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Environmental Assessment

City of Alamogordo Fresnal, La Luz, and Maruche Canyon Water Pipelines Special Use Permit

**Sacramento Ranger District,
Lincoln National Forest,
Otero County, New Mexico**

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TABLE OF CONTENTS

Preface.....	iii
Summary.....	iii
Document Structure.....	v
Chapter 1 – Purpose and Need	1
Background	1
Purpose and Need for Action	2
Proposed Action	2
Decision Framework.....	2
Public Involvement	5
Consideration of Concerns Expressed During Scoping	6
Development of Alternatives	7
Chapter 2 – Alternatives	8
Alternatives Considered in Detail.....	8
Alternatives Eliminated from Detailed Consideration	10
Comparison of Alternatives	13
Chapter 3 – Affected Environment and Environmental Consequences	14
List of Actions for Cumulative Effects Analysis.....	14
Existing Condition and Effects Analysis by Resource	14
Archeology.....	15
Lands.....	17
Recreation	18
Range	20
Hydrology	21
Wildlife and Rare Plants	25
Soils.....	29
Chapter 4 - Consultation and Coordination.....	32
Chapter 5 - References	33
APPENDIX A – Maps	A-1
APPENDIX B – Operation and Maintenance Plan	B-2

Preface

Summary

The Lincoln National Forest (Forest) proposes to issue a new, 25-year Special Use Permit (SUP), to the City of Alamogordo, New Mexico (City), which authorizes the use of National Forest System (NFS) lands for a water transmission pipeline. This action would allow the City to continue the use, operation, and maintenance of the existing water transmission pipelines and water collection structures in Fresnal, La Luz, and Maruche Canyons (See Appendix A for General Vicinity Map). Analysis of this action is required by the Stipulation agreed to by all parties to the consolidated lawsuits known as Sacramento Mountains Watershed Restoration Corporation v. United States Forest Service, et al. (Civ. No. 03-01110 JC/LCS, Civ. No. 04-00780 LH/RHS (Consolidated)), filed September 6, 2005, and accepted by the US District Court for the District of New Mexico on September 12, 2005.

This action will be consistent with the Lincoln National Forest Land and Resource Management Plan (Forest Plan) as amended, and other applicable laws, regulations and policies.

Effects of the Proposed Action

Direct and Indirect Effects – Continued existence, operation, maintenance and repair of the pipelines and their associated structures will result in no new effects to the environment. The water collection and transmission system has been in use in its current configuration since 1997. Because construction was completed long ago, the new permit will be for operation and maintenance of existing pipelines and structures only. There are no proposed changes to the authorized facilities, nor any increase in the scope or intensity of the existing authorized activities.

Archeology – Four sites eligible for listing on the National Register of Historic Places have been identified within the project area. With the mitigations included in the Proposed Action, the continued operation and maintenance of existing pipelines and structures will not affect any remaining National Register characteristics of the four sites. The Forest has consulted with the State Historic Preservation Office, which has concurred with this determination.

Recreation – There will be no effects to the existing Recreation Opportunity Spectrum (ROS) classes within the project area.

Range – Permitted grazing will continue as it is with only marginal changes in available forage acres, and no changes in existing water taps, or numbers of animals as a result of the Proposed Action.

Soils and Hydrology – Operation and maintenance of existing pipelines, structures, facilities and access points will result in no new effects to the soils and hydrologic resources within the project area. Any effects resulting from maintenance will be limited

in scope, intensity and duration, and with the exception of emergency repairs, will be planned with appropriate mitigation as provided in the Operation and Maintenance Plan.

Wildlife, Fisheries and Rare Plants – Management Indicator Species (MIS) analysis indicates that the Proposed Action will not affect habitat or population trends for the five MIS that occur within the project area. There are no designated Important Bird Areas in the project area. This area is not recognized as an important over wintering area because significant concentrations of birds are not known to occur here nor do unique or a high diversity of birds winter here. No effects to the populations of Migratory Birds will occur as a result of the Proposed Action, however the actions associated with the project may impact some individual birds.

During the past nine years, the New Mexico Department of Game and Fish (NMDGF) has not stocked or surveyed Fresnal Creek, and has no plans to do so in the future. Any potential fishery component in Fresnal Creek is deemed not warranted by the NMDGF.

Three Threatened, Endangered or Sensitive species were identified within the project area. The Forest has determined that the Proposed Action may affect, but is not likely to adversely affect the Mexican spotted owl, a threatened species. Some individuals of the Wright's marsh thistle (a sensitive species) may be affected, but the Proposed Action will not trend the species toward federal listing or loss of viability. The project is likely to adversely affect the Sacramento prickly poppy, however mitigation measures have been incorporated into the Proposed Action that eliminate adverse effects except for those that could be associated with rare instances of emergency repairs when conducted in occupied poppy habitat. The Forest has developed a Biological Assessment and is in the process of consulting with the U.S. Fish and Wildlife Service (FWS) under section 7 of the Endangered Species Act (ESA).

Cumulative Effects – The development of the Salado trail would result in a change in recreational experience for those looking for quiet and solitude during times of maintenance of the pipeline. Based on the definitions of the ROS classes, this would not be enough of a change to require a change in the ROS class areas.

The cumulative affects from pipeline maintenance and operation, road maintenance, range and recreation activities from compaction of wet soils, erosion and sedimentation will be minimized and not exceed forest standards and guidelines with the implementation of BMPs such as wattles for erosion and sedimentation, straw bails, designation of access routes to minimize compaction of wet soils, and other mitigation measures identified in the Proposed Action. The diversion of water from water wells on both private lands and the Forest would continue, and new applications for domestic wells will continue to be processed by the OSE. The effects of this withdrawal of water from the localized hydrologic systems associated with the project area has been compounded by recent drought conditions, but it is likely that the level of withdrawal will continue to increase for the foreseeable future indicated by current trends.

Document Structure

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the Proposed Action and alternatives. The document is organized into five parts:

Chapter 1 - Purpose and Need: This chapter includes the purpose of and underlying need for the project and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.

Chapter 2 - Alternatives including the Proposed Action: This chapter provides a more detailed description of the agency's Proposed Action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes possible mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.

Chapter 3 - Affected Environment and Environmental Consequences: This chapter describes the environmental effects of implementing the Proposed Action and the no action alternative. This analysis is organized by resource area. Within each section, the affected environment is described first, followed by the effects of the No Action Alternative that provides a baseline for evaluation and comparison with the Proposed Action analysis that follows.

Chapter 4 – List of Preparers, Consultation, and Coordination: This chapter provides a list of preparers, agencies consulted, and groups and/or organizations coordinated with during the development of the environmental assessment.

Chapter 5 – References and Appendices: This chapter sites the references used and list the appendices that provide more detailed information to support the analyses presented in the environmental assessment.

Chapter 1 – Purpose and Need

Background

The City has been operating and maintaining a water collection and conveyance system within most of the project area for almost six decades. The first permit was issued by the Forest to the City in 1948 for use of NFS lands in La Luz Canyon for water transmission pipelines and associated structures. A second permit was granted in 1953 for use of NFS lands in sections 32 and 33 of Fresnal Canyon. In 1956, a third application was approved for a similar permit for use of NFS lands in section 1 of Fresnal Canyon. The City received a permit from the New Mexico Office of the State Engineer (OSE) to change the point of water diversion in Fresnal Creek in 1957.

In 1959, the City conveyed approximately 452 acres of land in La Luz and Maruche Canyons to the United States for management, but the City retained all mineral and water rights. In addition, the City reserved rights-of-way to the pipelines and diversion structures within these two tracts for the purposes of operation and maintenance of the system. The 20-foot wide pipeline corridor occupies approximately 7.7 acres within these two tracts. In this document, these tracts will be referred to as the “acquired lands” in La Luz and Maruche canyons.

On February 22, 1983, a SUP was issued to the City for use of 5.33 acres (2.2 miles of the pipeline corridor) of NFS lands for the purpose of constructing, using, and maintaining a water pipeline and ditches in La Luz and Fresnal Canyons. As part of this permit, 32 terms of use clauses were identified for the use of NFS lands. The term of the SUP was through December 31, 2002.

Since then, the City has applied for, and received, 3 amendments to the permit. The first amendment was in August of 1993 for a radio repeater to help in monitoring the water flow in the pipelines. A second amendment in June of 1997 was required to add Maruche and the east end of La Luz Creeks that were conveyed to the United States in 1959. The third amendment was issued on December 13, 2002 to extend the permit through December 31, 2003.

On June 6, 1997, the Sacramento District Ranger signed a Decision Memo, excluding the decision from further documentation under Category 2 (FSH 1909.15, Chapter 31.2), that authorized the City to replace certain segments of the existing pipeline in Fresnal Canyon. On June 11, 1997, the Forest Supervisor signed a Decision Memo, excluding the decision from further documentation under Category 3 (FSH 1909.15, Chapter 31.2), that authorized the City to reconstruct and improve existing diversion structures (spring boxes) and feeder lines located on the acquired lands in La Luz Canyon. Biological Assessments and archeology reports were produced as a part of these analyses. Construction on these diversion and pipeline improvements were completed in 1997.

The water collection system and pipelines have been in use in their current configuration since 1997. There are no changes currently proposed to the authorized facilities or increases in the scope or intensity of the existing authorized activities.

Purpose and Need for Action

The purpose of this action is to authorize, under a SUP, the continued presence of the existing water transmission pipelines and water collection structures on NFS lands in Fresno, La Luz, and Maruche Canyons.

