. The distance zone analysis is conducted to determine the relative visibility from travel zones or observation points. In the BLM FFO, the project area would cross all three of each of the scenic quality and sensitivity areas, as detailed below

From approximately MP 413.8 to MP 415.7, the Horn Canyon rating C (VRI Class IV) area would be crossed. Horn Canyon is characterized by rolling hills dissected by drainages. The greens of the pinon-juniper complex contrast with buff soils. The area has a low sensitivity level and there is heavy evidence of human activity including roads, oil and gas development, and powerlines.

From MP 404.5 to MP 413.8, the project would cross the Angel Peak rating A area, which is VRI Class II with a high sensitivity level. This area forms a badland landscape unique to the region and encompasses the designated Angel Peak Scenic Area. The landscape contains elongated ridges and truncated pyramidal shapes. Vertical cliffs demonstrate horizontal banding and diagonal lines defining pyramidal peaks. Scattered pinon-juniper produces a color contrast to the grays, purples, browns, and tans of the area soils.

The Bisti area, rated C and VRI IV, would be crossed from about MP 390.8 to MP 404.5. The area has a medium sensitivity level and forms a vast panoramic landscape with subtle surface variation, low gentle hills, and diminutive drainage pattern. The grays and greens of sagebrush provide some contrast with the beiges of the soils.

From MP 395.7 to MP 397.18 and surrounded by the Bisti area, the project would cross the Huerfano Mountain unit, rated B for scenic quality at a high sensitivity level. The area is characterized by a distinctive mesa in the middle of a broad sagebrush plain. Vegetation consists of scattered pinon-juniper. Colors vary from browns to grays to greens.

From approximately MP 378.2 to MP 390.8, the project would course through the Tanner Lake scenic-rated C unit. This is a VRI Class III, medium sensitivity area containing flat, rolling hills vegetated with sparse, low shrubs and grasses, and some scattered juniper. There are only subtle changes in landform and vegetation with a few dispersed rims and outcrops. Colors are mostly browns, greens, and grays.

From MP 370.4 to about MP 378.2, the Blanco Mesa Complex (VRI Class III, medium sensitivity) and Blanco Wash (VRI Class IV, low sensitivity) B-rated units would be crossed. Blanco Mesa consists of a narrow complex of canyons and ridges between Largo Canyon and Blanco Canyon, providing significant relief in the forms of dramatic cliffs and rock outcrops. The bluffs provide strong horizontal and diagonal lines in the landscape. Soils range in color from

browns to grays to reds to buffs. The pinon-juniper vegetation adds greens and grays to the landscape. The Blanco Wash unit contains a long, sinuous wash surrounded by low hills and benches. Gently rolling slopes lead to prominent mesas on the east, open sagebrush country on the southwest, and Harris Mesa on the west. Vegetation is low and continuous. Colors vary from the beiges of the soils to the greens of the vegetation.

The BLM RPFO also conducted a Visual Resource Inventory recently. Most of the Proposed Action would cross lands listed as VRI Class IV, with the exception of the following areas: VRI Class II areas would be crossed from approximately MP 305 to MP 305.37 and MP 303.63 to MP 303.94. Both of these areas coincide with the Ojito ACEC and are rated B for scenic quality with a moderate level of sensitivity. Several sections of VRI Class III areas would be crossed from approximately MP 301.77 to MP 303.63. These areas are rated C for scenic quality with a moderate level of sensitivity.

3.4.4.2 Proposed Action Alternative

3.4.4.2.1 Direct and Indirect Impacts

Impacts to visual resources would be minor due to the location of the Proposed Action within or adjacent to existing pipeline rights-of-way. Visual contrasts in line, color, and/or texture would be created during construction due to the removal of vegetation. Surface disturbance would create contrasting colors and smoother ridgelines. Large construction equipment moving along the proposed loop pipeline segments would also contribute to these contrasts. Block valves would be installed within the permanent easement adjacent to existing block valves on the adjacent existing pipeline.

Visual resources would be impacted mainly during construction and reclamation. During construction, vegetation would be removed and soil would be disturbed for trenching, staging locations, storage facilities, waste removal, and rock blasting. Smoke and dust might also be generated by construction equipment. MAPL would water the construction right-of-way, where necessary, to control fugitive dust. This mitigation measure would locally reduce dust in the air.

Within the RPFO, VRM Class II designated areas that would be crossed by the Proposed Action include the proposed Ojito ACEC (near MP 303.7) and the San Luis Mesa ACEC (near MP 320.9). Segment 2 would be within or adjacent to an existing pipeline right-of-way that passes through both of the ACECs. Approximately 1.7 miles of the Ojito ACEC would be crossed in two separate sections. In this area, the right-of-way is visible from State Highway 44. Segment 2 would cross the San Luis Mesa ACEC for about 1.5 miles. Upon successful reclamation, it is expected that areas would regain the VRM Class II scenic quality.

After construction is completed, rangeland and agricultural areas dominated by grasses would soon return to their natural visual characteristics with the implementation of MAPL's Reclamation and Monitoring Plan (see Appendix D to the POD). Areas dominated by scrub brush could take several years to regenerate.

Efforts to re-establish native vegetation would be conducted as soon as possible, which would reduce visual impacts. Successful revegetation would minimize visual quality changes by blending colors and texture with adjacent areas. This blending would minimize potential distraction of nearby viewers which could be caused by the newly disturbed right-of-way. Areas where rock outcrops would be removed would also affect the visual character of the land. These impacts would be minimized by smoothing the surface to conform to the existing contours.

Visual impacts would also be mitigated for the casual observer by the nature and location of the Proposed Action: adjacent to existing pipelines; crossing relatively few areas with high or unique visual character; and applying water to areas prone to fugitive dust to locally reduce dust in the air.

Protective Design Features

No measures are proposed to further reduce impacts to visual resources.

3.4.4.2.2 Cumulative Impacts

Dispersed oil and gas development and other utility development could impact visual resources. Roads and utility infrastructure could alter the visual character of the landscape. The developments on private or state lands would not be regulated in terms of visual impacts and related mitigation to the degree that projects on public lands would be in the future. Because the Proposed Action would be constructed adjacent to or within an existing right-of-way, cumulative effects would be expected to be minimal.

3.4.4.3 No Action Alternative

3.4.4.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to visual resources associated with the Proposed Action would not be caused because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to visual resources would not be expected.

3.4.4.3.2 Cumulative Impacts

None would be expected.

3.4.5 Socioeconomics

3.4.5.1 Affected Environment

New Mexico is one of five states in the country where minority populations comprise a majority of the population. According to the Census Bureau's 2011 population estimates, minority populations comprise 59.8 percent of New Mexico's population (Census Bureau, 2012a). Important industries in the state's economy include health care, tourism, mining, and federal government spending. New Mexico is the sixth largest producer of crude oil and natural gas in the United States (Energy Information Administration - EIA, 2012).

The proposed loop pipeline segments bisect the state of New Mexico. Nearly 75 percent of the Proposed Action would be located in five counties: Sandoval County (21 percent), Chaves and San Juan Counties (16 percent each), Lea County (13 percent), and Torrance County (9 percent). Of the proposed segments, 25 percent pass through seven counties: Lincoln and Santa Fe Counties (approximately 6 percent each), Guadalupe (4 percent), McKinley County (3 percent), and Bernalillo, De Baca and Rio Arriba Counties (approximately 2 percent each).

Population. The project area includes counties that are sparsely populated, with population densities as low as 1.5 persons per square mile in Guadalupe County and 0.9 person per square mile in De Baca County; as well as the heavily populated Albuquerque-Santa Fe corridor, where population densities are as high as 75.5 persons per square mile in Santa Fe County and 572.6 persons per square mile in Bernalillo County.

With the exceptions of De Baca, McKinley, Rio Arriba, and Torrance Counties, county populations increased between 2000 and 2010 (see Table 3.4-1). Countywide growth rates exceeded the statewide average in Bernalillo, Lea, Sandoval, and San Juan Counties. With a

46 percent increase in population, Sandoval County had the highest growth rate in the state between 2000 and 2010. This growth was concentrated along Sandoval County's borders with Bernalillo and Santa Fe Counties. According to the Bureau of Business and Economic Research at the University of New Mexico, which compiles the state's population projects, with the exception of De Baca County, all counties that would be crossed by the Proposed Action are expected to gain residents between 2010 and 2020. Growth trends are generally expected to be comparable to those experienced over the past decade (University of New Mexico, 2012).

Table 3.4-1
Population Estimates, Forecasts and Growth Rates in New Mexico and Counties Crossed by the Proposed Action

Area	2000[1]	2010[2]	2020[2]	Growth Rates 2000 - 2010	Growth Rates 2010 - 2020	Population Density
New Mexico	1,819,017	2,065,826	2,351,724	13.6%	13.8%	17.0
Bernalillo County	556,120	664,636	780,244	19.5%	17.4%	572.6
Chaves County	61,373	65,783	71,632	7.2%	8.9%	10.8
De Baca County	2,240	2,022	1,950	-9.7%	-3.6%	0.9
Guadalupe County	4,677	4,687	4,765	0.2%	1.7%	1.5
Lea County	55,528	64,727	78,407	16.6%	21.1%	14.7
Lincoln County	19,374	20,497	21,577	5.8%	5.3%	4.2
McKinley County	74,795	71,802	73,483	-4.0%	2.3%	13.2
Rio Arriba County	41,171	40,371	41,026	-1.9%	1.6%	6.9
Sandoval County	90,546	132,434	176,276	46.3%	33.1%	35.7
San Juan County	113,812	130,170	146,388	14.4%	12.5%	23.6
Santa Fe County	129,304	144,532	164,006	11.8%	13.5%	75.7
Torrance County	16,894	16,383	17,589	-3.0%	7.4%	4.9

Sources:
[1] Census Bureau, 2001.
[2] University of New Mexico, 2012.

Income and Employment

Income. Personal income is a major index of economic well-being and is broadly defined as the current income received by residents of an area from all sources. The components of personal income are net earnings; transfer payments (income for services not currently rendered); and dividends, interest and rent (investment) income. Per capita income is average income per person and is measured by dividing total personal income by the resident population.

Net earnings typically comprise the majority of personal income. Averaged across the state, net earnings accounted for 63 percent of New Mexico's 2010 per capita personal income. Within counties that would be crossed by the Proposed Action, net earnings accounted for less than half of per capita income in Guadalupe (47 percent), De Baca (48 percent), and Lincoln (49 percent) Counties, and as much as 66 percent in Sandoval County and 70 percent in Lea County (Bureau of Economic Analysis - BEA, 2012).

In comparison to other states, New Mexico ranks low in terms of per capita income. New Mexico's 2010 per capita income of $32,940 was approximately 78 percent of the national figure of $42,338 (BEA, 2012). Between 2000 and 2010, nominal per capita income (income unadjusted for inflation) in New Mexico increased approximately 45 percent. During this period, per capita income growth across the counties traversed by the Proposed Action ranged from 27 percent in Bernalillo County to 71 percent in Lea County and 73 percent in McKinley County. In 2010, per capita income in counties crossed by the Proposed Action ranged from $23,964 and $24,436 in McKinley and Guadalupe Counties, respectively, to $41,916 in Santa Fe County (see Table 3.4-2).

Table 3.4-2
Per Capita Income in New Mexico
and Counties Crossed by the Proposed Action[1]

Area	2000	2010
New Mexico	$22,746	$32,940
Bernalillo County	$27,731	$35,328
Chaves County	$19,381	$29,010
De Baca County	$20,133	$32,027
Guadalupe County	$15,153	$24,436
Lea County	$20,299	$34,607
Lincoln County	$20,264	$30,820
McKinley County	$13,862	$23,964
Rio Arriba County	$17,829	$28,504
Sandoval County	$24,232	$31,634
San Juan County	$19,124	$29,218
Santa Fe County	$30,930	$41,916
Torrance County	$17,884	$29,317

[1] BEA, 2012.

