

BLM grants rights-of-way on a case-by-case basis, within existing rights-of-way whenever possible. In addition to the existing rights-of-way, BLM has designated utility corridors, which range from 1 to 2 miles in width, which are intended to prevent proliferation of utility systems across public lands and reduce potentially adverse impacts on sensitive resources. Existing utility corridors are designated along the Mead-Liberty 345-kV and Mead-Phoenix Project 500-kV transmission lines. These corridors are shown on Figure 3.7-2. Large utilities would be restricted to these corridors.

Access across and to public lands is specified as a management concern in the RMP. BLM has determined areas where access should be improved; none of these improvement areas are located in the Project area. Additionally, no specific policies or management guidelines regarding access have been established.

Mohave County

The Land Use Element of the Mohave County General Plan (1995) defines four planning area types for the unincorporated area: Rural Development Area (RDA), Suburban Development Area (SDA), Urban Development Area (UDA), and Outlying Communities. These planned uses are shown on Figure 3.7-2.

RDAs are intended to remain rural in nature with small neighborhood commercial uses serving local residential needs. No urban or suburban services or facilities are provided. SDAs are intended to provide opportunities for large-lot residential areas with non-residential uses (e.g., neighborhood commercial services) in appropriate locations. SDAs typically include facilities such as paved streets, septic systems, and public water supply. The plan indicates that there is an SDA planned for all of T20N, R13W and part of T21N, R13W. UDAs provide locations for more intense development, including residential uses on lots smaller than 1 acre and commercial and industrial uses. Urban service facilities and infrastructure are required

in these areas and should be coordinated with land uses. Outlying Communities allow for small communities, such as Wikieup, to continue growing in their current patterns. Outlying Communities provide for residential uses at urban, suburban, or rural densities, as well as neighborhood commercial, public, recreational, or agricultural uses.

In addition to the Land Use Element, the General Plan includes a Public Infrastructure and Services Element and a Housing Element. These elements do not specify policies for utilities, such as a pipelines, other than that these facilities should be coordinated with planned land uses.

The Mohave County Zoning Ordinance (2000) regulates the specific uses permitted on individual properties. The primary zones within the Project area are “A-R” and “M-X.” Zone “A-R” allows one residence per lot, agricultural uses, guest ranches, schools, churches, public buildings, playgrounds, greenhouses, and wireless communication towers. Zone “M-X” allows heavy manufacturing and industrial uses such as canneries, fertilizer plants, refineries, commercial feed lots, meat packing plants, and public and private utility power stations and commercial generating plants. Special use permits are required for uses not explicitly allowed in a zone.

3.7.2 Environmental Consequences

3.7.2.1 Identification of Issues

The following issues were identified during scoping and preparation of this Draft EIS:

- natural gas pipeline effects on private and public lands
- access road right-of-way and stream crossings and timing for completion
- effects on private parcel lots acquired for future residential development near the proposed power plant site and pipeline route

3.7.2.2 Significance Criteria

The effects of the Proposed Action and alternatives would be considered significant if the following were to occur:

- any substantive inconsistencies with existing laws, ordinances, or regulations (BLM, state, or county)
- uncompensated permanent displacement of an existing residence or business by the proposed Project

3.7.2.3 Impact Assessment Methods

The assessment of impacts required an inventory of existing uses in areas where the Proposed Action and alternative pipeline corridors would be located, and where OPGW installation would occur. Data on planned future land uses were acquired from adopted plans from the BLM and Mohave County supplemented by personal communication with agency personnel. Additionally, the land use goals, objectives, policies, and management prescriptions stated in these plans were reviewed for potential conflicts with the proposed Project.

The anticipated physical impacts on land uses are based on the locations where Proposed Actions would occur. The sensitivity of nearby land uses within the region of influence also was considered if the proposed Project would be anticipated to interfere with the function of that land use. Duration of impact also was considered. Long-term impacts are considered those that would be permanent or those that would last beyond the construction period and short-term impacts are considered those associated with construction.