These pipelines are an important component of the City's municipal water system that delivers potable water to approximately 40,000 people living in and around the City. A new SUP is needed at this time to authorize use of NFS lands in such a manner that will allow the City to exercise its existing water rights and to transport the water obtained pursuant to those rights for the beneficial uses associated with the City's municipal water system. Only portions of the NFS lands currently occupied by the City's water conveyance system require the issuance of a SUP, however there is a need to provide for consistent permit administration and for the protection of other Forest resources on all NFS lands within these three canyons on which the current diversion and pipeline system is located. The City's most recent SUPs covering the existing water conveyance system expired on December 31, 2003. Issuance of a new SUP also provides the opportunity to include updated terms of use which provide further protection for NFS resource values.

Analysis of this permitting action is required under the Stipulation agreed to by all parties to the consolidated lawsuits known as Sacramento Mountains Watershed Restoration Corporation v. United States Forest Service, et al. (Civ. No. 03-01110 JC/LCS, Civ. No. 04-00780 LH/RHS (Consolidated)), filed September 6, 2005, and accepted by the US District Court for the District of New Mexico on September 12, 2005.

Proposed Action

The Forest proposes to authorize the continued use, operation and maintenance of the existing water transmission pipelines and water collection structures in Fresno, La Luz, and Maruche Canyons on NFS lands. This action would be implemented through the issuance of a new, 25-year SUP to the City. The SUP would allow the use of approximately 15.3 acres (approximately 6.5 miles along a 20-ft-wide corridor, 10 feet either side of the existing pipeline) of NFS land. Updated terms of use, including mitigation measures for anticipated maintenance and repair and monitoring activities will be incorporated into the SUP.

Decision Framework

Scope of the Decision: The scope of this decision is constrained by several pre-existing factors. These are:

- Water rights and points of diversion are under the jurisdiction of the OSE;
- Rights-of way were reserved by the City for access to continue operation of the water diversion and pipeline system located on the lands in La Luz and Maruche Canyons that it conveyed to the United States in 1959 (acquired lands); and

- The water diversion and conveyance system is already in place, and it traverses an intermingled pattern of land ownerships including private, City-owned and NFS lands.

These factors limit the scope of the analysis and the decision that can be made. The Forest has no jurisdiction over points of diversion or pipelines and structures outside of NFS lands or on the City's reserved rights-of-way on the acquired lands. Therefore, of the total 24.3 miles of pipelines and their associated structures within this system, the Forest has jurisdiction over the presence of the pipeline on less than 3.1 miles of its length, divided among nine segments, and one stream diversion structure located in lower Fresno Canyon. The City holds rights-of-way, easements, or title in and to the lands on which the remainder of the pipelines and their associated structures are located.

Decision to be Made: The Responsible Official will decide whether or not to authorize the continued use and occupancy of NFS lands, through the issuance of a new SUP to the City. This authorization would provide for the continued operation and maintenance of the existing water pipelines and associated structures located in Fresno, La Luz and Maruche Canyons. The Responsible Official will also determine the appropriate terms and conditions required in the SUP, including permit clauses, mitigation measures, monitoring requirements, and an Operation and Maintenance Plan. If the decision is to not authorize the continued use and occupancy of NFS lands, the Responsible Official will determine the appropriate mitigation measures and monitoring requirements for operations associated with the removal of the pipeline and associated structures from NFS lands.

In addition to this decision, the Responsible Official will make a finding on the significance of the environmental effects anticipated from the implementation of the selected action and whether the preparation of an environmental impact statement will be required.

Responsible Official: As provided in Forest Service Manual (FSM) section 2704.33, the Forest Supervisor has been delegated authority to authorize special uses of NFS lands, with certain exceptions. The type of special use proposed here lies within this delegated authority, making the Forest Supervisor the official responsible for issuing any SUP resulting from this decision. Pursuant to NEPA, the Forest Supervisor is therefore the Responsible Official for this decision.

Requirements and Direction for Project Area

Lincoln National Forest Land and Resource Management Plan: This Proposed Action is in accordance with Forest-wide standards and guidelines regarding the use and occupancy of NFS lands for non-recreational purposes. Table 1 lists the forest-wide standards and guidelines associated with these activities which would have application to the Proposed Action.

Table 1: Forest-wide standards and guidelines for use of NFS lands

Forest-wide Standards and Guidelines	1986 Forest Plan Page(s)
Protect and enhance riparian habitat consistent with riparian area management policy set forth in Regional guidelines.	34
Use indigenous species in revegetation of riparian areas.	34
Grant permits or easements for road and utility access to interior private land only if other practical routes are unavailable on private land and impact on the Forest is acceptable as a result.	41
Evaluate the need for consultation with the U.S. Fish and Wildlife Service when management practices are proposed which are likely to cause disturbance to T&E species and/or their habitat.	205
Manage T&E species habitats in a manner consistent with all Management, Recovery, and Action Plans.	205

The majority of the pipelines and associated structures occur on private and City lands. Therefore the above standards and guidelines apply only to NFS lands.

The project area overlaps Management Areas 2A – La Luz, 2B – Alamo, and 2F-Mountain Park (See Appendix A, Forest Management Areas map). There are no standards and guidelines specific to these management areas that are applicable to the Proposed Action.

Other Laws, Regulation, and Policy: There are numerous laws, regulations and policies providing general direction for activities on NFS lands. The following are those which provide more specific direction dealt with in this analysis.

Endangered Species Act: Consultation with the US Fish and Wildlife Service (USFWS) is required under Section 7(a)(2) for actions that may affect Threatened and Endangered Species, and the Forest must produce a Biological Assessment of the anticipated affects to the species at issue. If the Forest’s determination of affects to a species is “may effect, not likely to adversely affect,” then USFWS must concur with that determination. If the Forest’s determination of affects to a species is “may effect, likely to adversely affect,” then USFWS must develop and transmit a Biological Opinion as to whether the action is likely to jeopardize the continued existence of the species, acceptable incidental take, and conservation recommendations for the species. All consultation must be concluded before the Responsible Official can make a decision

FSM 2670: Potential effects to Forest Service (FS) Sensitive Species must be analyzed in a Biological Evaluation to determine if the Proposed Action meets standards for actions on the Forest. If the Forest determines that the Proposed Action may have effects on a FS Sensitive Species, then that alternative may only be selected if the Forest also determines that its effects on the species will not lead toward a listing of either threatened or endangered.

Migratory Bird Treaty Act, as amended: Potential effects to covered migratory birds must be analyzed in a Wildlife Specialist’s Report to determine if the Proposed Action

requires mitigation to meet the requirements of this Act. The Forest lists priority migratory bird species of concern by vegetation type as established by the Forest Biologist. If the Forest determines that unintentional take of an individual of any of the migratory bird species of concern may occur, then it must also determine that the effect of the unintentional take will not rise to a level that would affect the population of that species as a whole.

National Historic Preservation Act: Potential effects to historic and cultural resources must be analyzed. If historic or cultural resources are found to be within the project area, and/or potentially affected by the project, the Forest must complete a compliance report and consult with the State Historic Preservation Office for concurrence on mitigations necessary to avoid impacts, or clearance to document sites and impacts on these resources. The Forest must also consult with Native American Tribes regarding the potential for effects on culturally significant lands and resources.

FSM 2710: FS Manual direction on Special Use Authorization must be reviewed and analyzed by the Forest to determine if the Proposed Action meets standards for such authorizations on the Forest.

FSM 2541: FS Manual direction regarding Special Use Authorizations for Water Developments on NFS lands must be reviewed and analyzed by the Forest to determine if the Proposed Action meets standards for such authorizations on the Forest.

Executive Order 11990: This order requires all Federal agencies to avoid adverse impacts associated with the occupancy and modification of floodplains. The Proposed Action must be analyzed to determine if mitigation is required under the order.

Executive Order 11988: This order requires all Federal agencies to avoid adverse impacts associated with destruction or modification of wetlands. The Proposed Action must be analyzed to determine if mitigation is required under the order.

Executive Order 12898: This order requires all Federal agencies to incorporate environmental justice into their mission. The Proposed Action would not disproportionately affect minority or low-income populations. Therefore, an environmental justice analysis is not required.

Public Involvement

The City of Alamogordo provided a request to renew their existing SUP for the water transmission lines in Fresnal and La Luz Canyons on June 28, 2002. An Interdisciplinary Team (IDT) consisting of specialists in the fields of archeology, engineering, lands, recreation, range, hydrology, wildlife, and soils was assembled to review the application and identify potential internal issues and concerns. The proposed project was listed in the Schedule of Proposed Action (SOPA) for October 2002 and has been listed in the SOPA ever since.

In October and November of 2005, a scoping letter went out to the public to solicit input on the Proposed Action. During the same time period, legal notices were published in the *Alamogordo Daily News (ADN)* announcing an opportunity for the public to comment on the Proposed Action. There were a total of 25 responses received during this scoping and public comment period.

On November 24, 2007, legal notice was published in the *ADN* announcing an additional opportunity for the public to provide comments regarding the Proposed Action. By letter dated November 20, 2007, those who had responded during the 2005 scoping and comment period and other individuals and organizations who had expressed an interest in the proposal were provided updated information including the Proposed Action, the purpose and need for action, background, public involvement (to date), a summary of the effects of the Proposed Action, and maps depicting the location of the existing pipeline and facilities. There were a total of 28 comments received, one of which was a copied petition signed by approximately 115 individuals.

The majority of the responses received identified concerns that the existence of the pipelines and diversion structures in their current configuration are contributing to a decline in the availability in both surface and ground water for citizens living in the general vicinity of the project area outside of the Alamogordo city limits. Several of those commenting went on to express their belief that the current configuration of the pipeline and diversions is contributing to ecological damage to the area, negative effects to flora and fauna associated with or dependant upon wetlands and riparian systems, negative effects to the quality of life of those living in and around the project area, and negative economic effects to the area, primarily related to a loss in property values. Many of these responses suggested alternatives to permitting the pipeline under the proposed SUP; those alternatives and their disposition are addressed in Chapter 2.