Industry Employment and Wages. Most of the jobs in counties that would be crossed by the Proposed Action are in the Retail Trade, Health Care, Education, Accommodations and Food Services, and Public Administration sectors. As part of the Mining Sector, the oil and gas industry is also an important source of jobs in Lea and San Juan Counties.

Between 2005 and 2011, total sectoral employment, which excludes farming and self-employment, decreased in Bernalillo, De Baca, Guadalupe, Lincoln, McKinley, Rio Arriba, Santa Fe, and Torrance Counties. During this time, total sectoral employment remained relatively steady in Chavez and San Juan Counties; and increased in Lea and Sandoval Counties. Most of the job losses were in the construction and manufacturing sectors. With the exception of Lea County, all counties lost construction jobs, and all counties with reported data for the Manufacturing sector lost manufacturing jobs. Between 2005 and 2011, Bernalillo, Lea, and San Juan Counties had substantial job gains in the Mining sector, and employment in the Health Care sector increased in Bernalillo, McKinley, Sandoval, San Juan, Santa Fe, and Torrance Counties. (New Mexico Department of Workforce Solutions, 2012).

In 2011, average annual wages ranged from a high of $46,800 in Lea County to a low of $26,052 in Guadalupe County. Wages tend to be highest in the Mining and Utilities sectors and lowest in the Arts, Entertainment and Recreation and Accommodation and Food Services sectors (New Mexico Department of Workforce Solutions, 2012).

Unemployment Rates. Trends in unemployment rates in counties that would be crossed by the Proposed Action are broadly consistent with trends in the national and state unemployment rates (see Table 3.4-3). Historically, unemployment rates in Bernalillo, Lincoln, and Santa Fe Counties have tended to be lower than the statewide average, and unemployment rates in other potentially affected counties have been comparable to or higher than the state average. Unemployment rates in all jurisdictions have increased sharply since 2008 (Bureau of Labor Statistics - BLS, 2011).

Table 3.4-3
Unemployment Rates in the United States, New Mexico and Counties Crossed by the Proposed Action, 2001 – September 2012[1]

Area	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012 Jan-Sep
United States	4.7%	5.8%	6.0%	5.5%	5.1%	4.6%	4.6%	5.8%	9.3%	9.6%	8.9%	8.2%
New Mexico	5.0%	5.5%	5.9%	5.8%	5.2%	4.1%	3.5%	4.5%	6.8%	7.9%	7.4%	6.7%
Bernalillo Co.	4.2%	4.9%	5.3%	5.2%	4.7%	3.8%	3.3%	4.4%	6.8%	8.1%	7.6%	6.9%
Chaves Co.	5.6%	6.5%	7.4%	6.9%	5.8%	4.3%	3.6%	4.4%	6.3%	7.7%	7.0%	6.4%
De Baca Co.	5.0%	5.1%	8.1%	7.2%	5.8%	4.1%	3.6%	4.1%	4.7%	5.5%	4.9%	4.1%
Guadalupe Co.	7.9%	7.8%	7.9%	7.2%	7.5%	5.2%	5.4%	6.2%	7.2%	10.0%	10.6%	9.8%
Lea Co.	4.3%	5.4%	5.3%	5.0%	4.1%	3.0%	2.3%	2.9%	7.2%	7.3%	5.2%	4.2%
Lincoln Co,	4.2%	4.1%	4.3%	4.4%	4.5%	3.8%	2.9%	3.6%	5.3%	6.3%	5.7%	5.2%
McKinley Co,	6.2%	6.2%	6.9%	7.2%	6.7%	5.4%	4.3%	5.6%	7.6%	9.1%	9.2%	8.6%
Rio Arriba Co.	6.0%	6.5%	6.7%	6.8%	6.1%	4.9%	4.4%	5.5%	6.9%	8.2%	8.3%	7.8%
Sandoval Co.	4.6%	6.0%	6.1%	5.8%	5.3%	4.2%	4.0%	5.3%	7.7%	8.7%	8.6%	7.8%
San Juan Co.	5.4%	6.2%	6.8%	6.1%	5.4%	4.2%	3.1%	4.0%	7.2%	9.1%	7.8%	6.9%
Santa Fe Co.	3.6%	3.9%	4.4%	4.4%	4.1%	3.3%	2.8%	3.8%	6.0%	6.5%	6.0%	5.3%
Torrance Co.	4.5%	5.0%	5.7%	5.9%	5.5%	4.2%	4.3%	5.6%	8.6%	9.9%	9.5%	7.8%

[1] Source: Bureau of Labor Statistics, 2012a.

Short-Term Housing. An internet search of lodging directories found 330 hotels and motels in counties that would be crossed by the Proposed Action. Most of these accommodations are located near Segments 2 and 3 (see Table 3.4-4). Because these estimates are based on lodging facilities with an on-line presence, they are likely to underestimate the number of short-term housing accommodations in counties that would be crossed by the Proposed Action because they do not include smaller establishments and privately-let facilities that do not advertise on the internet. There are also several recreational vehicle (RV) parks with and without hook-ups.

Table 3.4-4
Short Term Housing Accommodations in Counties Crossed by the Proposed Action[1]

Town	County	Loop Pipeline Segments Served	Hotels and Motels
Farmington	San Juan	Segment 1	22
Albuquerque	Bernalillo	Segments 2 and 3	145
Rio Rancho	Sandoval	Segments 2 and 3	42
Bernalillo	Sandoval	Segments 2 and 3	4
Santa Fe	Santa Fe	Segments 2 and 3	60
Santa Rosa	Guadalupe	Segment 5	15
Roswell	Chaves	Segments 5 and 6	20
Lovington	Lea	Segments 5 and 6	4
Hobbs	Lea	Segment 6	18

[1] Source: HotelGuides.com, 2012: TripAdvisor.com, 2012.

Fiscal Conditions. Energy infrastructure, including natural gas pipelines, affects a county's fiscal status primarily through its impact on the ad valorem, or property, tax base. Property taxes are based largely on the assessed value of property and mineral production within a county. The State of New Mexico assesses property in three classes: residential, non-residential, and mineral extraction, the latter of which includes ad valorem production and production equipment. All property is taxed at one-third of its assessed value. The New Mexico Department of Taxation and Revenue values pipelines at cost, less depreciation. The value of property may not be less than 20 percent of the cost of tangible property before depreciation.

Taxable property values in all counties traversed by the Proposed Action increased between 2004 and 2012 (see Table 3.4-5). Lea and Sandoval Counties had the greatest increases in taxable property value, at 108 percent and 99 percent, respectively. This was due largely to the

increased value of mineral extraction. Between 2004 and 2012, the taxable value of mineral extraction doubled in Lea and Sandoval Counties, and increased four-fold in McKinley County (New Mexico Taxation and Revenue Department, 2004; New Mexico Department of Finance and Administration - NMDFA, 2012).

In tax year 2012, residential property accounted for 57 percent of the state's net taxable value; non-residential property accounted for 30 percent; and ad valorem production accounted for 13 percent. Among counties crossed by the Proposed Action, residential property accounts for the majority of the property tax base in Bernalillo, Lincoln, Sandoval, and Santa Fe Counties, and non-residential property comprises the majority of the property tax base in De Baca, Guadalupe, McKinley, and Torrance Counties. Ad valorem production comprises the majority of the property tax base in Lea and Rio Arriba Counties, and contributes to the property tax base in Chavez, Guadalupe, McKinley, Sandoval, and San Juan Counties (NMDFA, 2012).

Table 3.4-5
Net Taxable Value in New Mexico and Counties Crossed by the Proposed Project (in million $s)

	2004 Tax Year[1]				2012 Tax Year[2]			
County	**Total**	**Resi-dential**	**Non Resi-dential**	**Mineral Extraction[3]**	**Total**	**Resi-dential**	**Non-Resi-dential**	**Mineral Extraction[3]**
New Mexico	$34,897	$19,396	$10,834	$4,667	$54,130	$30,701	$16,371	$7,058
Bernalillo	$10,092	$7,267	$2,825	$0	$14,160	$10,441	$3,719	$0
Chaves	$720	$332	$294	$94	$1,229	$547	$441	$141
De Baca	$36	$9	$27	$0	$59	$13	$46	$0
Guadalupe	$92	$23	$69	$0	$115	$28	$87	$0
Lea	$1,697	$234	$329	$1,134	$3,540	$418	$866	$2,256
Lincoln	$615	$437	$178	$0	$1,106	$801	$305	$0
McKinley	$558	$199	$359	$0	$756	$264	$492	$2
Rio Arriba	$1,377	$303	$275	$799	$1,651	$473	$293	$885
Sandoval	$1,589	$1,220	$365	$4	$3,157	$2,364	$785	$8
San Juan	$3,253	$688	$1,286	$1,279	$4,064	$1,252	$1,647	$1,165
Santa Fe	$4,375	$3,228	$1,147	$0	$6,878	$5,289	$1,589	$0
Torrance	$231	$105	$126	$0	$341	$159	$182	$0

[1] Source: New Mexico Taxation and Revenue Department, 2004.
[2] Source: New Mexico Department of Finance and Administration, 2012.
[3] Includes ad valorem production and production equipment.

3.4.5.2 Proposed Action Alternative

3.4.5.2.1 Direct and Indirect Impacts

Most socioeconomic impacts would result from the size of the workforce associated with the Proposed Action and the duration of project activities. MAPL estimates that construction of the proposed loop pipeline segments would require an average workforce of 200 workers and a peak workforce of 600 workers over a 9-month construction period. MAPL does not anticipate the need for additional staff following construction. Consequently, potential socioeconomic impacts associated with the Proposed Action would be short-term.

Population. Because the workforce needed to construct a natural gas pipeline is transitory, with construction crews traveling to areas where pipelines are being built, the workforce associated with the Proposed Action would not be expected to impact regional population trends.

Employment and Income. Nearly all of the employment associated with the Proposed Action would be short-term. Direct employment benefits would include between 200 and 600 construction-related jobs. In 2011, wages earned in New Mexico's "Oil and Gas Pipeline Construction" industry averaged $925 per week (BLS, 2012b).

The Proposed Action would also generate indirect economic benefits to local and regional businesses through contractors' purchases of goods and services associated with construction. Most of these regional benefits would be likely to occur in the Farmington, Albuquerque, Roswell, and Hobbs areas, where most oil and gas service businesses are located. Businesses providing consumer goods and services would also benefit from the increased demand of pipeline construction workers. This "induced" demand for goods and services would be further stimulated by purchases made by people employed by businesses that support the Proposed Action and its workers.

Short-Term Housing. Because of its limited duration, the Proposed Action is not expected to impact the market for long-term housing in counties that would be crossed by the proposed loop pipeline segments. The Proposed Action's temporary workforce is not likely to have a large impact on short-term housing markets. Although regional capacity exists to accommodate the Proposed Action's workforce, there could be localized upward pressures on motel rates during construction of the Proposed Action, especially if the peak construction workforce were to coincide with peaks in local tourism seasons. At such times, some project workers could be in the position of travelling longer distances to secure suitable lodging accommodations.