3.7.2.4 Actions Incorporated into the Proposed Action to Reduce or Prevent Impacts

Measures to reduce or eliminate land use and access impacts would be implemented as part of the Proposed Action, as follows:

- The proposed power plant site, substation, well heads, and evaporation ponds would be fenced to prevent conflicts with livestock and/or wild burros.
- The proposed access road serving the proposed power plant site would provide access to the nearby residence and existing clay mining operation south of the plant.
- The pipeline would be located parallel to existing rights-of-way to the extent feasible and practical.
- Easements and rights-of-way from appropriate owners/agencies would be acquired prior to Project construction.
- To the extent feasible, the pipeline would be located within the construction corridor so that permanent displacement of a residence or business would not occur.
- Following pipeline installation, the terrain of the construction corridor would be recontoured and revegetated based on input from respective landowners and land-management agencies and the final reclamation plans.
- Alternative vehicle routes would be provided when pipeline installation activities disturb existing access roads. Disturbance of access roads would be limited to three to five workdays, when possible.
- Access roads disturbed during pipeline installation would be restored to near original conditions.

3.7.2.5 Impact Assessment

Proposed Action

Proposed Power Plant Site and Evaporation Ponds

The proposed power plant, substation, one water production well, and the cooling water

evaporation ponds would be located on a 120-acre, privately owned parcel within the unincorporated area of Mohave County in Section 5, T15N, R12W. The 120-acre site is primarily vacant of developed uses; the notable exceptions are the Mead-Phoenix Project 500-kV and Mead-Liberty 345-kV transmission lines, which cross through the western half of the site. Although cattle and/or wild burros graze the proposed power plant site, a fence would be constructed around the plant site and associated facilities to prohibit entry by livestock and wild burros.

The entire 120-acre parcel, located in unincorporated Mohave County, has been designated as a UDA through an amendment to the Mohave County General Plan (Board of Supervisors Resolution 2149, April 17, 2000). UDAs allow for industrial development (Mohave County 1995). The parcel also has been rezoned to "M-X" for heavy manufacturing (Board of Supervisors Resolution 2150, April 17, 2000). Zoning district "M-X" allows for utility power stations and commercial generating plants (Mohave County 2000). The surrounding privately owned lands, also within unincorporated Mohave County, are within the RDA and zoned "A-R" for agricultural and/or residential uses. Nearby BLM-managed lands are grazed under an existing allotment, used for utilities, provide recreation uses, and allow for access to public and private lands. Permitted uses on private and public lands would not change as a result of the proposed Project.

Development of the power plant, substation, and evaporation ponds would occur over approximately 20 months and would include disturbance of approximately 56 acres of privately owned land. The proposed power plant site is already designated and zoned for the proposed use and would not require additional authorization from Mohave County.

Development at the proposed power plant site is consistent with county land use plans. No displacement of residences or businesses would be anticipated. Therefore, no significant adverse land use impacts would be anticipated at the

proposed power plant site and evaporation ponds under the Proposed Action.

Access Road

The proposed access road to the power plant site would replace the existing access road to the site, which is a road that travels from southwest to northeast through Section 7. The road through the western half of Section 7 would become inaccessible, but the proposed access road would provide access to the existing residence in Section 7 and the mining operations to the south. The partial disturbance within the area of the proposed road alignment suggests that vehicles (potentially including off-highway vehicles [OHVs]) currently use the alignment for access; adjacent areas are used for grazing or are vacant. In Section 7, the road would cross the Phelps Dodge water pipeline alignment. No disturbance of the underground water pipeline would be anticipated. An additional road segment would be developed off the access road to the south through the center of Section 7 for a length of about $\frac{3}{4}$ mile to serve the proposed wells.

The proposed access road would be located primarily on privately owned lands in Sections 1 and 7. The road would cross through one section of BLM-managed land, Section 12. Additionally, the road would cross the two section corners of BLM-managed land at its end near the plant site (Sections 6 and 8, T15N, R12W). The proposed road would not conflict with BLM management guidelines. Mohave County would acquire ownership, easements, and/or right-of-way for the county portion of the road. Privately owned lands can be acquired through purchase or easements; BLM would require that the county apply for right-of-way on Sections 12 (if outside the existing right-of-way), 6, and 8. Development of the proposed road would occur on approximately 21 acres; 19 acres are private and 2 acres are managed by BLM. Thus, impacts of the access road on land use would not be significant.

Development of the access road would not conflict with goals and policies of the Mohave

County General Plan, Transportation Element. The alignment of the access road would efficiently serve the plant site without adversely affecting surrounding land uses, consistent with Mohave County General Plan transportation goals and policies (Goals 51, 52; Policies 51.1, 52.1, 52.3). Thus, impacts of the proposed access road on land use would not be significant.