Others, including the City, responded in summary that all water rights associated with the current collection system have been adjudicated, water collection into the system is under permit from the State of New Mexico, failure to reauthorize the SUP would result in negative effects on approximately 40,000 residents in and around the City, and that natural fluctuations in recharge and other depletions of ground water in the basin are responsible for the recent decline in ground and surface water availability in the area.

Comments were also received from the New Mexico Environment Department regarding certain aspects of the regulatory process that may be required under State and Federal laws given continued operation and maintenance of the diversion and pipeline system. Although it is acknowledged in the context of this decision that identified maintenance of the pipeline and facilities are needed, these requirements will be met under activities provided for in the Operation and Maintenance Plan (See Appendix B).

Consideration of Concerns Expressed During Scoping

NEPA protocol is to identify issues, particularly “significant issues” that can lead to development of possible alternatives for the deciding officer to consider based on concerns expressed both internally and externally during Scoping. This is spelled out in 40 CFR 1500 regulations followed by all federal agencies, as issued by the Council for Environmental Quality (CEQ), specifically 40 CFR 1501.7.

Concerns are not categorized as significant issues if they are: 1) outside the scope of the Proposed Action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. Council on Environmental Quality NEPA regulations require this delineation in Sec. 1501.7, “...identify, and eliminate from detailed study the

issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)...”

The initial concerns developed through internal scoping, coordination with other federal, State and local agencies, and the public’s responses include:

- Failure to relocate all water diversions to a point downstream near the Village of La Luz will lead to continued ecological damage and economic harm to nearby residents.
- The identification of alternative sources of drinking water for the City will lead to a greater availability of water in the future for use by all those living in the general area.
- Establishing a bypass flow requirement will lead to the restoration of some aspects of ecological and aquifer function.
- Failure to reissue the SUP will lead to negative impacts on over 40,000 people living in and around the City.
- Lack of survey for the Sacramento prickly poppy in the area will lead to impacts from heavy equipment and other activities associated with pipeline maintenance.
- Continued operation and maintenance of the water diversion and conveyance system in its current configuration will lead to the continued decline of the Endangered Sacramento prickly poppy.
- Continued diversion of water in the upper reaches of Maruche Creek will lead to continued impacts to Mescalero Apache tribal water rights.
- Diversion of water from the project area will lead to a continued loss in property values within the local area and could result in a taking claim under the US Constitution.
- Minor improvements to better control access to diversion structures and exposed pipelines are needed to achieve compliance with State drinking water laws.

After review and analysis of the responses, all the concerns fell into one or more of the non-significant categories above. Therefore, no significant issues were identified (See project record for content analysis).

Development of Alternatives

Based on the analysis of responses received during scoping and public involvement, no issues that drive the development of alternatives to the Proposed Action have been identified. This analysis will address only the Proposed Action and No Action alternatives, as required under 40 CFR 1502.14.

Chapter 2 – Alternatives

This chapter describes and compares the alternatives considered for the project. The alternatives are presented in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public. Some of the information used to compare the alternatives is based upon the design of the alternative and some of the information is based upon the environmental, social, and economic effects of implementing each alternative.

Alternatives Considered in Detail

Alternative 1: No Action

The No Action alternative would deny issuance of the permit for the continued use, operation, and maintenance of the existing water transmission pipelines and water collection structures in Fresno, La Luz, and Maruche Canyons on NFS lands. Per clause 12 of the 1983 SUP as amended, all structures, and facilities would be removed including, but not limited to, pipe, footings, spring boxes, fences, etc. This may involve the use of heavy equipment such as back hoes and bulldozers. This action would also include mitigation measures and monitoring activities for protection of resources as outlined below.

It was determined that this alternative does not meet the purpose and need, but is required under the NEPA process.

Alternative 2: Proposed Action – Issuing a new Special Use Permit for a period of 25 years.

The Proposed Action would authorize the continued use, operation and maintenance of the existing water transmission pipelines and water collection structures in Fresno, La Luz, and Maruche Canyons on NFS land covering approximately 15.3 acres (approximately 6.5 miles along a 20-ft-wide corridor, 10 feet either side of the center of the pipeline) through the issuance of a new SUP for a term of 25 years. This action would incorporate updated terms-of-use clauses into the SUP for the protection of Forest resource values into the SUP based on this analysis. This action would also include mitigation measures and monitoring activities for anticipated maintenance and repair of the water transmission pipelines and associated structures as outlined below.

Mitigation and Monitoring

The following mitigation measures apply to both alternatives. The Forest will discuss these mitigation measures with the City annually while coordinating routine operation and maintenance activities. The Forest will conduct any surveys required on NFS lands to comply with these mitigations, and any reports produced will be maintained in the SUP file.

Archeology –

- Confine ground disturbing activities to the existing disturbed areas.
- Re-contour any disturbed surfaces within the railroad grade sites.
- Avoid disturbance of features adjacent to the railroad grade sites, including box culverts, the trestle, and the Ostic Mill site.

Soils and Hydrology –

- Implement BMPs such as wattle placement, buffering of the wetland areas, and restricting the use of heavy equipment in the wetland and riparian areas during times of saturation when any ground disturbing activities are implemented.
- Use water bars and other erosion-prevention techniques as appropriate prior to any ground disturbing activities, to minimize erosion.
- Avoid vehicle use in wetlands and wet meadows at all times. Excessively muddy roads (ruts created when traveled) will not be traveled until conditions improve.
- Designate access routes to minimize compaction of wet soils.
- Use watering and/or straw mulching of ground-disturbance areas as appropriate to reduce fugitive dust and to minimize wind erosion.
- Use hand treatments for revegetation and vegetation control where other methods would disturb fragile soils on steep slopes or in wet areas. This includes those portions of the pipeline on Terrestrial Ecosystem Unit Inventory (TEUI) Map Units 171, 295 and 604.

Wildlife and Rare Plants–

- Survey in occupied and suitable habitat for Threatened, Endangered and Sensitive plants prior to any ground disturbing activities related to the pipeline and its associated structures. If individuals are found, they will be flagged to avoid disturbance.
- Report all survey results to the USFWS New Mexico Ecological Services Field Office annually.
- Design activities in occupied and suitable habitat to protect emerging Sacramento prickly poppy seedlings from trampling and mechanical damage.
- Avoid activities within Mexican spotted owl protected activity centers during the breeding season (April 1 through August 31).

Specific applications of the above mitigations as they relate to the Proposed Action may be found in the Operation and Maintenance Plan (Appendix B, pp. B-9 through B-11). In addition, routine maintenance and repair of the pipelines and associated structures will apply to the Proposed Action as provide in the Operation and Maintenance Plan (Appendix B).

The Forest will be responsible for the following monitoring, which applies to both alternatives. Any reports produced will be maintained in the SUP file and any other appropriate resource files.

- Monitor the wetland characteristics (vegetation, hydric soils, open/flowing water) on NFS lands in Fresno, La Luz, and Maruche for five years starting in 2008.
- Monitor wetland and riparian areas around Springer Springs and Upper Maruche Springs for compaction before and after maintenance activities involving ground disturbance or the use of heavy equipment.
- Monitor stream flow with a flow meter three times a year (March/April, July/August, October/November) for five years at designated locations starting in 2008.
- Monitor the implementation of BMPs for soil erosion on access maintenance and ground disturbing activities associated with pipeline maintenance on areas greater than or equal to 100 sq. ft.
- Monitor areas of ground disturbance for re-vegetation for two growing seasons.

Annual monitoring for compliance with the terms and conditions of the SUP will be conducted by Forest personnel under the Proposed Action.

Alternatives Eliminated from Detailed Consideration

During the Scoping process, a number of alternatives were suggested in some of the responses. The IDT evaluated those alternatives to determine if they were within the scope of the analysis, addressed a significant issue, or met the purpose and need. Following is an analysis of those suggested alternatives based upon these criteria.

Alternative – By-Pass Flow

This alternative is the same as the Proposed Action except the City would allow 5 cfs to flow down Fresno, La Luz and Maruche streams during all times of year for the maintenance of the existing wetland and riparian areas.

- This alternative was eliminated from detailed analysis because it is outside the scope of the project, and the issue of requiring bypass flows has already been decided by law, regulation, the Forest Plan, or other higher level decision. The Deciding Officer does not have authority to require bypass flows as a term or condition over the State-approved beneficial use of water rights not owned or controlled by the United States. The City currently owns or controls rights to all water being diverted and transported through the pipelines considered under the Proposed Action. The City retained all water and mineral rights in the lands it conveyed to the United States in 1959 at the upper end of Maruche and La Luz Canyons. The City also retained rights-of-way on those lands for the purposes of operating and maintaining water diversion structures and pipelines.

Alternative – Sacramento Prickly Poppy Recovery

This alternative is the same as the Proposed Action except the City would establish drip lines off the pipeline to maintain populations of the Sacramento prickly poppy within the permit area where they now exist.

- This alternative was eliminated from detailed analysis because the issues driving this alternative are conjectural and not supported by scientific or factual evidence. In the Biological Assessment, the Forest has determined that the Proposed Action “may effect, likely to adversely affect” the Sacramento prickly poppy, however there is little or no evidence to suggest that drip lines would mitigate the potential adverse effects identified in the Biological Assessment and confirmed by the Biological Opinion. The Proposed Action includes mitigation measures designed to protect poppy plants occurring within the pipeline corridor. These mitigations will assist the Forest in its obligation to meet the intent of the Sacramento prickly poppy Recovery Plan. Because the mitigation measures are a part of the Proposed Action, there was no need for another alternative to minimize potential impacts to the Sacramento prickly poppy.