Fiscal Conditions. Property taxes would be the primary source of public revenues associated with the Proposed Action. In New Mexico, the assessed value of a pipeline depends on its property value, which is equal to the original cost less accumulated depreciation less an adjustment for functional or economic obsolescence. Assessors typically use a 30-year depreciation schedule to value pipelines. Based on the Proposed Action's anticipated installation cost, a 33.3 percent assessment rate, the number of pipeline miles in each county, and the average 2012 mill levy in each county, estimated annual property tax revenues during the first ten years of pipeline operation would range from highs of $343,645 to $277,020 in Chaves County to lows of $40,983 to $33,037 in De Baca County. Estimated property tax revenues for all counties that would be crossed by the Proposed Action are shown in Table 3.4-6.

Table 3.4-6
Estimated Property Tax Revenues in Counties Crossed by the Proposed Action

County	Pipeline Miles	2012 Mill Levy[1]	Estimated Property taxes Years 1 -10
Bernalillo	4.6	43.991	$64,503 - $51,998
Chaves	27.3	27.042	$343,645- $277,020
De Baca	5.0	25.404	$40,983 - $33,037
Guadalupe	8.2	28.027	$86,668 - $69,865
Lea	32.8	27.319	$286,686 - $231,104
Lincoln	16.9	26.374	$142,808 - $155,121
McKinley	7.4	35.162	$82,897 - $66,825
Rio Arriba	5.2	25.003	$41,773 - $33,675
San Juan	40.5	25.110	$324,147 - $261,302
Sandoval	52.5	35.140	$587,995 - $473,996
Santa Fe	17.1	28.176	$152,295 - $122,769
Torrance	16.2	21.366	$164,971 - $132,986
Total	**233.7**		**$2,319,371 - $1,909,698**

[1] Weighted average non-residential property tax rate in each county (NMDFA, 2012)

The Proposed Action would not impact property taxes on natural gas production, federal mineral royalty, or severance tax revenues. Counties that would be crossed by the Proposed Action could also expect some sales tax revenue during pipeline construction.

Protective Design Features

There are no measures identified to reduce socioeconomic impacts.

3.4.5.2.2 Cumulative Impacts

Cumulative impacts to local populations, housing, and infrastructure are not anticipated. Cumulative socioeconomic impacts related to future projects are not anticipated due to the short duration of the Proposed Action's construction period.

3.4.5.3 No Action Alternative

3.4.5.3.1 Direct and Indirect Impacts

Under the No Action Alternative, socioeconomic effects associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in the project area would continue. The direct and indirect employment benefits associated with the Proposed Action would not occur, and there would be no increase in public sector revenues from property taxes or sales tax revenues associated with the Proposed Action. If trucks or a combination of trucks and rail were used to transport the NGLs to market, socioeconomic effects would be expected, but where or how much is not known.

3.4.5.3.2 Cumulative Impacts

Cumulative effects would be expected but are not quantifiable for purposes of this analysis.

3.4.6 Environmental Justice

3.4.6.1 Affected Environment

Executive Order 12898 requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of programs, policies and activities on minority and low-income populations (defined as those living below the poverty level). According to the 2010 Census, non-Hispanic minorities comprised approximately 32 percent of the state's population, as well as the populations of Bernalillo, Guadalupe, and Sandoval Counties. Non-Hispanic minorities comprised approximately 14 percent of De Baca and Lincoln Counties' populations; approximately 24 percent of Lea, Santa Fe, and Torrance Counties' populations; 29 percent of Chaves County's population; 48 percent of Rio Arriba and San Juan Counties' populations; and 85 percent of McKinley County's population (Census Bureau, 2011).

As a percent of total population, New Mexico has the highest portion of Hispanics in the country (Census Bureau, 2012a). Persons of Hispanic origin comprise 46.5 percent of the state's population and between 13 percent and 80 percent of the populations in counties that would be crossed by the Proposed Action (see Table 3.4-7).

Between 2007 and 2011, low income populations comprised 19 percent of the statewide population. Within counties that would be crossed by the Proposed Action, low income populations ranged from 12 percent in Lincoln County to 32 percent in Guadalupe County (Census Bureau, 2012b).

Table 3.4-7
Minority and Low Income Populations in New Mexico and Counties Crossed by the Proposed Action

Area	Minority Populations[1]						Low Income Populations[2]	
	African American	American Indian/AK Native	Asian & Pacific Islander	Some Other Race	Two or More Races	Hispanic[3]	Median Household Income	House-holds in Poverty
New Mexico	2.1%	9.4%	1.5%	15.0%	3.7%	46.5%	$44,631	19.0%
Bernalillo Co.	3.0%	4.8%	2.4%	16.0%	4.4%	47.9%	$48,231	16.6%
Chaves Co.	2.0%	1.2%	0.7%	21.9%	3.2%	52.0%	$37,293	20.3%
De Baca Co.	0.1%	0.6%	0.0%	7.9%	3.9%	38.5%	$33,714	18.2%
Guadalupe Co.	1.7%	1.9%	1.3%	21.4%	3.3%	79.6%	$26,152	32.2%
Lea Co.	4.1%	1.2%	0.6%	16.6%	2.6%	51.1%	$53,219	16.7%
Lincoln Co.	0.5%	2.4%	0.4%	9.2%	2.5%	29.8%	$52,456	12.4%
McKinley Co.	0.5%	75.5%	0.8%	4.9%	3.1%	13.3%	$40,330	30.7%
Rio Arriba Co.	0.5%	16.0%	0.5%	28.0%	3.3%	71.3%	$46,410	19.2%
Sandoval Co.	2.1%	12.9%	1.6%	11.5%	3.9%	35.1%	$57,651	12.4%
San Juan Co.	0.6%	36.6%	0.4%	7.3%	3.5%	19.1%	$49,024	19.7%
Santa Fe Co.	0.9%	3.1%	1.2%	15.1%	3.6%	50.6%	$53,698	15.6%
Torrance Co.	1.3%	2.3%	0.5%	15.5%	4.3%	39.1%	$32,435	25.2%

[1] Source: Census Bureau, 2011.
[2] Source: Census Bureau, 2012b.
[3] Hispanic origin is considered an ethnicity, not a race. Hispanics may be of any race.

3.4.6.2 Proposed Action Alternative

3.4.6.2.1 Direct and Indirect Impacts

With the exceptions of McKinley, Rio Arriba, and San Juan Counties, counties that would be crossed by the Proposed Action contain lower or comparable portions of non-Hispanic minority populations as compared to the statewide average. American Indians account for the majority of minority populations in McKinley, Rio Arriba, and San Juan Counties. Compared to the statewide average, Hispanics make similar or lower contributions to total populations in all counties except Guadalupe and Rio Arriba, where Hispanics comprise 71 and 80 percent of each respective county's population. Finally, except for Guadalupe, McKinley, and Torrance Counties, counties that would be traversed by the Proposed Action contain lower or comparable portions of low-income populations as compared to the statewide average.

The Proposed Action would provide a short-term stimulus to economic activity and a longer-term fiscal stimulus in counties that would be crossed by the Proposed Action and is not expected to result in disproportionately high and adverse human health or environmental impacts on minority populations or low-income populations.

Protective Design Features

There are no measures identified to further reduce Environmental Justice impacts.

3.4.6.2.2 Cumulative Impacts

None would be expected.

3.4.6.3 No Action Alternative

3.4.6.3.1 Direct and Indirect Impacts

Under the No Action Alternative, environmental justice effects associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in

the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, environmental justice effects would not be expected.

3.4.6.3.2 Cumulative Impacts

None would be expected.

3.4.7 Transportation/Access

3.4.7.1 Affected Environment

MAPL would use a network of existing roads to access the pipeline construction right-of-way. Key roadways that would be used to access the proposed loop pipeline segments include the interstates, U.S. highways, and New Mexico state roads shown in Table 3.4-8. In addition to these major roads, several county and BLM roads would be used to access the segments (see Table C-2 in Appendix C). Access to the right-of-way is also detailed in MAPL's Transportation Plan (see Appendix C to the POD).

Table 3.4-8
WEP III Access Roads to Right-of-Way
Interstates, U.S. Highways, and New Mexico State Roads

Segment	Highways Used for Right-of-Way Access
Segment 1	US Highway (US) 64, US 550, New Mexico State Road (NM) 57
Segment 2	US 550, NM 197, NM 279
Segment 3	Interstate 25 (I-25), I-40, NM 14, NM 41, NM 344, NM 472
Segment 5	US 285
Segment 6	US 70
Segment 7	US 82, NM 83, NM 133

The New Mexico Department of Transportation maintains the highways shown in Table 3.4-8, and Bernalillo, Chaves, De Baca, Guadalupe, Lea, Lincoln, McKinley, Rio Arriba, Sandoval, San Juan, Santa Fe, and Torrance Counties maintain the county roads within their respective boundaries that would be used for Project access. Proposed maintenance of BLM roads used to access the construction right-of-way is described in MAPL's Transportation Plan (see Appendix C to the POD).

3.4.7.2 Proposed Action Alternative

3.4.7.2.1 Direct and Indirect Impacts

The Proposed Action could have direct impacts on transportation in the vicinity of the proposed loop pipeline segments by increasing traffic volumes on access roads; indirect impacts could be caused through increasing opportunities for vehicle collisions with wildlife and other vehicles and contributing to roadway deterioration and dust creation on unpaved roads. Little or no disruption of traffic would result at road crossings that are bored or crossed by HDD. There could be minor delays related to construction traffic (including pipe trucks) and movement of equipment near pipeline crossings, along access roads, and near pipe and equipment storage sites.

Worker traffic and traffic associated with hauling pipe and water to the right-of-way are summarized in Section 2 and described more fully in MAPL's Transportation Plan (see Appendix C to the POD). Noticeable increases in traffic and related impacts could occur along off-highway portions of the access route. Peak traffic impacts could be expected for a limited period of time, during which truck traffic for hydrostatic testing would overlap with truck traffic for pipe delivery and dust control and the peak workforce.

Project-related traffic impacts would be short-term, lasting for approximately 45 days per loop pipeline segment. Based on the number of hydrostatic test locations and the expected duration of hydrostatic testing (5 days per location), peak traffic impacts could be expected to occur for 30 days on access roads leading to Segment 1; for 15 days on access roads leading to segments 2, 3 and 5; and for 10 days on access roads leading to segments 6 and 7.

The Proposed Action would not include construction of new roads; proposed improvements to 26 existing roads would disturb 23.8 acres (see Table C-3 in Appendix C).

MAPL's Transportation Plan (see Appendix C to the POD) describes elements of the Proposed Action that are designed to avoid and/or minimize potential impacts to transportation and access.

Protective Design Features

The following measures would be implemented to reduce potential impacts to Transportation and Access:

- Implementing MAPL's Transportation Plan (see Appendix C to the POD).
- Requiring the approval of the BLM (or the SPA on Zia Pueblo trust lands) for upgrading or improving any access roads outside of the existing road footprint.
- Prohibiting use of the permanent easement as a roadway and consulting with the BLM and BIA about measures to deter public use of the easement as a roadway (may include construction of deterrence structures).

3.4.7.2.2 Cumulative Impacts

The Proposed Action would not construct new roads and would be short-term (lasting 9 months); therefore no cumulative effects to transportation and access would be expected.

3.4.7.3 No Action Alternative

3.4.7.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to transportation and access associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, transportation impacts would be expected due to the increased number of trucks or rail cars traveling daily.

3.4.7.3.2 Cumulative Impacts

Cumulative impacts would depend on the routes that would be traveled. Effects are not quantifiable in a meaningful way for purposes of this analysis.

3.4.8 Waste, Hazardous or Solid

3.4.8.1 Affected Environment

There are no known hazardous or other solid wastes on the lands that would be crossed by the Proposed Action.

3.4.8.2 Proposed Action Alternative

3.4.8.2.1 Direct and Indirect Impacts

Pipeline construction would generate small quantities (less than 1 ton per day averaged over the length of construction) of solid wastes that would be placed in approved sanitary landfills along the proposed loop pipeline segments.