Pumping Wells, Agricultural Area, and Water Pipelines

Four water production wells, two observation wells, and more than 100 acres of agricultural activities are proposed for the eastern half of Section 7, T15N, R12W. The wells and pipeline routes would require disturbance of approximately 26 acres. Agricultural activities would occupy approximately 107 acres and would include crops such as Bermuda grass, alfalfa, small grains, vegetables, pecans, or olives. Water use for the agricultural activities would reach a maximum of 400 gallons per minute (650 acre-feet per year). This water would be part of the proposed water budget for all power plant uses (refer to Section 3.4). Development of the wells and agricultural activities would displace an existing dirt road, which currently provides access to the residence southwest of the plant site from US 93.

This half-section of privately owned land is located within the unincorporated area of Mohave County. The land lies within the RDA (Mohave County 1995) and is zoned "A-R." This zoning district allows for primarily agricultural uses and single-family residences. The well and agricultural area already are designated and zoned for the proposed use and would not require additional authorization from Mohave County. Therefore, development at the wells and agricultural uses are consistent with existing plans. The wells and agricultural activities would not displace residences or businesses. No significant adverse land use impacts would be anticipated due to development and operation of the wells and agricultural activities.

Communication Facilities

The primary communication facilities for the substation and power plant site would involve installing microwave dishes on existing microwave towers. Because these areas already have radio and microwave towers located in the vicinity and adequate access, no negative impacts on land uses would be anticipated from the primary communication facilities.

Activities for the construction and maintenance of Western's redundant communication facilities would include the installation of microwave dishes at Phoenix, Towers Mountain, and Perkins (Option 1), and/or at the Big Sandy Substation and an existing Salt River Project (SRP) microwave facility (Option 2). The land uses in these areas would not change, as these locations already have existing facilities similar to those proposed.

Option 1 would also require replacing the existing overhead ground wire on the Mead-Liberty 345-kV transmission line towers with an OPGW between the Big Sandy Substation and the Peacock Substation. As described for the alternative pipeline, land uses along the corridor are limited to ranching/grazing and some scattered residences. North of the Alternative T gas pipeline corridor along the Mead-Liberty 345-kV transmission line, land uses are primarily large acreage ranches.

It is anticipated that all pulling and tensioning sites would be within the existing transmission line rights-of-way; no residential areas would be disturbed. Maintenance activities would be similar to those of the existing transmission line. Because of the temporary and limited disturbance associated with these activities, and that the installation would occur within the existing right-of-way, no adverse impacts on land uses are anticipated.

Proposed Gas Pipeline Corridor

The proposed natural gas pipeline route would follow the proposed access road west to US 93

(within a 200-foot-wide right-of-way), then turn north and follow along the east side of US 93. The pipeline would follow along US 93 for approximately 7 miles (in corridor segment R5) to the intersection of US 93 with the Mead-Phoenix Project 500-kV and Mead-Liberty 345-kV transmission lines. Despite the previous disturbance along the access road and US 93, installation of the pipeline in this corridor segment would alter terrain and vegetation that has remained intact along the eastern margins of the right-of-way.

Caithness has proposed to cross the Big Sandy River either by trenching or directional boring. Trenching would require disturbance to the riverbed and associated vegetation, while directional boring would not disturb the riverbed. The pipeline would pass near developed uses that are concentrated along US 93 in Wikieup. There are up to 15 residences and about 6 businesses (2 abandoned) within the corridor that would be potentially affected during pipeline construction due to their proximity to the existing highway right-of-way. Where necessary, the pipeline would be located within the existing right-of-way for US 93. Additionally, to the extent feasible, the pipeline would be located within the corridor such that the permanent relocation of residences or businesses, or impacts on the existing gas station or nursery, would not occur. However, if this could not be done, the resident or business would be compensated either through the process of eminent domain or by mutually agreeable business negotiations. Based on a 90-foot wide area of disturbance for the length of the corridor segment, about 84 acres would be disturbed.

Corridor segments T4, C3, and T3 of the proposed pipeline corridor include very few developed uses, and are located entirely within the BLM-designated utility corridor. The few existing residences are located just north of the US 93 and transmission line crossing (corridor segments T4 and T5) and in Section 30, T20N, R14W, just west of the transmission lines (corridor segment T3); no residences are located

in corridor segment C3. Corridor segment T4 is expanded to allow for avoidance of the Carrow-Stephens Ranches ACEC and nearby topographic features, which would require increased disturbance for installing the pipeline. The varying width of these corridor segments should provide adequate space to install the pipeline without requiring relocation of any residences or any potential impacts on the Carrow-Stephens ACEC. Since the pipeline would be sited to avoid residences and the ACEC to the extent feasible, potentially significant impacts would be reduced. Impacts resulting from disturbance within the ACEC are discussed in Section 3.10. Based on a 90-foot wide disturbance area, about 150 acres, 20 acres, and 92 acres would be disturbed in corridor segments T4, C3, and T3, respectively.