Alternative – Develop Alternative Water Sources

Under this alternative, the City would use their desalinization plant for water to replace water coming from Fresno, La Luz, and Maruche streams. The City and the Forest would work with the OSE to develop a plan that would allow the City to decrease the amount of water withdrawn from the streams over the next 10 to 15 years. The City would negotiate with the OSE for the transfer of the water right to the United States.

- This alternative was eliminated from detailed analysis because it does not meet the purpose and need of the Proposed Action, it is outside the scope of the project and it is irrelevant to the decision to be made. The Deciding Officer does not have authority to require the City to pursue alternative water sources as it relates to State-approved beneficial use of water rights not owned or controlled by the United States. The City currently owns or controls rights to all water being diverted and transported through the pipelines considered under the Proposed Action. The City retained all water and mineral rights in the lands it conveyed to the United States in 1959 at the upper end of Maruche and La Luz Canyons. The City also retained rights-of-way on those lands for the purposes of access for operating and maintaining water diversion structures and pipelines. Although alternative water sources may be pursued at some point in the future, the City has made every indication that it intends to continue to make beneficial use of its existing water rights within the project area, rendering this alternative moot as it relates to the Proposed Action.

Alternative – Relocate All Water Diversions to a Single Point Downstream from Current Locations

Under this alternative, the City of Alamogordo would agree to make application to the OSE for changes to the points of diversion of its existing water rights to a single point beyond the confluence of all the streams located within the project area. Upon approval

by the OSE and construction (or reconstruction) of the diversion structure required, the City would abandon its SUP, and remove all diversion structures, pipelines and facilities from NFS lands.

- This alternative was eliminated from detailed analysis because it does not meet the Purpose and Need for Action. It is substantially identical to the No Action alternative in its effects on the environment. In addition, the City has clearly indicated its need and desire to continue to exercise its rights to use the waters within these watersheds, and the City reserved rights-of-way to operate and maintain the pipelines, diversion structures and other facilities located on the acquired lands in La Luz and Maruche Canyons. This alternative is therefore entirely dependant on the actions of the City, and outside the scope of this project and the authority of the Forest Service.

Comparison of Alternatives

Table 2. Comparison of Alternatives Considered in Detail.

Resource	Item of Comparison	Units	No Action Alternative	Proposed Action Alternative
Archeology	Impact to sites that are or may be eligible for National Register of Historic Places	Sites	4 known sites will be avoided, or have no loss of site integrity	4 known sites will be avoided, or have no loss of site integrity
Lands	Land available for multiple use purposes	Acres	7.7 (approximate)	No change from existing condition
	Non-recreation SUP	Permits	No permit issued or administered	1 permit issued and administered
Recreation	Change in ROS class	Acres	No change from existing condition	No change from existing condition
Range	Available forage	AUMs	5 to 10 additional AUMs	No change from existing condition
	Water taps	Taps	Loss of 2 existing taps	No effect
Wildlife and Rare Plants	Sacramento prickly poppy	Effects	Likely adverse in short-term during pipeline removal, no effect in long-term	Likely adverse; potential effects to individual plants during emergency repairs
	Willow Flycatcher	Effects	No effect	No effect
	MSO	Effects	Not likely adverse	Not likely adverse
Soils and Hydrology	Hydrologic system function	Effects	No change from existing condition*	No change from existing condition
	Wetlands.	Acres	No change from existing condition	No change from existing condition
	Riparian.	Acres	No change from existing condition	No change from existing condition
	Hydric Soils	Acres	No change from existing condition	No change from existing condition
	Productivity returned	Acres	No change from existing condition	No change from existing condition

* The City has clearly indicated its need and desire to continue to exercise its right to divert and use the waters within these watersheds. In addition, the City reserved rights-of-way to operate and maintain the pipelines, diversion structures and other facilities located on the acquired lands in La Luz and Maruche Canyons. For purposes of this analysis, it is therefore assumed that these diversions would continue under both the No Action and Proposed Action alternatives.

Chapter 3 – Affected Environment and Environmental Consequences

List of Actions for Cumulative Effects Analysis

Table 3 identifies the relevant past, present and reasonably foreseeable future activities that continue to have an impact on the resources in the project area, and/or could occur at the same time and in the same area as the Proposed Action or No Action alternatives. Resource specialists have included these activities in the analysis of cumulative effects for each resource area.

Table 3. Past, Present, and Future Activities with the Potential to Contribute to Cumulative Effects.

Type of Activity	Past Activities	Present Activities	Reasonably Foreseeable Future Activities
Recreation	Dispersed camping Hiking Motorized site seeing and ATV use	Dispersed camping Hiking Motorized site seeing and ATV use	Dispersed camping Hiking Motorized site seeing and ATV use Salado Trail development
Livestock Grazing	Livestock grazing on Dry Canyon and South La Luz Allotments, including water developments	Livestock grazing on Dry Canyon and South La Luz Allotments, including water developments	Livestock grazing on the Dry Canyon and South La Luz Allotments, including water developments
Water Diversions and Pipeline Maintenance	Upgrade of the spring boxes in Springer Springs Diversion relocation Road and pipeline maintenance OSE permitting of private water wells Surface and ground water diversion on private land	Road and pipeline maintenance OSE permitting of private water wells Surface and ground water diversion on private land	Road and pipeline maintenance or removal OSE permitting of private water wells Surface and ground water diversion on private land

Existing Condition and Effects Analysis by Resource

This discussion summarizes information from archeology, lands, recreation, range, hydrology, wildlife and rare plants, and soils specialists reports which are found in the Project Record. The project area includes a 20-foot wide corridor (10 feet either side of

the pipelines) along with identified access points on NFS lands for which the proposed SUP would be issued. This totals approximately 15.3 acres of NFS lands that would be occupied and used by the City under the SUP. This was the area analyzed by each specialist for direct effects.

In most instances, specialists considered a larger area for indirect and cumulative effects, which varied by resource and the scope of the potential effect. Most notably, a 60-foot wide corridor (30 feet either side of the pipelines) was used by the wildlife and rare plants specialist to analyze potential indirect and cumulative effects on the Sacramento prickly poppy. This area totals approximately 45 acres of NFS lands, and was chosen to ensure adequate coverage of plant surveys to include individuals that might be indirectly affected by this project, as well as cumulatively affected by other past, present and reasonably foreseeable future activities in the area.

Archeology

Resource Factors Analyzed – Sites that are on or may be eligible for inclusion in the National Register of Historical Places, including Traditional Cultural Properties (TCP) or sacred locations were reviewed and analyzed for effects in the Archeology/Cultural Specialist Report, which is a part of the Project Record.

Basis of Analysis – Current and past field surveys, literature, and past NEPA documents were reviewed for cultural resources information related to the project area. Native American consultation was initiated in March 2006, with follow-up phone calls to the Mescalero, Hopi, and Zuni Tribes. The Forest then met with the Mescalero Apache Tribal Historical Preservation Office (THPO). The Forest consulted with the State Historic Preservation Office and received concurrence on the Proposed Action on November 13, 2006.

Existing Condition – Ten archeological reports were previously written which are relevant to the project area. Specifically for this project, approximately 4.2 miles of cultural resources survey was undertaken identifying five archeological sites located in the project area, including a prehistoric lithic scatter, a prehistoric artifact scatter, two separate localities of the historic Alamogordo and Sacramento Mountain (A&SM) railroad, and a historic mill located within the immediate viewshed of the pipeline.

The prehistoric lithic scatter AR-03-08-02-404 is not eligible for the National Register of Historic Places (NR) under any criterion including information potential. The pipeline passes through this site. Since it is not eligible and is not managed as a historic property for any other reason, it will be removed from consideration in this analysis.

The prehistoric artifact scatter AR-03-08-02-280 is NR-eligible for its potential to contain information important to prehistory. The pipeline does not pass through the site. However it is within the corridor being reviewed for potential impacts.

The two railroad sites are NR-eligible railroad grade segments for their association with an important regional event, specifically their relationship to the economic development of the Sacramento Mountains and Tularosa Basin. In addition to managing the physical integrity of the sites, agencies are directed to consider integrity of setting and feeling for

sites that are NR-eligible under this criterion. For these railroad segments, visual impacts of the pipeline are considered.

Ties and rails for the A&SM railroad were removed upon abandonment in 1947, including atop railroad trestles. Some segments of the A&SM grade retain their original ballast surface of coal and mining slag, both of which are black color common to many railroad grades, historic and modern.

The pipeline is already in place, buried as deep as three feet underground, and exposed on a historic, nearly intact, single-span, wood bent-frame railroad trestle where the grade crosses a desert arroyo. The pipeline is between the stringers at the top of the trestle. Both railroad segments have been used as roads, both for maintenance and by off-road ATV users, though the grades are not part of a signed trail. The railroad grade segments contain minimal surface integrity and are no longer black-surfaced for the original ballast. Upon close inspection, some ballast is minimally apparent along the side in cross-section. Box culverts appear intact when the grade is viewed in profile, although it is likely that the pipeline construction and maintenance has affected the culverts underneath the grade.

The Ostic Mill site was used to grind flour in the late 19th century for the Tularosa Basin. By the time the railroad grade was built in 1899, the mill site had already been abandoned but was a popularly photographed location by railroad tourists. The mill site is managed for integrity of setting and feeling. Currently there are no visual impacts to the Ostic Mill as a result of the City's pipeline, which passes about fifty feet north of the mill, across a streambed.

Traditional Cultural Properties and Sacred and Traditional Use Locations – Native American consultation for this project was conducted under 2006 Miscellaneous Projects. The Forest closed the consultation process for this project later that year. No concerns regarding traditional cultural properties or sacred or sensitive sites have been brought to the attention of the Forest at this time. Traditional Cultural Properties are not present and will not be analyzed further.