Construction and operation activities would not normally generate hazardous wastes. Fuel and petroleum products would be used by construction equipment and there is the potential for leaks or breaks in the pipeline during operations. MAPL would implement the SPCC Plan (see Appendix P to the POD) during construction to prevent and minimize impacts from spills. Potential impacts from a leak or break in the pipeline during operations would be minimized by implementation of the measures described in the ERP (see Appendix L to the POD). Any spills of these materials would be relatively small in quantity and MAPL would adhere to strict reporting and cleanup requirements in accordance with federal, state, and local regulations as described in the SWMP (see Appendix E to the POD). Impacts to surface water and groundwater resulting from spills would be minimized by conducting fueling and maintenance at least 100 feet from waterbodies and wetlands.

Current pipeline operations require very limited amounts of hazardous substance that require documentation with Material Safety Data Sheets. The following compounds are typically stored and used in small quantities (10 gallons or less): lubricants, mineral spirits, mastic, methanol, and ethylene glycol (antifreeze). Natural gas liquids transported in the pipeline are petroleum-based materials and are exempt from regulation under the Comprehensive Environmental Response Compensation and Liability Act.

Protective Design Features

The following measures would further reduce potential impacts from hazardous and solid wastes:

- Prohibiting fueling or vehicle maintenance within 100 feet of any waterbody or wetland, including dry streambeds and dry or seasonal wetlands.
- Ensuring that fuel trucks are equipped with a shovel and absorbent pads.
- Notifying the BLM AO of any incident requiring notification to any other spill reporting hotline. The SPA and Pueblo of Zia tribal officials shall be notified of any similar incident on Zia Trust lands.

3.4.8.2.2 Cumulative Impacts

The cumulative impacts resulting from the continued operation of the existing pipelines would be minor except in limited areas where existing operation may create opportunities for the accidental release of hazardous substances. There may be areas that would require mitigation in order to restore areas affected by spills and/or repair pipelines; however, the overall impacts are expected to be localized and minor. Other development activities could result in localized impacts from hazardous waste. The overall cumulative impacts of these developments would be minor.

3.4.8.3 No Action Alternative

3.4.8.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts from hazardous or solid waste associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts from hazardous or solid waste would not be anticipated, barring an accidental spill.

3.4.8.3.2 Cumulative Impacts

None would be expected.

3.4.9 Public Health and Safety

3.4.9.1 Affected Environment

Pipelines transporting liquid fuels present risks to the public due to the potential for unintentional releases. Releases could impact surrounding populations, property, and the environment, and may result in injuries or fatalities. Pipelines that are classified by DOT as "hazardous liquid pipelines" transport a variety of products, including petroleum, petroleum products, NGLs, anhydrous ammonia, and carbon dioxide. The risks of hazardous liquid pipeline releases vary according to the specific product transported.

Causes of Pipeline Accidents. Data on pipeline safety are available from the DOT's Pipeline and Hazardous Materials Safety Administration (PHMSA). Pipeline operators are required to report to the PHMSA any incident in which one of the following occurs:

- An explosion or fire not intentionally set by the operator;
- Release of five gallons or more of a hazardous liquid (any petroleum or petroleum product) or carbon dioxide;
- Fatality;
- Personal injury requiring hospitalization; and/or
- Property damage, including cleanup costs, estimated to exceed $50,000 (PHMSA, 2012).

Between 1993 and 2012, 5,728 incidents involving hazardous liquid pipelines (such as the proposed Project) in the United States were reported to the PHMSA (see Table 3.4-9). During this time, 38 percent of all hazardous liquid pipeline incidents were caused by material/welding/equipment failures; 23 percent were caused by corrosion; 10 percent were caused by excavation damage (primarily third-party); another 10 percent were caused by incorrect operation; and 6 percent were caused by natural force and other outside force damage. Other, unspecified, causes accounted for 13 percent of reported incidents (PHMSA, 2013).

Table 3.4-9
All Reported Incident Details for Hazardous Liquid Pipelines, 1993 – 2012[1,2]

Cause of Incident	Number of Incidents, 1993 - 2012	Percent of Total Incidents	Fatalities	Injuries	Property Damage (million $s)	Percent of Property Damage
Corrosion	1,320	23.0%	1	18	$401.5	13.7%
External Corrosion	*545*	*9.5%*	*0*	*17*	*$258.4*	*8.8%*
Internal Corrosion	*494*	*8.6%*	*1*	*1*	*$137.0*	*4.6%*
Unspecified Corrosion	*281*	*4.9%*	*0*	*0*	*$6.1*	*0.2%*
Excavation Damage	567	9.9%	12	38	188.9	6.4%
Incorrect Operation	559	9.7%	9	20	$133.9	3.8%
Material/Welding/Equipment Failure	2,201	38.4%	4	12	$1,242.4	42.4%
Natural Force Damage[3]	258	4.5%	0	1	$581.4	19.8%
Other Outside Force Damage[4]	99	1.7%	3	5	$124.3	4.2%
All Other Causes[5]	724	12.6%	10	43	$278.0	9.4%
Total[6]	5,728	100.0%	39	137	$2,930.4	100.0%

[1] Source: PHMSA, 2013.
[2] Includes pipelines transporting crude oil, petroleum products, anhydrous ammonia, and carbon dioxide.
[3] Natural force damage includes earth movement, heavy rains and floods, temperature, high winds, and other natural causes.
[4] Other outside force damage includes vehicles not engaged in excavation, previous mechanical damage, and other outside force damage.
[5] Damage from all other causes includes miscellaneous, unknown and unspecified causes.
[6] Due to rounding error, the sum of individual incidents may not total 100 percent.

Pipeline operators reduce the risk of releases and hazardous incidents by taking steps to minimize the probability and consequences of such releases. These measures include proper pipeline route selection; design elements, construction, operation, and maintenance procedures that integrate safety features; the use of automated monitoring and control systems; public awareness programs; close coordination with local emergency responders; and excavation damage prevention programs. Pipeline safety is further enhanced by federal and state regulations and laws that govern the construction, operation, and maintenance of pipelines. Federal laws regulating liquid pipeline safety include:

- 49 USC Chapters 601 and 603;
- Pipeline Safety, Regulatory, Certainty and Job Creation Act of 2011;
- Pipeline Inspection, Enforcement, and Safety Act of 2006;
- Pipeline Safety Improvement Act of 2002; and
- Hazardous Liquids Pipeline Safety Act of 1979 (Association of Oil Pipelines – AOPL, 2013).

Federal regulations governing pipeline safety for hazardous liquids pipelines are found at 49 CFR 195. The regulations establish criteria such as pipeline depths and setbacks.

Safety Performance of Hazardous Material Transportation Modes. Pipelines transport the majority of petroleum products in the United States. According to the DOT's Bureau of Transportation Statistics, in 2009 (the latest year for which data are available) pipelines transported 70 percent of petroleum and petroleum products; water carriers transported 23 percent; trucks transported 4 percent; and railways transported 2 percent. When considering onshore forms of transportation only, pipelines transported 91 percent; trucks transported 5 percent; and railroads transported 4 percent of petroleum and petroleum products (Bureau of Transportation Statistics, 2013).

Historically, pipelines have been the safest way to transport liquid fuels. The number of incidents involving hazardous materials has been lower for hazardous liquid pipelines than for road and rail forms of transportation (see Table 3.4-10). Between 2005 and 2009, there were an average of 14,963 hazardous incidents per year for trucks/roads; 718 incidents per year for railroads; and 109 incidents per year for onshore hazardous liquid pipelines (PHMSA, 2010).

Table 3.4-10
Hazardous Materials Transportation Incidents, 2005 - 2009[1]

Mode of Transportation and Type of Incident	Number Incidents[2]	
	2005 - 2009	Average per Year
Road		
All Hazardous Materials (HazMat) Incidents	74,815	14,963
HazMat Incidents with Death or Injury	457	91
Railway		
All HazMat Incidents	3,588	718
HazMat Incidents with Death or Injury	120	24
Onshore Hazardous Liquid Pipelines		
Significant Incidents	547	109
Significant Incidents with Death or Injury	16	3

[1] Source: PHMSA, 2010.
[2] Per 49 CFR 171.15 and 171.16, hazardous materials incidents are reported for unintentional releases of a hazardous material during transportation (including loading, unloading and temporary storage related to transportation). Fatalities and injuries reported here are those that are a direct result of a hazardous materials release.

The PHMSA classifies "serious" incidents as incidents with a fatality or injury as a direct result of the hazardous materials release. Table 3.4-11 shows incident rates for onshore transportation modes, based on the number of serious incidents per 1,000 miles of road, railway, or hazardous liquid pipeline in the United States. Based on 2005 to 2009 incident data, the rate of serious incidents per mile of hazardous liquid pipeline (0.018) is slightly lower than the serious incident rate for roads (0.023) and approximately 10 times lower than the serious incident rate for railways (0.25).

Table 3.4-11
Serious Incident Rates for Roads, Railways and Pipelines, 2005 - 2009[1]

Transportation Mode	Average Miles	Average HazMat Serious Incidents per Year	Average HazMat Serious Incidents per 1,000 Miles per Year
Road	4,013,758	91	0.023
Railway	95,304[2]	24	0.25
Onshore Hazardous Liquid Pipeline	164,234[3]	3	0.018

[1] PHMSA, 2010.
[2] As reported in PHMSA (2010), road mileage consists of miles of public roads and streets in the United States, and railway mileage consists of miles of track in the United States.
[3] According to the PHMSA's website, the number of miles of hazardous liquids pipelines had increased to 175,000 by 2012 (PHMSA, 2013).

For another comparative perspective, between 1993 and 2012, annual fatalities from hazardous incidents for hazardous liquid pipelines ranged from highs of 5 deaths in 1996 and 2004 to no deaths in 1993, 1997, 2001, 2003, and 2006, and in 2012, there were 3 fatalities associated with hazardous liquid pipeline incidents (PHMSA, 2013). Table 3.4-12 lists various causes of accidental deaths in 2006 and 2007 (the most recent years for which the Census Bureau reported data). Because individual exposures to hazardous situations vary across accident categories, direct comparisons between accident categories should be made judiciously. Nevertheless, based on these data, the fatality rate for hazardous liquid pipeline incidents is approximately 10,000 times lower than fatalities from motor vehicle accidents; 5,000 times lower than fatalities from accidental falls; 3,000 times lower than fatalities from gun-related homicides; and 10 times lower than fatalities from lightning strikes.

Table 3.4-12
Nationwide Accidental Deaths, 2006 and 2007

	2006		2007	
Cause of Death	**Number**	**Rate[1]**	**Number**	**Rate[1]**
All Accidents[2]	121,599	40.6	123,706	41.0
Motor Vehicle Accidents[2]	45,316	15.1	43,945	14.6
Falls[2]	20,823	7.0	22,631	7.5
Accidental Drowning[2]	3,579	1.2	3,443	1.1
Accidental Exposure to Smoke and/or Flames[2]	3,109	1.0	3,286	1.1
Assault (homicide) by Firearm Discharge[2]	12,791	4.3	12,632	4.2
Lightning[3]	48	0.016	45	0.015
Passenger Airline Crash[4]	47	0.016	0	0.0
Hazardous Liquid Pipeline Incident[5]	0	0.0	4	0.001

[1] Rates per 100,000 population.
[2] U.S. Census Bureau, 2012.
[3] National Weather Service, 2013.
[4] National Transportation Safety Board, 2013. Fatalities shown here are reported for aircraft with 10 or more seats used in scheduled passenger service.
[5] PHMSA, 2013.

Accidents in New Mexico from the PHMSA database identified along MAPL's system within the last 10 years include.

- September 25,2003 – Rocky Mountain Red LID 701 due to excavation damage in Edgewood, NM;
- June 23, 2006 – Dollarhide Lateral LID 712 due to Corrosion in Eunice, NM;
- December 5, 2008 – Navajo-Lovington Loop LID 720 in Lovington, NM; the cause was not identified as it was a minor spill.

3.4.9.2 Proposed Action Alternative

3.4.9.2.1 Direct and Indirect Impacts

Pipelines transport NGLs under pressure in liquid form. If released to the atmosphere, NGLs would convert to a gas because the pressure would be reduced. Given that the components of the NGLs are flammable, they could pose a safety hazard should there be an ignition source nearby until they dissipate into the atmosphere. In the event of a rupture/failure, there would be no effect to ambient air quality standards or air toxics threshold values.

Given the physical characteristics of NGLs and typical pipeline depths, compared to the depth of groundwater sources, the risk of groundwater contamination due to an unintentional NGL release is low. A qualitative assessment of the potential for contamination of groundwater sources follows. NGLs, those hydrocarbons separated from methane (the primary constituent of natural gas), consist primarily of straight-chain alkanes containing two or more carbon atoms, as well as isobutane and isopentane. The majority of the NGLs are lighter alkanes, from ethane through pentane. Longer-chain hydrocarbons comprise 2 to 4 percent of the total volume of the NGLs proposed for transport. The lighter hydrocarbons (ethane, butane. propane and pentane) are highly volatile and exist as liquids in the pipeline only because of the high pressures inside the pipe. In the event of a release, there would be little opportunity for these hydrocarbons to move downward through the unsaturated upper soil (vadose zone) to the water table because they would be expected to evaporate at the surface or in the upper portion of the vadose zone prior to reaching the water table.

The longer-chain hydrocarbons that make up a small portion of the NGLs are also volatile, although less so than the shorter-chain hydrocarbons. As is the case with the lighter hydrocarbons, a portion of the heavier hydrocarbons would evaporate at the surface and in the vadose zone. Because these hydrocarbons have limited solubility in water, any un-evaporated hydrocarbons that reached the water table would form a layer of hydrocarbons on the top of the groundwater. A portion of the floating hydrocarbons would then dissolve into the groundwater (maximum solubility for most of these compounds is in the low part per million range), and the remainder would continue to evaporate into the vadose zone.

The extent to which groundwater might be contaminated with these longer-chain hydrocarbons is, therefore, subject to a number of variables, including the volume of hydrocarbons released, the surface temperature, the porosity and permeability of the soils and bedrock, and the depth to the water table. The toxicity of those hydrocarbons present in NGLs is considerably less than for hydrocarbons that comprise refined petroleum products (e.g., gasoline, diesel, and aviation fuels). Refined petroleum products, while consisting predominantly of alkanes, also have significant amounts of aromatic compounds, such as benzene, ethylbenzene, toluene, and xylenes. These aromatic compounds are known toxins and carcinogens and limits on their concentration in drinking water have been established. Straight-chain hydrocarbons, such as those found in small concentrations in NGLs, are much less toxic and are not regulated under the Safe Drinking Water Act.

In summary, a release from an NGL pipeline would result in the evaporation of most, if not all, of the liquids on the surface of the ground or in the vadose zone above the water table. Under certain conditions it would be possible for a very small portion of the release to reach the water table. Because of their slight solubility in water, contamination from NGLs would be limited to a few parts-per-million. These concentrations would be further reduced by diffusion and natural attenuation further reducing the risk to potential receptors.

The Proposed Action would include processes, procedures and systems to prevent, detect and mitigate potential NGL spills that could occur during construction and operation of the pipeline. Safety elements that are part of the proposed Project are described in Chapter 2 and highlighted below:

- Section 2.2.6: Special Construction Methods, including methods and procedures for handling hazardous materials, avoiding and suppressing fires, and assuring the safety of pipeline workers.
- Section 2.2.8: Pipeline Operations and Maintenance, including emergency repairs and protective measures to avoid corrosion.
- Section 2.2.9: Emergency Response, including automated and manual shut-off values, employee training on emergency procedures, and communication with local emergency responders.
- Section 2.2.10. Pipeline Safety. Safety features of the Proposed Action, including cathodic protection, depth of cover, hydrostatic testing, one call system, public education and damage prevention programs, radiographic inspection, right-of-way marking and monitoring, smart pigs, supervisory control and data acquisition, and valve spacing.

MAPL's Pipeline Safety Plan (Appendix M) and Emergency Response Plan (Appendix L) contain further details on the safety elements and emergency response procedures that are incorporated into the Proposed Action.

MAPL assesses pipeline integrity by conducting pre-operational hydrostatic tests of each new pipeline to ensure structural integrity prior to operation. In addition, integrity assessments are conducted in accordance with applicable Integrity Management requirements to assure the continued safe operating condition of the pipeline. These practices, as well as stringent operating and maintenance procedural requirements that meet or exceed all state and federal requirements are components of the Proposed Action that increase public safety. Additionally, MAPL conducts community outreach and public education programs to keep local landowners and the general public informed of the location of MAPL pipelines and potential associated hazards.

In the case of a release from a rupture, MAPL controllers in Houston would receive a rate of pressure drop alarm. A controller would examine the live pressure trend and determine whether the pressure drop was due to a rupture or simply an anomaly. If an anomaly was suspected, the controllers would continue to closely monitor the situation and proceed in response to the emerging data. Upon confirmation of a rupture, the controller would shut down the line (valve time is about 1.5 minutes), and the MAPL emergency response plan would be implemented immediately.

For a small release reported by the public, the MAPL controller would evaluate the magnitude of the leak based on pipeline data and the caller's information. The controller would provide the caller with appropriate direction in terms of immediate action and safety. The controller would contact a field operations technician who would immediately proceed to the reported incident

location. If the leak is determined to have occurred in a heavily populated or heavily trafficked area, the line may be shut down pending on-site evaluation by the technician.

Ground surface subsidence in karst terrain is the only natural hazard identified that would require special consideration for detection and control during pipeline construction and operation. Other natural hazards of seismicity (earthquakes), landslides, flooding, and channel incision would be minimized with application of special construction methods and equipment as discussed in Chapter 2.

Adding WEP III, the overall system would still be required to operate at or below the current maximum operating pressure of 1,650 psig, as determined by DOT regulations. The proposed Project would comply with all federal safety regulations governing the design, construction and operation of hazardous liquid pipelines. The combined implementation of rigorous industry safety standards and practices, and strong pipeline safety regulations would reduce or eliminate the risk of unexpected release/failures associated with the Proposed Action.

Applying the PHMSA's serious incident rate of approximately 0.02 per year per 1,000 miles of pipeline to the 233.7 miles of the proposed Project could result in one serious incident (i.e., fatality or injury) every 200 years.

Protective Design Features

No measures beyond those included in the Proposed Action have been identified to further reduce impacts to public health and safety.

3.4.9.2.2 Cumulative Impacts

None would be expected.

3.4.9.3 No Action Alternative

3.4.9.3.1 Direct and Indirect Impacts

Under the No Action Alternative, the Proposed Action would not be built; MAPL's existing NGL system would continue to operate and on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts from unexpected transportation incidents could occur.

3.4.9.3.2 Cumulative Impacts

None would be expected.

3.5 Land Resources

3.5.1 Recreation

3.5.1.1 Affected Environment

BLM Farmington Field Office (Segments 1 and 2)

The 10,000-acre Angel Peak Scenic Area is a recreation site consisting of badlands and rugged terrain located within the BLM FFO boundary. It is recognized for its scenic and scientific significance and contains the name-sake landmark Angel Peak. Visitors enjoy a variety of recreational activities, including sightseeing, picnicking, primitive camping, and hiking. Along the canyon rim, a maintained gravel road takes the visitor to camping and picnic units. It is managed to protect and preserve the natural, scenic, and outdoor recreation values and provide visitors with the opportunity to engage in a wide variety of activities.

BLM Rio Puerco Field Office (Segments 2 and 3)

The designated Torreon Fossil Fauna West area (see Section 3.5.3/Special Designations) and the surrounding badlands complex provides opportunities for dispersed recreation, such as hiking, wildlife viewing, paleontological interpretation, and other activities and is located within the BLM RPFO boundary. The Torreon Fossil area contains the scenic Cejita Blanca Ridge, among other interesting badlands. Segment 2 would start adjacent to the area and pass through its far southwest corner. This is in an area of previously disturbed land and adjacent to an existing pipeline right-of-way.

The White Mesa Bike Trails (WMBT) coincides with the project area. They are part of the San Ysidro Extensive Recreation Management Area (11,839 acres) located in Sandoval County. The bike trails cross a highly scenic landscape of exceptional geology, meandering through the Pueblo of Zia, and public lands managed by the RPFO. White Mesa is named for the color of the gypsum that forms much of the mesa and majority of the bike trails. Trails were developed primarily for mountain biking but hiking is also common. The area is currently managed as Semi-primitive Non-motorized under the existing RMP.

The 1870s Wagon Road Trail (proposed ACEC) also coincides with the project area. The 1986 Rio Puerco RMP identifies the trail as containing important and valuable recreation opportunities.

The San Ysidro Trials Area is about one mile north of the project area and is accessible from Highway 550. The area is popular with hikers, mountain bike enthusiasts, as well as the trials bike community. The recreation area lies at the southern tip of the Jemez Mountain range and is open for hiking, primitive camping, and equestrian activities. The area is closed to off-road motorized vehicles except for the special use permitted to the New Mexico Trials Association, which uses the area for competitive and practice events.

3.5.1.2 Proposed Action Alternative

3.5.1.2.1 Direct and Indirect Impacts

During construction, some access roads for off-highway vehicles (OHVs) may be temporarily closed for trenching. These impacts would be temporary and short in duration and should not occur during expected peak use times. Some reductions to hunting opportunities in the vicinity of the proposed construction right-of-way would occur if construction of the proposed segments took place during hunting season. Noise from construction activities may disperse or move big game from the area. This impact would be temporary and no long-term impacts would occur. Because of the variety of public and private lands available for hunting throughout the region, this impact would be relatively minor. The displacement of dispersed recreation during the construction period would be a minimal impact because existing recreational use in the project area is relatively light and because no existing access would be permanently obstructed. No impacts to recreational resources are anticipated after the construction period.

BLM Farmington Field Office (Segments1 and 2)

From MP 404 to MP 404.5, Segment 1 would pass through the southwest corner of the Angel Peak Scenic Area paralleling Highway 550 and an existing pipeline right-of-way. About 3.6 acres (0.6 mile) of the designated Angel Peak Scenic Area would be subject to surface disturbance. This would be adjacent to Highway 550 and the existing pipeline right-of-way in an area away from visitor attractions, campgrounds, trails, picnic areas, and overlooks. Access to the area at County Road 7175 would be temporarily disrupted during construction. MAPL anticipates the gravel road would be closed at the crossing point for a few hours followed by having one lane open with a plate cover over the road cut.

Access to the Torreon Fossil Fauna West area and neighboring badlands complex could be temporarily impacted at area road crossings, where roads could be closed for up to a few hours for trenching. Construction noise and dust may be present to visitors exploring the Cejita Blanca Ridge, which is about 0.5 mile northeast of Segment 2.

BLM Rio Puerco Field Office (Segments 2 and 3)

Segment 2 would start adjacent to the area and pass through its far southwest corner of the Torreon Fossil area. The Proposed Action intersects the White Mesa Bike Trails (WMBT) in Segment 2 at MP 305.4 and MP 305.0. At MP 306.2 Segment 2 would cross the 1870s Wagon Road Trail (proposed ACEC).