No Action Alternative

Direct Effects – Impacts to four sites eligible for the NR during the removal of the pipelines and associated structures are possible. Mitigation measures incorporated into this alternative would result in no additional loss of site integrity.

Indirect Effects – With implementation of the mitigation measures identified in the No Action alternative, there have been no indirect effects identified at this time.

Cumulative Effects – With implementation of the mitigation measures identified in the No Action alternative, there have been no cumulative effects identified at this time.

Proposed Action Alternative

Direct Effects – Impacts to four sites eligible to the NR are possible. Implementation the mitigation measures identified in the Proposed Action would preclude effects to any remaining NR characteristics of the four sites.

Indirect Effects – With implementation of the mitigation measures identified in the Proposed Action alternative, there have been no indirect effects identified at this time.

Cumulative Effects – With implementation of the mitigation measures identified in the Proposed Action alternative, there have been no cumulative effects identified at this time.

Lands

Resource Factors To Be Analyzed – Compliance with existing 1983 SUP, as amended, Clauses 4-5, 8-10, 12, 20, 22 – 24, 31-32, NFS land uses and private land values.

Basis of Analysis – Existing permit clauses, inspection reports, and NFS land uses were reviewed. The results of the review and analysis are provided in the Lands Specialist Report, which is part of the Project Record. Private property values for the local area over time were derived using US Census data.

Existing condition – The City held a SUP (type 914) until it expired in 2003. By order of the US District Court in the consolidated cases known as Sacramento Mountains Watershed Restoration Corporation v. United States Forest Service, et al. (Civ. No. 03-01110 JC/LCS, Civ. No. 04-00780 LH/RHS (Consolidated)), the city has continued to maintain and operate the pipeline system under the expired permit until this analysis is complete and a decision is made by the Responsible Official. A permit of this type can be issued for a maximum of 30 years and is to be inspected annually for compliance with the permits clauses and conditions. Based on field inspections and discussions with the City in 2007, the City is in full compliance of the SUP and all existing 32 permit clauses.

The use and occupancy of NFS lands as identified in the existing permit is an approved use based on direction in the Forest Plan and Forest Service Handbook (FSH) 2709.11. In addition, Forest Service Manual (FSM) 2718.5 provides direction for special use authorizations on acquired lands subject to reserved or outstanding rights, as is the case with the acquired lands at Springer Springs and Upper Maruche Springs. Although no SUP is required for the City to use and occupy its reserved rights-of-way on these lands, the SUP currently in force is compliant with this section of the FSM.

Based on 2000 census data, the property values in the community of La Luz have increased by 13.7 percent since 1990. The pipeline was in existence and functioning during the collection of the 2000 census data. There is no evidence that permitting the use and occupancy of NFS lands for the pipelines and their associated structures will have an effect on private property values.

No Action Alternative

Direct Effects – Management of approximately 36 acres of NFS lands would be unencumbered by the terms of the SUP and control of vehicular livestock access. This alternative would result in the removal of approximately 3.1 miles of pipeline and one diversion structure occurring on NFS lands other than those acquired by the United States in 1959.

Indirect Effects – There would be no indirect effects on NFS lands resulting from a decision not to issue a new SUP.

Cumulative Effects – The City has clearly indicated its need and desire to continue to exercise its rights to use the waters within these watersheds. In addition, the City reserved rights-of-way to operate and maintain the pipelines, diversion structures and other facilities located on the acquired lands in La Luz and Maruche Canyons. It is therefore assumed that operation and maintenance of the diversion structures and pipelines located on these acquired lands would continue under the No Action alternative without implementation of the mitigation measures designed for resource protection provided in the SUP. It is also assumed that the City would, at considerable expense to its municipal water system users, seek to secure an alternative alignment of its downstream water transmission pipelines that would no longer require the use of NFS lands. These effects would likely continue until such time as: 1) the City abandons the water rights it holds within these watersheds; or 2) the City is permitted by the OSE to change its points of diversion to a location not requiring the use of NFS lands.

Proposed Action Alternative

Direct Effects – Management of NFS lands would continue to be encumbered by the terms and conditions of the SUP. Vehicular and livestock access would continue to be controlled on approximately 36 acres of NFS lands.

Indirect Effects – There would be no indirect effects resulting from the continued operation and maintenance of the existing pipeline and associated structures located on NFS lands.

Cumulative Effects – There would be no cumulative effects resulting from the continued operation and maintenance of the existing pipeline and associated structures located on NFS lands.

Recreation

Resource Factors To Be Analyzed – Changes in the Recreation Opportunity Spectrum (ROS) classes.

Basis of Analysis – Existing ROS class criteria were reviewed to evaluate if the alternatives create any changes on the ground within the project area. Results are reported in the Recreation Specialist Report, which is part of the Project Record.

Existing condition – The analysis area traverses three Management Areas as provided in the Forest Plan. Recreation is a major emphasis for only one. The three Management Areas are:

1. 2A – La Luz,
2. 2B – Alamo, and
3. 2F – Mountain Park, where the major emphasis is developed and dispersed recreation, wildlife, and timber.

The following ROS classes apply to the project area:

- **Rural** – A substantially modified natural environment. Sights and sounds of man are evident. Resources are modified and used to enhance specific recreation activities.
- **Roaded Natural** – A predominantly natural environment where the evidence of sights and sounds of man is moderate, but in harmony with the natural environment. Opportunities exist for both social interaction and isolation.
- **Semi-primitive Motorized** – A natural or naturally appearing environment. Concentration of users is low but there is evidence of other users. Vehicle travel is on primitive roads and trails in areas of moderate to large size.

The recreation uses occurring within the project area are:

- Motorized (ATV) and non-motorized (hiking) activities;
- Dispersed camping;
- Hunting; and
- Sightseeing.

There is some unauthorized motorized use by the public, mainly ATVs, on several roads established by the City solely for access to the pipelines and associated structures.

There are no wilderness areas, wilderness study areas, scenic byways, authorized trails, picnic areas, or developed camp sites within the project area. The Forest Plan states that segment 10 of Fresno Canyon has been inventoried as eligible for a suitability analysis for Wild and Scenic River designation. The conditions of Fresno Canyon that identified segment 10 as eligible for a suitability analysis have not changed since the Forest's Eligibility Report of 2001; however this report is in error since the creek had been diverted many times and in several different places prior to enactment of the Wild and Scenic Rivers Act in 1968. This segment does not meet the requirement that a designated segment be free flowing.

There are no specific recreational activities associated with or dependent upon the pipeline. Because the pipeline passes through areas with ROS classes of Rural and Roaded Natural, seeing portions of the pipelines and associated structures that are above ground is not outside the Forest recreation guidelines or these ROS class definitions.

No Action Alternative

Direct Effects – There would be no direct effects on recreation associated with this alternative.

Indirect Effects – There would be no indirect effects on recreation associated with this alternative. The City holds a valid water right to remove water from the Fresno, La Luz and Maruche creeks and is expected to continue to do so under this alternative. The water developments associated with these rights were part of the information base used to define the ROS class areas, and it is not anticipated that water flowing in the creeks will change appreciably. Therefore, no change the ROS classes with the implementation of this alternative is expected.

Cumulative Effects –The area could experience a small increase in acres for dispersed day and overnight use, and hiking. Because these activities could be increased on only a few acres, and since the ROS classes would not change, there are no cumulative effects.

Proposed Action Alternative

Direct Effects – There would be no change to the existing ROS classes. The Proposed Action will have no effect on any outstandingly remarkable characteristics for which the segment of Fresno Creek that was erroneously inventoried and determined to be eligible for suitability analysis under the Wild and Scenic Rivers Act of 1968.

Indirect Effects – There would be no indirect effects on recreation with the implementation of the Proposed Action. The City holds a valid water right to remove water from the Fresno, La Luz and Maruche creeks and is expected to continue to do so under this alternative. The water developments associated with these rights were part of the information base used to define the ROS class areas, and it is not anticipated that water flowing in the creeks will change. Therefore, no change the ROS classes with the implementation of this alternative is expected.

Cumulative Effects – The recreational experience of those seeking quiet and solitude on the developing Salado trail could change during periods of pipeline maintenance. Based on the definitions of the applicable ROS classes, this magnitude of effect on visitors' experience would not be sufficient to require a change in the ROS class areas.

Range

Resource Factors To Be Analyzed – Change in available forage acres and effects to existing grazing operations on permitted allotments.

Basis of Analysis – The existing acres in the Allotment Management Plan, the 2007 Environmental Assessment for Pumphouse and South La Luz Grazing Allotments, and the 2007 the Authorization of Grazing Activities for the South La Luz Allotment were reviewed. Results are presented in greater detail in the Range Specialist Report, which is a part of the Project Record.

Existing condition – The analysis area consisted of the South La Luz and Dry Canyon grazing allotments through which the pipeline passes.

The existing pipelines and associated structures in La Luz and Maruche Canyons are fully contained within the La Luz 6th Hydrologic Unit Code (HUC) watershed. The La Luz 6th HUC watershed has been closed to livestock grazing since the 1950's. The existing pipelines and associated structures in Fresno Canyon cross portions of the South La Luz and the Dry Canyon Allotments.

The existing pipelines and associated structures occur only within the Fresno Pasture of the South La Luz Allotment in three ¼ mile segments in the bottom of Fresno Canyon. This pasture is grazed from late November until the end of January. There are no livestock water taps located within these areas. A tap off the water pipeline in the La Luz watershed, located near Springer Springs in La Luz Canyon about 1.4 miles east of the allotment boundary, is used for livestock water with permission of the City. The tap

provides limited water on a seasonal basis during the winter and early spring months in the northeast corner of the allotment.