Under the Proposed Action, bikers and hikers attempting to use the WMBTs would experience temporary trail closures on the north end of the system during construction and reclamation. Users of both the WMBTs and Ysidro Trials Area would encounter increased traffic, dust, noise, and potential access delays during construction. Additionally, the 1870s Wagon Road Trail would be temporarily inaccessible for relatively short periods during construction and reclamation.

Protective Design Features

The following measures would reduce impacts to recreation resources:

- Posting the construction schedule and information signage at key sites in the Angel Peak Scenic Area and at trailheads in the WMBT and Ysidro Trials areas.
- Consulting with the BLM and the New Mexico Trials Association to determine potential trail closures, trail reroutes, and planned organized trail events.

3.5.1.2.2 Cumulative Impacts

Construction and operation of the Proposed Action are unlikely to result in a detectable change in recreation activities within the surrounding areas. Recreational use is expected to continue and/or increase in the future with OHV use and hunting activities. No cumulative impacts would be expected.

3.5.1.3 No Action Alternative

3.5.1.3.1 Direct and Indirect Impacts

Under the No Action Alternative, recreation impacts associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to recreation resources would not be anticipated.

3.5.1.3.2 Cumulative Impacts

None would be expected.

3.5.2 Special Designations

3.5.2.1 Affected Environment

The objective of specially designated areas (SDAs) is to protect, maintain, and enhance the special resource values on public lands. Areas that have special resource values are identified where some uses may be restricted in order to protect the resources. SDAs in the vicinity of the project area include ACECs, Special Management Areas (SMAs), and two other unique areas. In these areas, special management attention is required to protect and prevent irreparable damage to important historic, cultural, scenic, fish and wildlife, botanical, recreational, or other

natural system resources. The areas are summarized below relative to the managing field office. No SDAs are in the vicinity of the Proposed Action within the TFO, RFO, and CFO boundaries.

The BLM RPFO no longer uses the term SMA, and resource managers are currently determining if these meet relevance criteria for ACEC designation (BLM, 2012a).

BLM Farmington Field Office (Segments 1 and 2)

Segment 1 would begin at the Kutz Processing Plant, which lies within the designated Kutz Canyon Fossil Area. Kutz Canyon includes an area of 35,186 acres of badlands and canyon topography. The management goal is the protection of paleontological resources for scientific study, but the area is also used for energy development (under controlled surface use), grazing, and recreation. Paleontological clearance is required for surface-disturbing activities. Segment 1 would cross the SMA for approximately 4 miles (MP 415.7 to MP 411.85).

Partially overlapping the southern portion of Kutz Canyon is the Angel Peak Scenic Area. As noted above in Section 3.5.2/Recreation, it is a popular regional recreation destination. The site is managed to protect its scenic, educational, and recreational opportunities.

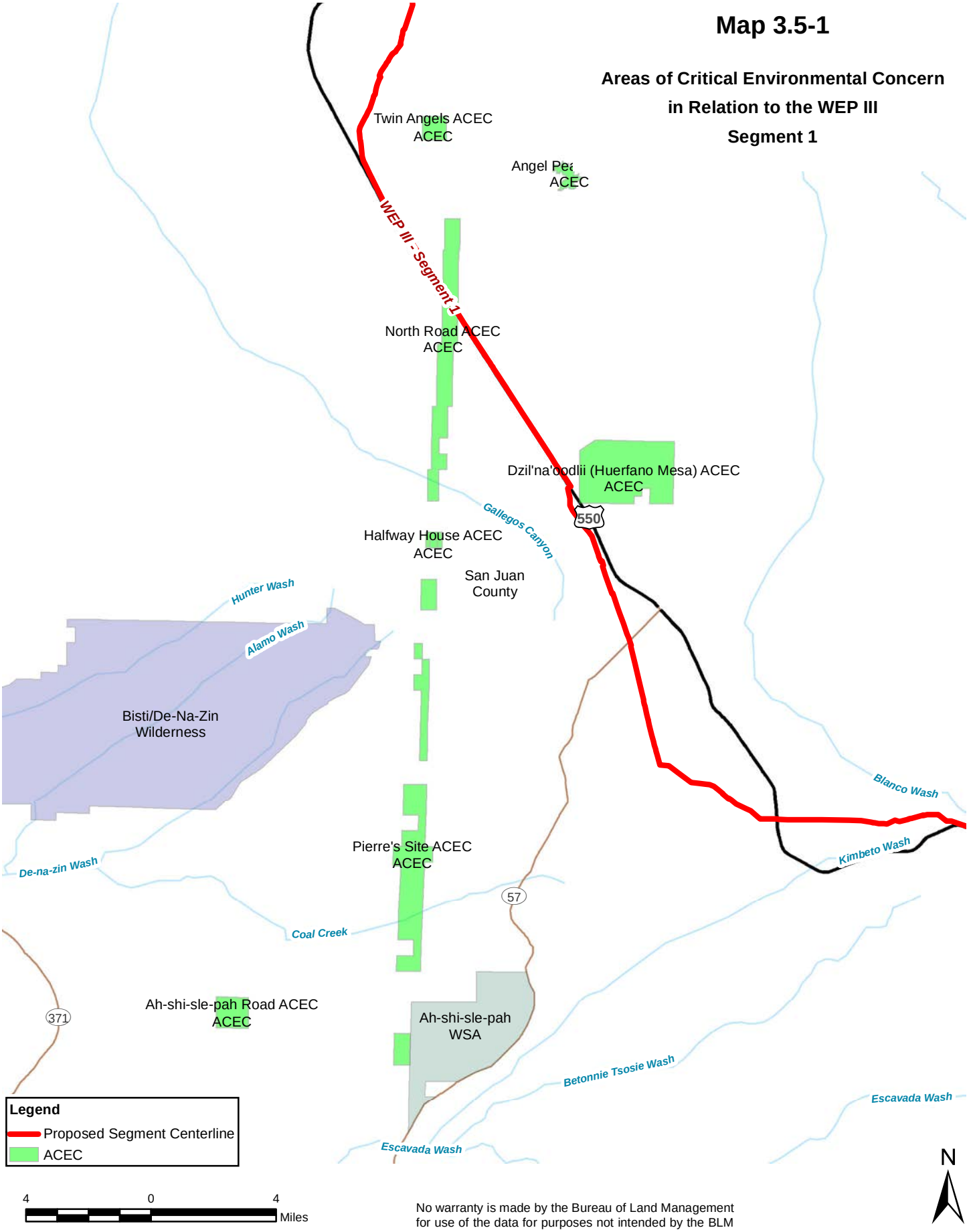
Shortly after leaving the Angel Peak Scenic Area, Segment 1 would cross the North Road ACEC (see Map 3.5-1) at MP 403.7 for about one mile, paralleling Highway 550. The ACEC is part of the Chacoan Roads complex and consists of eight parcels managed to protect and preserve its cultural resource integrity. New rights-of-way in the North Road ACEC must be placed in existing right-of-way disturbance areas (BLM, 2003b). According to BLM GIS, one of the parcels (Segment 7) of the ACEC would be crossed by Segment 1. The “Kutz Drop-Off” section of the ACEC lies about two miles northwest of the project area. MAPL has incorporated an HDD to cross under the North Road ACEC; thereby avoiding surface disturbance within the ACEC.

Adjacent to MP 395.79, Segment 1 has been routed to avoid the Dzil’na’oodlii (Huerfano Mesa) ACEC (see Map 3.5-1). Huerfano is a large isolated mesa that dominates the landscape south of the San Juan River. It is important in Navajo accounts of origin and is one of the six most commonly mentioned sacred mountains of the Navajo. The 3,702-acre ACEC is managed to protect its traditional cultural property values. Of the ACEC, 37 acres are off limits to new rights-of-way and elsewhere new rights-of-way must be placed in existing right-of-way disturbance areas (BLM, 2003b).

BLM Rio Puerco Field Office (Segments 2 and 3)

The northern end of Segment 2 would cross a snippet of the Torreon Fossil Fauna West SMA (proposed ACEC of 2,981 acres) from approximately MP 349.7 to MP 350.0. This ACEC is a major collecting area for fossil mammals. It has been formally defined as the type locality for the Torreon Fauna. A type locality is an important paleontological feature in that it represents the place at which a fossil assemblage is typically displayed and from which it derives its name. The area represents a unique and irreplaceable resource.

Continuing to the south Segment 2 would cross the San Luis Mesa Raptor Area ACEC from MP 320.9 to MP 322.4. The 10,447-acre ACEC consists of roughly 20 miles of sandstone bluffs about 100 to 200 feet high and is managed to protect scenic and wildlife resources. The geologic values associated with these bluffs are the notable exposure of Mancos Shale and Point Lookout Sandstone outcrops, with implications for paleographical reconstruction. Ledges carved in the bluff by wind erosion form excellent raptor nest sites, and numerous raptor species have been observed nesting there.



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Segment 2 would cross the northeast portion of the Ojito ACEC from MP 303.63 to MP 303.94 and again from MP 305.04 to MP 306.39 (see Map 3.5-2). The Ojito ACEC consists of 13,657 acres, 11,697 of which are managed by the BLM. The ACEC is managed to protect geologic resources and wildlife habitat. It provides a unique setting, situated at the intersection of the Navajo and Datil sections of the Colorado Plateau physiographic province and the southern terminus of the Southern Rocky Mountains physiographic province. Geologic formations in and around the Ojito ACEC include past lava flows, volcanic necks and plugs, fault block mountains, desert plains, and dissected plateaus.

Segment 2 would also cross the 1870s Wagon Road Trail SMA (proposed ACEC), as noted above in Section 3.5.2/Recreation; that section discusses the potential impacts and mitigation measures for the ACEC.

3.5.2.2 Proposed Action Alternative

3.5.2.2.1 Direct and Indirect Impacts

The Proposed Action would be within or adjacent to an existing pipeline right-of-way as it transects SDAs. Construction-related impacts would be short-term, and disturbed areas would be reclaimed and revegetated in accordance with applicable regulations, stipulations, and permit requirements.

BLM Farmington Field Office (Segments 1 and 2)

The Proposed Action would result in approximately 27 acres of surface disturbance over approximately 4 miles in the Kutz Canyon Fossil Area. Surface blading and trenching have the potential to damage fossil resources or result in unanticipated resource discoveries. The proposed construction right-of-way would be adjacent to an existing pipeline and in an area of existing roads and overhead powerlines (see Section 3.5.2/Recreation for a summary of impacts to the Angel Peak Scenic Area).

Approximately 0.89 mile of the North Road ACEC would be crossed by Segment 1 using an HDD, resulting in no surface disturbance.

The Proposed Action would not disturb the Dzil'na'oodlii (Huerfano Mesa) ACEC.

BLM Rio Puerco Field Office (Segments 2 and 3)

Segment 2 would disturb approximately 0.13 acre on the Torreon Fossil Fauna West ACEC. The disturbance is not expected to impede the management objective of protecting fossil resources on the ACEC. Segment 2 would also disturb approximately 1 acre across 1.5 miles of the San Luis Mesa Raptor ACEC. The area has a surface disturbance restriction (February 1-July 1) to protect nesting habitat; management objectives of the ACEC would be met after successful reclamation. A portion of the Ojito ACEC, that would be crossed by Segment 2, contains existing surface development related to the Las Milpas gas storage facility. Segment 2 would disturb 35.9 acres across 1.68 miles of the ACEC.