The existing pipeline in the Dry Canyon Allotment occurs only in the east end of the Northside Pasture. This area is inaccessible to livestock due to the steep slopes. A tap, used for livestock watering, is located approximately one mile below the tunnel on Highway 82. This tap provides livestock water to the Northside Pasture of the Dry Canyon Allotment.

No Action Alternative

Direct Effects – Removal of existing pipelines and associated structures would result in up to 36 additional acres available for livestock in areas currently having restricted access due to structures associated with the pipelines. This additional access could result in no more than 5 to 10 Animal Unit Months (AUMs) of additional forage on the South La Luz Allotment and no additional forage potential on the Dry Canyon Allotment. This change would not be sufficient to allow for a change in authorized grazing use. The loss of the current water taps would have a temporary effect until alternative water sources could be developed.

Indirect Effects – Until alternative sources of water could be developed to replace the taps off the existing pipeline, grazing management in the two affected pastures would be altered.

Cumulative Effects – Alternative water sources, such as wells or trick tanks would likely be developed to replace the sources provided by tapping the existing pipeline.

Proposed Action Alternative

There are no identified direct, indirect, or cumulative effects from the Proposed Action. The grazing would continue with no changes in available acres accessible to livestock, water taps, or AUMs.

Hydrology

Resource Factors To Be Analyzed – Acres of wetlands, riparian and floodplain that could be impacted.

Basis of Analysis – A review of pertinent literature and an analysis of findings related to the project area is presented in greater detail in the Hydrology Specialist Report, which is part of the Project Record. The wetland, riparian, and floodplain acres were based on aerial photos, GIS designations, TEUI map units, and field observations.

Existing condition – The project area lies completely within the Lost River 5th HUC watershed. Those segments of the pipeline located within the Fresno, La Luz, and Maruche Canyons are split between three, 6th HUC watersheds. The majority of the pipelines fall within the Fresno Canyon and La Luz Canyon 6th HUC watersheds. The remaining portions of the pipelines occur in the Lost River 6th HUC watershed.

All three streams exhibit a typical dendritic drainage pattern common in the Sacramento Mountains. These streams are underlain by a subsurface geology of sedimentary layers and consolidated mix of conglomerates with similar resistance to weathering. This gives rise to the pattern of the tributaries joining the major streams at acute angles (less than 90 degree angles). Most of all three streams are considered to be perennial, streams that normally have water in the channel at all times. A segment of the upper reach of Maruche Canyon historically has not had perennial flows.

There are no portions of any of the three streams that qualify for Waters of the US, as determined by the US Army Corps of Engineers. None of the streams are identified on New Mexico's 2004-2006 303(d) Impaired Streams list. Both the Fresnal and La Luz 6th HUC watersheds are considered Municipal Supply Watersheds.

The National Weather Service Forecast Office and the U. S. Drought Monitor for New Mexico indicate that the project area has been in a severe to extreme drought for the past five years. This has led to unusually low stream flows and in some instances, no stream flows. It has also impacted the recharge of ground water tables throughout the Sacramento Mountains and the Tularosa Basin.

In July of 2007, a progress report on the Sacramento Mountains Hydrogeology study was provided to the Forest by the New Mexico Institute of Mining and Technology. Findings of the report indicate that the fractures in the underlying geology exhibit significant control on surface and groundwater flow and possibly ground water recharge. Overall, the data suggests that the recharge of the wells and groundwater is correlated to the amount of precipitation during the monsoon storms at all elevations.

According to the OSE, the City holds water rights to approximately 11,584 acre feet per year (AFY) within the three watersheds. The City currently maintains diversions on NFS lands, as well as on other land ownerships. The City has clearly indicated its need and desire to continue to exercise its rights to use the waters within these watersheds. In addition, the City reserved rights-of-way to operate and maintain the pipelines, diversion structures and other facilities located on the acquired lands in La Luz and Maruche Canyons. For purposes of this analysis, it is therefore assumed that these diversions would continue under both the No Action and Proposed Action alternatives.

The number of water wells drilled on both private and NFS lands within the La Luz and Fresnal Canyon watersheds has increased since the 1950s. Nearly 94% of the wells drilled are on private lands, with the 1980s and 1990s being the most active years for drilling of domestic use wells. The total ground water extraction permitted by the OSE is approximately 2,400 acre feet/year (AFY) from 284 wells with current permits. On December 5th, 2002, the New Mexico State Engineer declared the La Luz and Fresnal Canyon 6th HUC watersheds as a Critical Management Area (CMA). This means the OSE would no longer allow new groundwater appropriations for non-domestic purposes from within either of the watersheds. Diversions from any new domestic wells is currently limited to 0.50 acre-feet-per-year and all permits for domestic wells issued after December 4, 2002 would be metered.

All surface flows in the section of Maruche Canyon within the project area flow down stream from the Mescalero Apache Indian Reservation and do not impact water on the Reservation.

No Action Alternative

Direct Effects – The removal of the pipelines and structures located on NFS lands other than those acquired in 1959 would have a temporary effect (compaction, increased surface runoff for 6 to 9 months) on small acreages of wetlands and riparian areas from the use of heavy equipment to remove the pipelines, facilities, and structures.

Even though approximately 3.1 miles of pipeline and associated structures would be removed from NFS lands, the City will retain valid water rights, and rights-of-way to the diversions and pipelines occurring on the acquired lands in La Luz and Maruche Canyons. Therefore there would be no direct effects to these acquired lands.

Indirect Effects – There could be a slight increase in surface water flows in Fresnal Canyon resulting from the removal of the stream diversion structure currently located on NFS lands.

Cumulative Effects – The City has clearly indicated its need and desire to continue to exercise its rights to use the waters within these watersheds. In addition, the City reserved rights-of-way to operate and maintain the pipelines, diversion structures and other facilities located on the acquired lands in La Luz and Maruche Canyons. It is therefore assumed that operation and maintenance of the diversion structures and pipelines located on these acquired lands would continue under the No Action alternative without implementation of the mitigation measures designed for resource protection provided in the SUP.

The diversion of water from wells located on both private and NFS lands would continue, and new applications for domestic wells will continue to be processed by the OSE. The effects of this withdrawal of water from the localized hydrologic systems associated with the project area has been compounded by recent drought conditions, but it is likely that the level of withdrawal will continue to increase for the foreseeable future as indicated by current trends.

On December 5th, 2002, the New Mexico State Engineer declared the La Luz and Fresnal Canyon 6th HUC watersheds as a Critical Management Area (CMA). This means the OSE would no longer allow new groundwater appropriations for non-domestic purposes from within either of the watersheds. Currently, diversions from any new domestic wells are limited to 0.50 acre-feet-per-year and all permits for domestic wells issued after December 4, 2002 would be metered. Although ground water withdrawals are expected to continue to increase with development, the rate of increase has been somewhat limited by this action.

Considering the potential effects of factors outside the control or jurisdiction of the Forest and their impact on the availability of water to maintain NFS resources, cumulative effects of this alternative to would likely result in some degradation of wetlands and riparian areas occurring on NFS lands over time. Based on existing conditions, this

potential degradation would not be expected to reach the level of significance as a result of this alternative.

Proposed Action Alternative

Direct Effects – The Proposed Action would not change the existing condition. With the implementation of the mitigation measures identified in the Proposed Action, there will be minimal impacts to the wetland, riparian or floodplain areas such as compaction, erosion, and sedimentation.

Indirect Effects – There would be no indirect effects to the hydrologic resources resulting from the continued operation and maintenance of the water conveyance system in its current configuration. The pipeline will not interfere with the current hydrologic flows or processes.

Cumulative Effects – The cumulative affects from pipeline maintenance and operation, road maintenance, range and recreation activities from compaction of wet soils, erosion and sedimentation will be minimized and not exceed forest standards and guidelines with the implementation of BMPs such as wattles to control erosion and sedimentation, straw bales, designation of access routes to minimize compaction of wet soils, and other mitigation measures identified in the Proposed Action.

The diversion of water from wells located on both private and NFS lands would continue, and new applications for domestic wells will continue to be processed by the OSE. The effects of this withdrawal of water from the localized hydrologic systems associated with the project area has been compounded by recent drought conditions, but it is likely that the level of withdrawal will continue to increase for the foreseeable future indicated by current trends.

On December 5th, 2002, the New Mexico State Engineer declared the La Luz and Fresnal Canyon 6th HUC watersheds as a Critical Management Area (CMA). This means the OSE would no longer allow new groundwater appropriations for non-domestic purposes from within either of the watersheds. Currently, diversions from any new domestic wells are limited to 0.50 acre-feet-per-year and all permits for domestic wells issued after December 4, 2002 would be metered. Although ground water withdrawals are expected to continue to increase with development, the rate of increase has been somewhat limited by this action.

Considering the potential effects of factors outside the control or jurisdiction of the Forest and their impact on the availability of water to maintain NFS resources, cumulative effects of this alternative to would likely result in some degradation of wetlands and riparian areas occurring on NFS lands over time. Mitigation measures incorporated into the SUP as provided in the Proposed Action would reduce the effects of those activities that are implemented under the jurisdiction of the Forest. Based on existing conditions, this potential degradation would not be expected to reach the level of significance as the result of this alternative.

Wildlife and Rare Plants

Resource Factors To Be Analyzed – Habitat and population information for Management Indicator Species and Threatened, Endangered and Sensitive species.

Basis of Analysis – Reviews of the existing plant and animal Threatened and Endangered (T&E) species list, and field surveys for endangered plants were conducted. Results are presented in greater detail in the Wildlife and Rare Plants Specialist Report. A Biological Evaluation and a Biological Assessment were prepared by the Forest, and formal consultation under ESA section 7 was requested on October 3, 2008. USFWS issued its Biological Opinion on April 25, 2008. All four documents are part of the Project Record.

The effects on wildlife species have been determined, in part, by using an “indicator species” and special interest species approach. Game species (ex. elk or mule deer) that are Management Indicator Species (MIS) are addressed. These selected species or groups of species reflect general habitat conditions needed by other species with similar habitats. Indicator species were included in this analysis if their habitats were likely to be present within the proposed project area and were affected by the Proposed Action. Use of an indicator species approach to assess impacts of proposed projects is consistent with Forest Service policy and direction in the Forest Plan.

The evaluation of each MIS was tiered to the 2006 Lincoln National Forest (LNF) MIS Report and Environmental Impact Statement (EIS) for the LRMP. Designation of MIS habitat on the Forest was produced by utilizing Terrestrial Ecosystem Unit Inventory vegetation data. Forest level MIS maps are found in the 2006 LNF MIS Report.

Occurrence within the project area of Migratory Bird species (NTMB) listed as “highest priority Partners in Flight (PIF) migratory bird species” were reviewed and assessed. MIS and PIF key habitat factors may overlap, so assessment or mitigations associated with one may also cover an associated species.

Existing condition – The following vegetation information was derived from the Forest’s Terrestrial Ecosystem Unit Inventory. The vegetation or habitat types on NFS lands fall within seven categories:

Desert Scrub	Ponderosa Pine
Grass	Riparian
Mixed Conifer	Wetlands
Pinion/Juniper woodlands	

There are five MIS known to occur within the project area. See Table 4 below for a listing of the species and a summary analysis of effects.

There are a total of fourteen Migratory Bird Species of Concern that may occur in or around the project area. All are associated with the Desert scrub and pinion/juniper woodland vegetation types. Less than one percent of these vegetation types located on the Forest would be affected by the proposed project.

There are no designated Important Bird Areas (IBAs) in the project area.

The project area provides wintering habitat for migratory bird species. However, this area is not recognized as an important over wintering area because significant concentrations

of birds are not known to occur nor do unique or a high diversity of bird’s winter in or near the project area.

Based on conversations with the New Mexico Game and Fish Department (NMDGF), in recent years, Fresnal Creek has not been treated as a public fishery. During the past nine years, NMDGF has not stocked or surveyed Fresnal Creek, and has no plans to do so in the future. Any potential fishery component in Fresnal Creek is deemed not warranted by the NMDGF.

Table 4. Management Indicator Species and their trends.

Species	Habitat Trend	Pop. Trend	No Action Effect on Habitat Trend	No Action Effect on Pop. Trend	Proposed Action Effect on Habitat Trend	Proposed Action Effect on Pop. Trend
RUFOUS-CROWNED SPARROW (<i>Aimophila carpalis</i>)	Stable	Upward	Will not reduce forest habitat trends.	Will not reduce forest population trends.	Will not reduce forest habitat trends.	Will not reduce forest population trends.
EASTERN MEADOW-LARK (<i>Sturnella magna</i>)	Upward	Downward	Will not reduce forest habitat trends.	Will not reduce forest population trends.	Will not reduce forest habitat trends.	Will not reduce forest population trends.
MULE DEER (<i>Odocoileus hemionus</i>)	Upward	Stable	Will not reduce forest habitat trends.	Will not reduce forest population trends.	Will not reduce forest habitat trends.	Will not reduce forest population trends.
PLAINS TITMOUSE (<i>Parus inornatus</i>)	Upward	Upward	Will not reduce forest habitat trends.	Will not reduce forest population trends.	Will not reduce forest habitat trends.	Will not reduce forest population trends.
ELK (<i>Cervus elaphus</i>)	Upward	* Not applicable because it’s considered a game species.	Suitable habitat will not be affected.	Not applicable because it’s a game species.	Suitable habitat will not be affected.	Not applicable because it’s a game species.

* This species is included in this analysis because of its presence along the pipelines. It is an indicator species, however for this analysis; it is being treated as a game species because the key habitat factor for an MIS is not present. Therefore the population trends are not identified.

Three Threatened, Endangered or Sensitive species were identified within the project area: the Mexican spotted owl, a threatened species; the Wright’s marsh thistle, a sensitive species; and the Sacramento prickly poppy. The Forest has developed a Biological Assessment and is in the process of consulting with the FWS under section 7 of the ESA. In August 2007 surveys were conducted on NFS lands, and in October of 2007, surveys were conducted by the FWS on private lands outside the project area, for the Sacramento prickly poppy. This information has been provided to the FWS in support of the section 7 consultation process.

No Action Alternative

Direct Effects – No significant effects will occur to migratory birds because the project will not substantially alter existing habitat for migratory bird species of concern. Some actions associated with the project will have the potential to impact individual birds during inspection, maintenance and emergency repair activities, so the possibility of unintentional take exists. The likelihood of take is remote; if unintentional take does occur, it will not rise to a level that would affect the population as a whole of any of the species.

The Forest has determined that there will be no effects to habitat or population trends for any of the MIS analyzed in detail under this alternative.

FS sensitive species requirements were reviewed and analyzed to meet standards for actions on the Forest. Based on previous and current survey information, Wright’s marsh thistle and Alamo penstemon are the only two species on the Regional Forester’s Sensitive Species list that are known to occur within the project area, and may be affected by the removal of the diversion and pipeline system.

The District and Forest Wildlife Biologists found that some individuals of both plant species may be affected by the Proposed Action Alternative, but this alternative will not lead toward the listing of either species as threatened or endangered.

For Mexican spotted owl, a listed Threatened Species, the Proposed Action Alternative would result activities occurring within a portion of one Protected Activity Center, and the majority of the project area is not considered to be suitable Mexican spotted owl habitat. Breeding season restrictions on operation and maintenance activities are incorporated into the Proposed Action as identified in the Alternatives Considered in Detail (Chapter 2). Effects of the removal of the water diversion and pipeline system were determined to be “may affect, not likely to adversely affect.”

For the Sacramento prickly poppy, the effects from this Alternative are determined to be “may affect, likely to adversely affect” due to the potential for individual plants to be harmed or killed at unavoidable locations during the removal of the pipeline and structures. For most operations, however, mitigations are incorporated into the No Action involving survey and marking requirements prior to activities in occupied and suitable poppy habitat prior to any routine operations within those areas. Maps of known poppy locations on NFS lands will allow coordinated planning that will avoid impacts to this species.

Indirect Effects – The potential for increased sedimentation in streams associated with the use of heavy equipment may result in short-term effects on suitable habitat for several of the species analyzed in detail, but these effects are expected to be limited in scope and intensity.

Cumulative Effects – This alternative will not result in any cumulative effects that will result in a decline in population trends or modification of habitat for any of the species analyzed in detail.

Proposed Action Alternative

Direct Effects – No significant effects will occur to migratory birds because the project will not substantially alter existing habitat for migratory bird species of concern. Some actions associated with the project will have the potential to impact individual birds during inspection, maintenance and emergency repair activities, so the possibility of unintentional take exists. The likelihood of take is remote; if unintentional take does occur, it will not rise to a level that would affect the population as a whole of any of the species.

The Forest has determined that there will be no effects to habitat or population trends for any of the MIS analyzed in detail under this alternative.

FS sensitive species requirements were reviewed and analyzed to meet standards for actions on the Forest. Based on previous and current survey information, Wright’s marsh thistle and Alamo penstemon are the only two species on the Regional Forester’s Sensitive Species list that are known to occur within the project area, and may be affected by the operation and maintenance of the diversion and pipeline system.

The District and Forest Wildlife Biologists found that some individuals of both plant species may be affected by the Proposed Action Alternative, but this alternative will not lead toward the listing of either species as threatened or endangered. This meets the appropriate standard under which the Proposed Action Alternative may be selected.

For Mexican spotted owl, a listed Threatened Species, the Proposed Action Alternative would result activities occurring within a portion of one Protected Activity Center, and the majority of the project area is not considered to be suitable Mexican spotted owl habitat. Breeding season restrictions on operation and maintenance activities are incorporated into the Proposed Action as identified in the Alternatives Considered in Detail (Chapter 2). Effects of the continued operation and maintenance of the water diversion and pipeline system were determined to be “may affect, not likely to adversely affect.”

For the Sacramento prickly poppy, the effects from this Alternative are determined to be “may affect, likely to adversely affect” due to the potential for individual plants to be harmed or killed during rare emergency repair situations. For routine inspection, operation and maintenance activities, mitigations are incorporated into the Proposed Action involving survey and marking requirements prior to activities in occupied and suitable poppy habitat prior to any routine operations within those areas. Maps of known

poppy locations on NFS lands will be updated annually, to allow coordinated planning that will avoid impacts to this species.

On April 25, 2008, the U.S. Fish and Wildlife Service concurred with the Forest's determination for the Proposed Action Alternative of "may affect, not likely to adversely affect" regarding the Mexican spotted owl. The Service also issued an opinion that this Alternative would not jeopardize the continued existence of the Sacramento prickly poppy due to relatively low level of anticipated effects on the poppy, and minor effects on poppy habitat.

Indirect Effects – The potential for increased sedimentation in streams associated with the use of heavy equipment may result in short-term effects on suitable habitat for several of the species analyzed in detail, but these effects are expected to be limited in scope and intensity.

Cumulative Effects – This alternative will not result in any cumulative effects that will result in a decline in population trends or modification of habitat for any of the species analyzed in detail.

Soils

Resource Factors To Be Analyzed - Soil erosion (rill and gully), change in the re-vegetation potential, and acres of wetland soils.

Basis of Analysis – Based on direction in FSM 2550 the following methods will be used to determine the amount and rate of soil erosion:

Erosion – Observation of soil movement on the surface and accumulation of litter material for rill erosion. For Gully erosion, observation of ruts greater than 24 inches deep.