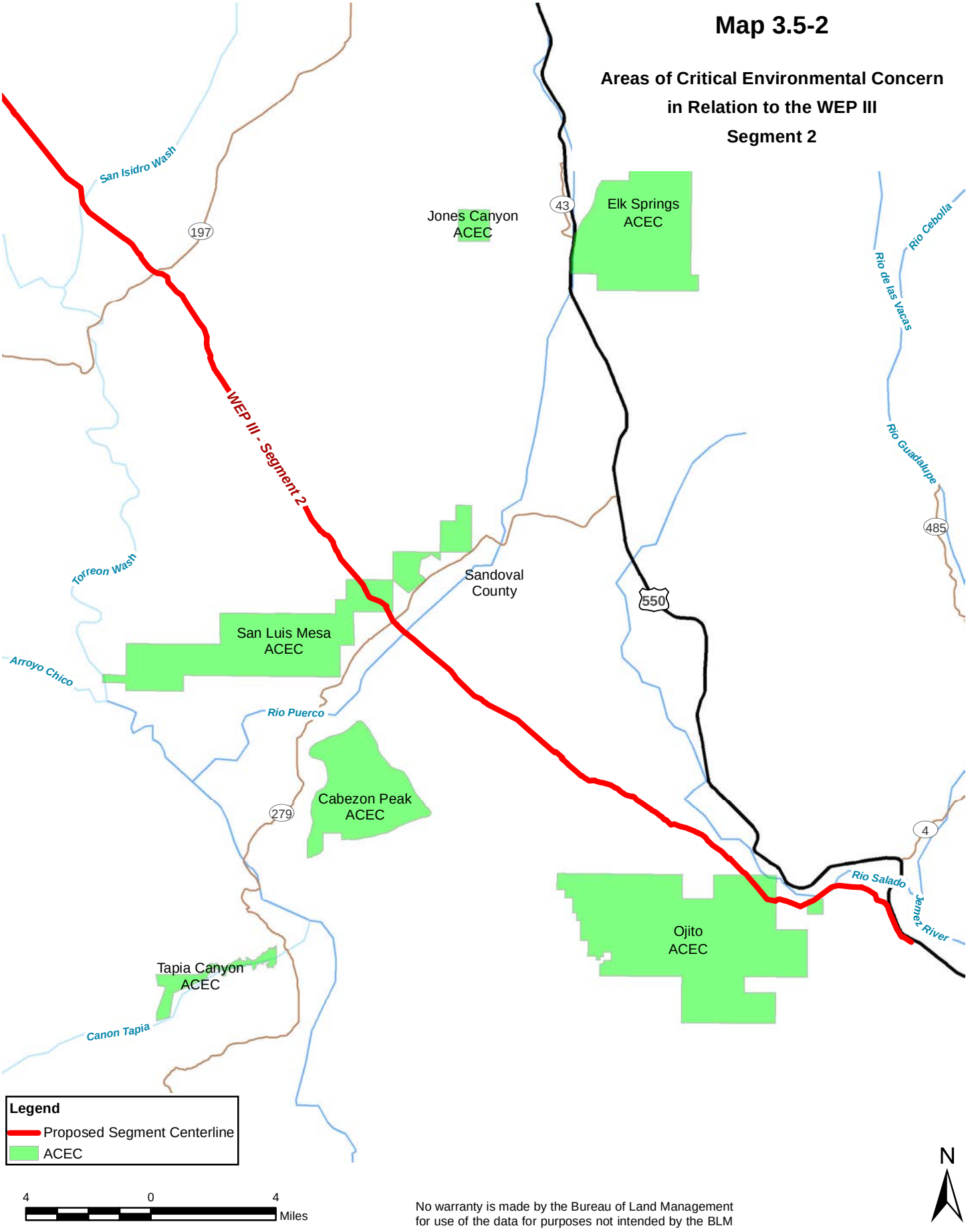
Additionally, the 1870s Wagon Road Trail would be temporarily inaccessible for relatively short periods during construction and reclamation of the Proposed Action.

Protective Design Features

No measures have been identified in addition to the protective design features described in Section 3.4.3/Paleontological Resources and Section 3.5.1/Recreation.

3.5.2.2.1 Cumulative Impacts

Construction and operation of the Proposed Action are unlikely to result in a detectable change to special designation areas in proximity to the project area; therefore, no cumulative impacts would be expected.



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3.5.2.3 No Action Alternative

3.5.2.3.1 Direct and Indirect Impacts

Under the No Action Alternative, impacts to specially-designated lands associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to specially-designated lands would not be anticipated.

3.5.2.3.2 Cumulative Impacts

None would be anticipated.

3.5.3 Range Management

3.5.3.1 Affected Environment

Livestock grazing is common along most of the proposed loop pipeline segment on private, Tribal, state, and BLM-managed lands. The most common livestock operations in the area are cow/calf operations. Sheep and sheep/goat operations also occur in the region. The project area coincides with several BLM grazing allotments within the FFO, RPFO, and RFO.

BLM Farmington Field Office (Segments 1 and 2)

Segment 1 would cross 11 grazing allotments, and Segment 2 would cross one additional allotment. Allotments within the BLM FFO boundary are used for grazing both sheep and cattle by a number of various operators. The Castillo Community allotment is within the BLM RPFO boundary but is managed by the BLM FFO. A portion of the Star Lake Community allotment lies within the BLM RPFO boundary. The allotments are summarized in Table 3.5-1.

Table 3.5-1
BLM FFO Grazing Allotments on BLM-Managed Lands Coinciding with the Project Area

Loop Pipeline Segment	Allotment	Total Allotment Public Acreage	Active AUMs	Number of Livestock [1, 2]	Period of Use
1	Angel Peak (5072)	51,199	4,095	375	3/1 – 2/28
	Kutz Canyon (5125)	9,928	613	0	No Data
	O.J. Carson (6005)	5,235	556	100	3/1-5/15, 11/15-2/28
	44 Allotment (5074)	4,092	562	121	11/1 - 5/15
	Huerfano Community (6007)	16,461	2,055	856	3/1 – 2/28
	Otis (5110)	1,655	167	15	3/1 – 2/28
	Blanco Trading Post (5081)	6,112	1,018	177	11/1-6/30
	Largo Community (5083)	27,630	3,046	741	3/1 – 2/28
	Nageezi (5085)	758	72	6	3/1 – 2/28
	North Equus (5121)	804	132	0	No Data
	Rancho Largo (5119)	68,199	1,752	300	6/1 – 12/31
2	Star Lake Community (6023)	67,392	8,597	3,582	3/1 – 2/28
	Castillo Community (6024)	14,907	2,187	911	3/1 – 2/28
	Totals	**274,372**	**24,852**	**7,184**	**--**

[1] Total number of livestock is not necessarily present at all times on the allotment.
[2] Live stock numbers reflect sheep and cattle numbers. The Angel Peak and all of the community allotments are managed under a Memorandum of Agreement with the BIA and Navajo Nation. These grazing allotments were designated to provide grazing for Navajo families that live in the allotment boundaries. Most of the permits are family subsistence permits and are generally small bands of animals.
Source: BLM, 2012b.

BLM Rio Puerco Field Office (Segments 2 and 3)

Segment 2 would cross eight grazing allotments, and Segment 3 would cross one allotment. Allotments are used for grazing and trailing cattle and horses (see Table 3.5-2).

Table 3.5-2
BLM RPFO Grazing Allotments on BLM-Managed Lands Coinciding with the Project Area

Loop Pipeline Segment	Allotment Name (Number)	Total Allotment Public Acreage	Active AUMs	Number of Livestock*	Period of Use
2	Cebo Community (33)	7,274	1,140	155	10/16 – 6/15
	Twin Butte (34)	6,530	1,262	136	3/1 – 2/28
	Brandy (10)	11,010	1,644	265	11/1 – 5/31
	San Luis Community (38)	5,039	880	126	3/1 – 2/28
	Lost Valley (40)	11,513	2,366	755	3/1 – 2/28
	Arroyo Alamito (45)	3,710	783	98	10/10 – 5/31
	Long Ridge (65)	2,514	311	40	3/1 – 2/28
	Rio Salado (59)	1,100	146	18	3/1 – 2/28
3	Abo (796)	320	84	7	3/1 – 2/28
	Totals	**49,010**	**8,616**	**1,600**	**--**

*Total number of livestock is not necessarily present at all times on the allotment.
Source: BLM, 2012b.

BLM Roswell Field Office (Segments 5 and 6)

Segment 5 would cross four grazing allotments on BLM-managed lands. Segment 6 would cross five allotments. Allotments are used for grazing cattle, sheep, goats, and horses (see Table 3.5-3).

Table 3.5-3
BLM RFO Grazing Allotments on BLM-Managed Lands Coinciding with the Project Area

Loop Pipeline Segment	Allotment Name (Number)	Total Allotment Public Acreage	Active AUMs	Number of Livestock*	Period of Use
5	Tri County Ranch (62049)	29,863	8,198	2006	3/1 – 2/28
	Buzzard Tank (63014)	600	168	14	3/1 – 2/28
	Automobile (63013)	2,008	594	49	3/1 – 2/28
6	Blue Water (64045)	3,331	555	105	3/1 – 2/28
	Cottonwood (64046)	5,611	957	150	3/1 – 2/28
	Bosque Grande (65020)	6,290	1,260	175	3/1 – 2/28
	Haystack Mtn. (65021)	4,379	922	1789	3/1 – 2/28
	Acme (65026)	965	216	18	3/1 – 2/28
	Totals	**53,047**	**12,870**	**4,306**	**--**

*Total number of livestock (cattle, sheep, goats, and horses) is not necessarily present at all times on the allotment.
Source: BLM, 2012b.

3.5.3.2 Proposed Action Alternative

3.5.3.2.1 Direct and Indirect Impacts

Forage removal would be the main impact to grazing resources. Construction would temporarily remove vegetation, but with successful reclamation (see Reclamation and Monitoring Plan, Appendix D to the POD), disturbed areas would likely return to a healthy herbaceous state. After an estimated two to three growing seasons, forage levels should return to pre-construction levels on the reclaimed construction right-of-way. In addition to the temporary loss of forage, increased vehicle traffic would raise the risk of injury or death to grazing cattle in the area. An increase in other human activity related to the Proposed Action could cause cattle to avoid areas of intense activities during the construction period.

Access for landowners and grazing operators to move vehicles, equipment, and livestock through the construction zones would be provided, where necessary. Movement of livestock may be temporarily impeded in areas of active construction. MAPL would provide adequate crossing and escape features (including passable areas across open trenches, such as ditch soft plugs and/or ramps) to ensure livestock are not trapped in open ditches or prevented from reaching water sources, as described in their POD.

Generally, surface disturbance on grazing allotments also presents the opportunity for the introduction and spread of noxious weeds. Implementation of the Integrated Noxious and Invasive Weed Management Plan (see Appendix G to the POD) would minimize the spread of noxious weeds.

BLM Farmington Field Office (Segments 1 and 2)

Construction would result in approximately 456.32 acres of surface disturbance across 13 grazing allotments, all of which would be on BLM-managed lands. Estimating an average of one AUM per 10 acres, Table 3.5-4 shows the temporary loss of AUMs as related to total acres disturbed in the allotments affected.