The change in vegetation productivity will be analyzed by evaluating the area for compaction (puddling and ruts). The acres of wetlands will be based on aerial photos, GIS designations, Terrestrial Ecosystem Survey (TES) map units, and field observations.

Existing condition – The pipelines pass through NFS, private, and City lands. Based on GIS analysis, the pipelines cross a total of 6.5 miles of NFS lands.

The main geologic formations along the project corridor are the Holder, Beeman, Bursum, Gobbler, and Yeso Formations. The dominant parent material in the project area is Alluvium. Portions of the pipeline, even though crossing other geologic formations, are actually located in alluvial inclusions in those units. The characteristic common to all the listed geologic units is they contain significant amounts of limestone. The geologic units are differentiated by the type of limestone, shale, or sandstone included in the formations.

The majority of the project area is located on gently to moderately sloping (10-35%) topography. The portion of the pipeline that is below the tunnel along Highway 82 is on a much steeper gradient (greater than 35 %). The remaining portions of the project area are in the bottoms of the canyon on benches above the floodplains and are on generally flat, (0 to 5 % gradient) topography.

The project area is covered by seven TES map units (See Table 5). The soils in the project area consist of Mollisols, Entisols, and Inceptisols. Mollisols are soils with a surface horizon high in organic matter and are base rich. Entisols are soils that have little or no evidence of sub-surface horizons. Inceptisols are soils with little horizonation or profile development primarily due to dry desert conditions which slow soil development. The soil surface texture in the project area is predominantly loam, except for MU 158 which is sandy loam. The entire area except for MU 10 has a gravelly surface ranging from 15% to over 60%. MU 10 has little or no gravel on the soil surface. Soil depths across the project area range from moderately deep (20-40 in/51-102 cm) in MU 158 and portions of MU 295 to over 60 inches (greater than 152 cm) in map units 10 and 13. Slopes range from 0 to 80 percent in the project area. Vegetation ranges from Desert Shrub/Grassland in the lower elevations (5200 ft/1585 m) to Pinion/Juniper woodland in the higher elevations (6800 ft/2073m).

Table 5 identifies those features of the soil resource that could be affected by the Proposed Action. The interpretations above assume that the soil is disturbed by the removal of vegetation and that the dominant erosion force is water. The re-vegetation potential is based on a site’s ability to recover from disturbance.

Table 5. Map Unit Interpretations

Map Units	Sheet & Rill Erosion Potential	Gully Erosion Potential	Re-vegetation Potential
10A	Slight	Severe	High
13A	Slight	Severe	Low
158A	Moderate	Moderate	Low
170A	Moderate	Moderate	Moderate
171A	Severe	Moderate	Low
295A	Severe	Severe	Low
604A	Severe	Slight	Low

No Action Alternative

Direct Effect – The removal of the pipelines and structures located on NFS lands other than those acquired in 1959 would have a temporary effect (compaction, increased surface runoff for 6 to 9 months) on small acreages of wetlands and riparian areas from the use of heavy equipment to remove the pipelines, facilities, and structures. These effects would be mitigated by implementing Best Management Practices (BMPs) identified under this alternative, such as wattle placement, buffering the wetland areas, and restricting the use of heavy equipment in the wetland and riparian areas.

Even though approximately 3.1 miles of pipeline and associated structures would be removed from NFS lands, the City will retain valid water rights, and rights-of-way to the diversions and pipelines occurring on the acquired lands in La Luz and Maruche Canyons. Therefore there would be no direct effects to these acquired lands.

Indirect Effects – There would be no indirect effects associated with this alternative.

Cumulative Effects – The City has clearly indicated its need and desire to continue to exercise its rights to use the waters within these watersheds. In addition, the City reserved rights-of-way to operate and maintain the pipelines, diversion structures and other facilities located on the acquired lands in La Luz and Maruche Canyons. It is therefore assumed that operation and maintenance of the diversion structures and pipelines located on these acquired lands would continue under the No Action alternative without implementation of the mitigation measures designed for resource protection provided in the SUP.

Considering the potential effects of factors that would be outside the control or jurisdiction of the Forest and their impact on the soils within the project area, cumulative effects of this alternative would likely result in some degradation of wetlands, riparian areas and other soil resources on NFS lands over time.

Proposed Action Alternative

Direct Effects – Those activities with the greatest potential to impact the soil are any ground disturbing activities such as road maintenance, vegetation clearing around spring boxes and other intake areas, fence maintenance, diversion maintenance and pipeline replacement. Because access points to the pipelines and its associated structures already exist and no new access points are being considered under the Proposed Action, there are no new or additional impacts from the access points themselves. Maintenance activities associated with the access points, such as grading and vegetation removal could expose the soil to increased wind and water erosion. With implementation of the BMP's, mitigation measures and monitoring identified as part of the Proposed Action, all direct effects are expected to remain within forest standards for soil erosion, compaction and re-vegetation.

Indirect Effects – The main indirect effect to the soil from the Proposed Action is the potential for increased sedimentation to streams and other water bodies. With implementation of the BMPs, mitigation measures and monitoring identified as part of the Proposed Action, all indirect effects would be within forest standards for soil erosion and compaction.

Cumulative Effects – Pipeline maintenance activities may occur spatially and temporally with other activities such as grazing, recreation, and road maintenance activities. With the minimization of the direct and indirect effects to a level within the forest standards and guidelines for erosion, compaction, and re-vegetation, there would be no cumulative effects.

Chapter 4 - Consultation and Coordination

The Forest Service consulted the following individuals, Federal, state and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

ID Team Members

Bob Dancker	Forest Soil Scientist
Mark Cadwallader	District Range Staff
Severo Cosyleon	Forest Engineer
Jack D. Williams	District Wildlife Biologist
Mike McConnell	Forest Hydrologist
Marcie Kelton	District Lands/Minerals/Recreation Staff
Ryan Powell	Archeologist
Eric Dillingham	Archeologist
Laura Hudnell	IDT Leader

Extended Team Members

Neil Fairbanks	Forest GIS
Ron Hannan	Forest Planning Staff
Frank R. Martinez	District Ranger, Sacramento District
Gary Ziehe	Forest Natural Resources Staff Officer

Local Agency

Pat McCourt	City of Alamogordo
Mark Threadgill	City of Alamogordo
Brian Cesar	City of Alamogordo

Federal and State Officials and Agencies

Pat Zenone	US Fish and Wildlife Service
Eric Hein	US Fish and Wildlife Service
Wally Murphy	US Fish and Wildlife Service
Rita Skinner	US Forest Service R3 Assistant NEPA Coordinator
Roy Jemison	US Forest Service R3 Regional Hydrologist
Bobbi Barrera	US Forest Service R3 Assistant T&E Program Manager

Tribes

Mescalero Apache Tribe

Chapter 5 - References

New Mexico Game and Fish. 2006. Personal Communication with Shawn Denny, Southeast Fishery Manager.

South Central Mountain RC&D Council, Inc. 2002. Tularosa Basin And Salt Basin. Regional Water Plan. 2000 – 2040. Volume 1 and II.

Rawling, Geoffrey C., Stacy Timmons, Peggy Johnson, Patrick Walsh, Lewis Land, Mike Timmons, and Brigitte Felix. 2007. Sacramento Mountains Hydrogeology Study, Progress Report, July 2007. New Mexico Bureau of Geology & Mineral Resources, Socorro, NM.

USDA Forest Service. 1986. Lincoln National Forest Land and Resource Management Plan.

USDA Forest Service. 2006. Lincoln National Forest Management Indicator Species Assessment. Lincoln National Forest.

USDI Fish and Wildlife Service. 2008. Biological Opinion on the effects to the Sacramento prickly poppy from the completed action of authorizing the continued use, operation and maintenance of the existing water transmission pipelines and water collection facilities and structures in Fresnal, La Luz, and Maruche Canyons, located on the Sacramento Ranger District of the Lincoln National Forest, New Mexico (Consultation #222420-2008-F-0050). Albuquerque, NM.

The following specialist reports, assessments and evaluations were produced specifically for this project. All documents referenced within this report are hereby incorporated herein by reference, and are included in the Project Record.

USDA Forest Service. 2007a. Archeology/Cultural Specialist Report for The City of Alamogordo Water Pipeline SUP in Fresnal, La Luz, and Maruche Canyons. Lincoln National Forest.

USDA Forest Service. 2007b. Biological Assessment for Fresnal, La Luz, and Maruche Water Pipeline Special Use Project. Lincoln National Forest.

USDA Forest Service. 2007c. Biological Evaluation for Fresnal, La Luz, and Maruche Water Pipeline Special Use Project. Lincoln National Forest.

USDA Forest Service. 2007d. Hydrology Specialist Report for the Fresnal, La Luz, and Maruche Water Pipeline Special Use Permit. Lincoln National Forest.

USDA Forest Service. 2007e. Lands Specialist Report for the City of Alamogordo Water Pipelines in Fresnal, La Luz, and Maruche Canyons. Lincoln National Forest.

USDA Forest Service. 2007f. Range Specialist Report for CAFLMWP. Lincoln National Forest.

USDA Forest Service. 2007g. Recreation Specialist Report for the City of Alamogordo Water Pipelines in Fresnal, La Luz, and Maruche Canyons. Lincoln National Forest.

USDA Forest Service. 2007h. Soils Specialist Report for City of Alamogordo Fresnal, La Luz, Maruche Water Pipeline. Lincoln National Forest.

USDA Forest Service. 2007i. Wildlife and Rare Plants Report for Fresnal, La Luz, and Maruche Water Pipeline Special Use Project. Lincoln National Forest.

APPENDIX A – Maps

For electronic version, see file EA Appendices.

APPENDIX B – Operation and Maintenance Plan

For electronic version, see file EA Appendices.