Table 3.5-4
Potential Impacts to Grazing Allotments Managed by the BLM FFO

Allotment	Proposed Surface Disturbance (acres)	Temporary AUM Loss
Angel Peak (5072)	9.59	0.95
Kutz Canyon (5125)	0.63	0.06
O.J. Carson (6005)	1.17	0.11
44 Allotment (5074)	34.17	3.41
Huerfano Community (6007)	0.82	0.08
Otis (5110)	46.20	4.62
Blanco Trading Post (5081)	72.04	7.20
Largo Community (5083)	161.45	16.14
Nageezi (5085)	0.45	0.04
North Equus (5121)	0.25	0.02
Rancho Largo (5119)	1.41	0.14
Star Lake Community (6023)	57.24	5.72
Castillo Community (6024)	70.90	7.09
Totals	**456.32**	**45.58**

BLM Rio Puerco Field Office (Segments 2 and 3)

Construction would result in approximately 384.84 acres of surface disturbance across 9 grazing allotments, of which 241.75 would be on BLM-managed lands. Estimating an average

of one AUM per 10 acres, Table 3.5-5 shows the temporary loss of AUMs as related to total acres disturbed in the allotments affected.

Table 3.5-5
Potential Impacts to Grazing Allotments Managed by the BLM RPFO

Allotment	Proposed Surface Disturbance (acres)	Temporary AUM Loss
Cebo Community (33)	0.86	0.08
Twin Butte (34)	37.56	3.75
Brandy (10)	24.84	2.48
San Luis Community (38)	25.15	2.51
Lost Valley (40)	81.26	8.12
Arroyo Alamito (45)	53.38	5.33
Long Ridge (65)	35.88	3.58
Rio Salado (59)	39.09	3.90
Abo (796)	86.82	8.68
Totals	**384.84**	**38.43**

BLM Roswell Field Office (Segments 5 and 6)

Construction would result in approximately 370.43 acres of surface disturbance across 9 grazing allotments, of which 146.46 would be on BLM-managed lands. Estimating an average of one AUM per 10 acres, Table 3.5-6 shows the temporary loss of AUMs as related to total acres disturbed in the allotments affected.

Table 3.5-6
Potential Impacts to Grazing Allotments Managed by the BLM RFO

Allotment	Proposed Surface Disturbance (acres)	Temporary AUM Loss
Tri County Ranch (62049)	171.5	17.14
Buzzard Tank (63014)	7.46	0.74
Automobile (63013)	55.51	5.55
Blue Water (64045)	14.84	1.48
Cottonwood (64046)	1.76	0.14
Bosque Grande (65020)	78.94	7.89
Haystack Mtn. (65021)	21.23	2.12
Acme (65026)	19.19	1.91
Totals	**370.43**	**36.97**

Temporary construction and permanent right-of-way easements would be negotiated with both private landowners and public land management agencies. The landowners and agencies would be compensated for MAPL's use of the land, losses of any revenue during construction, and any property damage.

Any construction impacts on natural or man-made barriers to livestock movement on BLM-managed lands would be mitigated by replacing fences or jeopardized natural boundaries with new fence(s) built to BLM specifications. Following restoration of the construction right-of-way, livestock grazing would resume on the areas temporarily affected by construction. The proposed Project has the potential to impact range improvement projects. Range improvements are typically man-made features designed to improve livestock grazing practices. The most common are livestock watering ponds, developed springs, and water delivery systems (pipelines).

Protective Design Features

The following measures would be implemented to reduce impacts to range resources.

- Notifying the BLM AO so that the AO can provide mitigation and a solution to avoid or minimize impacts to improvement(s) if they would be affected during construction.
- Capping the ends of the strung pipe to prevent animals from crawling in.
- Constructing escape ramps/cross overs every 1,320 feet including each end of the trench when left open overnight between the communities of Counselor and Cuba, New Mexico. Escape ramp/crossovers will be constructed with a minimum 3:1 slope at each end of the crossover. Crossovers will be a minimum of 10 feet wide.
- Monitoring open trenches on a daily basis for trapped wildlife and definitely just prior to lowering pipe into the trench. Any trapped wildlife or livestock discovered will be promptly removed and released at least 150 yards from the open trench.
- Providing written documentation that all livestock owners/grazing operators in the project area have been consulted about the project to include construction start date, anticipated end date, company contacts, and that MAPL accepted liability for livestock loss or injury. MAPL will provide details about all mitigation agreements made with livestock grazing operators (plans/payments to move livestock out of project area, etc.) prior to implementation of such agreements.

3.5.3.2.2 Cumulative Impacts

Construction and operation of the Proposed Action are unlikely to result in a detectable change in grazing resources due to the narrow, linear nature of the Proposed Project in relation to extensive grazing resources available in the larger cumulative effects area. Cumulative effects would not be expected.

3.5.3.3 No Action Alternative

3.5.3.3.1 Direct and Indirect Impacts

Under the No Action Alternative, rangeland impacts associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to rangelands would not be anticipated.

3.5.3.3.2 Cumulative Impacts

None would be expected.

3.5.4 Fire and Fuels

3.5.4.1 Affected Environment

BLM Farmington Field Office (Segments 1 and 2)

The objectives of the BLM's fire program are to manage and use fire consistent with its natural role in the ecosystem and the protection of life and property (BLM, 2003b). The BLM FFO manages fire in accordance to its Fire Management Plan (BLM, 2010a). The fire management plan provides fire managers overall strategic and tactical guidance options based on the objectives outlined in the RMP and the Federal Wildland Fire Management Policy.

BLM Rio Puerco Field Office (Segments 2 and 3)

Land managers have recognized fire as a natural disturbance playing a significant role in healthy ecosystem function and that there is a need to reintroduce fire into the landscape. The frequency of fire is often used as an indicator of how well ecosystems are adapted to fire.

Natural and human-caused fires will continue throughout the Planning Area. The majority of natural fires will be ignited by lightning every year from May to September. Natural fires are expected to continue to account for approximately 80 percent of the annual number of ignitions (BLM, 2012). The BLM RPFO manages fire in accordance with its Fire Management Plan (BLM, 2010b), which is geared to implement national fire policy and fire management direction from the Federal Wildland Fire Management Policy.

BLM Roswell Field Office (Segments 5 and 6)

The goal of fire management in the BLM RFO is to limit damage to natural resources, life, and property caused by wildfire. This includes restoring fire to its natural role in the ecosystem through the use of prescribed fire, where applicable (BLM, 1997a). Specific direction and guidance for utilizing fire as a resource tool have been taken from the 1997 RFO RMP and the 2004 Fire and Fuels Resource Management Plan Amendment.

3.5.4.2 Proposed Action Alternative

3.5.4.2.1 Direct and Indirect Impacts

The risk of fire danger during pipeline construction is related to smoking, refueling activities, operating vehicles and other equipment off roadways, welding activities, and the use of flammable liquids. During pipeline operation, risk of fire is primarily from unauthorized entry onto the right-of-way. During maintenance, risk of fire is from smoking, use of flammable liquids, operation of vehicles, and pipeline maintenance activities that require welding.

In order to minimize the risks of an accidental fire from the Proposed Action, MAPL has developed a Fire Prevention and Suppression Plan (see Appendix O to the POD). The plan identifies action to be taken by MAPL and its contractors to ensure that fire prevention and suppression techniques are in accordance with federal, state, and local regulations.

Protective Design Features

No additional measures have been identified.

3.5.4.2.2 Cumulative Impacts

Construction and operation of the Proposed Action are unlikely to result in a detectable change to fire risks due to the elimination of fuel cover during vegetation removal. The narrow, linear nature of the disturbance is unlikely to affect fuel classes that are delineated over large, contiguous habitat types; therefore, no cumulative effects would be expected.

3.5.4.3 No Action Alternative

3.5.4.3.1 Direct and Indirect Impacts

Under the No Action Alternative, potential fire impacts associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, fire impacts would not be anticipated.

3.5.4.3.2 Cumulative Impacts

None would be expected.

3.5.5 Land Tenure, Rights-of-Way, and other Uses

3.5.5.1 Affected Environment

The Proposed Action would be located adjacent to an existing pipeline. Livestock grazing and wildlife habitat are the predominant land uses along most of the pipeline right-of-way. Additional rights-of-way in the vicinity include existing oil and gas pipelines and associated facilities that overlap or parallel the Proposed Action, power transmission lines, roads, telephone lines, water facilities, and irrigation pipelines.

3.5.5.2 Proposed Action Alternative

3.5.5.2.1 Direct and Indirect Impacts

Prior to crossing existing utilities, state and local laws would be adhered to by following the required one-call notification system.

The proposed construction right-of-way is comprised of a 50-foot permanent right-of-way, a 75-foot temporary use area, and other temporary use areas, where additional space is necessary during construction. The proposed 50-foot permanent right-of-way would be 233.7 miles long, containing approximately 1,415.9 acres; the 75-foot temporary use area would be 233.7 miles long, containing approximately 2,110 acres. There would be 221 additional temporary use areas, containing approximately 84.8 acres.

Protective Design Features

The following measure would further reduce impacts to existing rights-of-ways:

- Coordinating with existing right-of-way holders prior to construction.

3.5.5.2.2 Cumulative Impacts

No cumulative effects to land tenure are anticipated.

3.5.5.3 No Action Alternative

3.5.5.3.1 Direct and Indirect Impacts

Under the No Action Alternative, there would be no impacts to land tenure or rights-of-way from construction of the pipeline segments.

Under the No Action Alternative, potential impacts to land tenure or rights-of-way associated with the Proposed Action would not occur because the Proposed Action would not be built; on-going activities in the project area would continue. If trucks or a combination of trucks and rail were used to transport the NGLs to market, impacts to land tenure would not be anticipated.

3.5.5.3.2 Cumulative Impacts

None would be expected.

4.0 SUPPORTING INFORMATION

4.1 Tribes, Individuals, Organizations, or Agencies Consulted

The following agencies have requested to participate or expressed interest in participating as cooperating agencies:

Bureau of Indian Affairs Navajo Regional Office
Bureau of Indian Affairs Southern Pueblos Agency, Southwest Region
New Mexico Department of Game and Fish
Santa Fe County
U.S. Army Corps of Engineers, Albuquerque District
U.S. Environmental Protection Agency, Region Six
U.S. Fish and Wildlife Service

The following tribes were notified of the project and invited to participate in tribal consultation or as a cooperating agency:

Comanche Nation
Hopi Tribal Council
Jicarilla Apache Nation
Kewa Pueblo
Mescalero Apache Tribe
Navajo Nation
Pueblo of Acoma
Pueblo of Cochiti
Pueblo of Isleta
Pueblo of Jemez
Pueblo of Laguna
Pueblo of Pojoaque
Pueblo of Sandia
Pueblo of San Felipe
Pueblo of Santa Ana
Pueblo of Tesuque
Pueblo of Zia
Pueblo of Zuni

In addition to the cooperating agencies and the tribes, the following agencies were consulted, formally and/or informally through personal discussion, during preparation of this document:

Advisory County on Historic Preservation
Bernalillo County
Chavez County
City of Moriarty
De Baca County
Guadalupe County
Lea County
Lincoln County

New Mexico Department of Transportation
New Mexico Environment Department
New Mexico Historic Preservation Division
New Mexico State Land Office
Rio Arriba County
San Juan County
Sandoval County
Torrance County

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Water Resources	Nikie Gagnon
Invasive, Non-Native Species Vegetation Wetlands and Riparian Zones Special Status Plants	Dwight Chapman
Migratory Birds Wildlife (Fish, Aquatic, and Terrestrial)	Dwight Chapman
Cultural Resources	Peggy Gerow, University of New Mexico Office of Contract Archaeology
Paleontological Resources	Dr. Kate Zeigler - Natural Resources Management Department. New Mexico Highlands University
Visual Resources Recreation Special Designations Wild and Scenic Rivers Range Management Wild Horse and Burro Fire and Fuels	Josh Moro
Socioeconomics Environmental Justice Transportation/Access	Sandra Goodman
Wastes, Hazardous or Solid	Dwight Chapman
Land Tenure, Rights-of-Way and Other Uses	Nikie Gagnon

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