Pipeline installation in corridor segment C1 would require temporary disturbance of approximately 30 acres of mostly undeveloped rangeland. About half of this corridor segment is located in the BLM-designated utility corridor associated with the transmission lines. The developed uses nearby are primarily roads that provide access to the area. The corridor segment would require crossing these roads (i.e., Old US 93, US 93) temporarily restricting access to some areas. No residential developments are located in this corridor segment.

Pipeline corridor segment R1 follows the north part of Hackberry Road. The corridor segment crosses two natural gas pipelines prior to passing under I-40 at an existing undercrossing. Just north of I-40, the corridor segment intersects a third natural gas pipeline (and terminates). Gas measurement interconnect facilities would be constructed within a new approximately 100- by 100-foot area at each of up to three pipeline interconnections (the southern terminus facilities would be within the proposed power plant site). The residence located near this corridor is on Hackberry Road and outside the road right-of-way. The southernmost pipeline is located just north of the residence and interconnection with that pipeline could require relocation of that residence. However, residents and businesses

would be compensated either through the process of eminent domain or by mutually agreeable business negotiations, (refer to Section 2.2.5), thus impacts would not be significant. Access along Hackberry Road would be temporarily restricted during pipeline construction. Disturbance from pipeline installation would occur over about 35 acres (not including any additional work areas).

Installation of the pipeline is expected to occur over six months and temporarily disturb a 90-foot-wide area within the proposed pipeline corridor, except for a narrower 50-foot disturbance area along the plant access road and the crossing of the Big Sandy River. To the extent possible, terrain within the proposed corridor and in any additional work areas would be returned to natural contours following pipeline installation. Any removal of vegetation on BLM-managed land would be subject to the Reclamation Operation Maintenance Plan for BLM-Managed Public Lands (Appendix B) and would be consistent with Arizona Department of Agriculture native plant salvage regulations (refer to Section 3.11). A 10-foot wide two-track would be maintained along the pipeline route for inspection and maintenance purposes.

The pipeline would come within close proximity to developed uses in Wikieup and along US 93. However, the corridor allows for placement of the pipeline to avoid conflicts with these developed uses. Mohave County has not adopted any policies regarding the placement of natural gas pipelines near developed uses (Delmar 2001); therefore, the proposed pipeline would not conflict with local regulations for the placement of pipeline facilities. Additionally, the SDA located in T20N, R13W is not anticipated to be affected because the pipeline would be in place prior to the residential development of the area. Restrictions would, however, limit future development over the actual pipeline alignment.

The proposed pipeline corridor would cross about 19 miles of private lands, 11 miles of BLM-managed lands, and 9 miles of lands managed by the ASLD. The pipeline would be

located predominantly within new rights-of-way. Rights-of-way would be acquired from landowners prior to pipeline installation. Rights-of-way on private lands would be acquired either through the process of eminent domain, if applicable, or by mutually agreeable business practices. ADOT, BLM and ASLD each would require that Caithness obtain a right-of-way for the natural gas pipeline. When within the ADOT right-of-way (i.e., potentially in Wikieup), pipeline installation would conform to the requirements of ADOT's *Guide for Accommodating Utilities on Highway Rights-of-Way*. The Mead-Phoenix Project 500-kV/Mead-Liberty 345-kV transmission lines are within a 1-mile-wide designated utility corridor (BLM 1993). Where Caithness proposes to cross the existing Mead-Phoenix and Mead-Liberty transmission line rights-of-way, the pipeline installation would conform with a license agreement issued by Western. Routing the pipeline along the transmission lines would result in the pipeline being primarily within the utility corridor (refer to Figure 3.7-2), which would be consistent with BLM planning criteria to evaluate existing right-of-way routes, and site utilities in locations that cause the least impacts on important resources (BLM 1993). Based on the 90-foot construction area, pipeline installation in the proposed corridor would disturb about 200 acres of private lands, 118 acres of BLM-managed lands, and 103 acres of lands managed by the ASLD.

Access roads to residences and businesses within the pipeline corridor would be crossed by trenching. Trenching activities in front of any specific business or residence would typically be completed within three to five workdays, and alternate vehicular routes would be provided. Roads would be restored to original conditions following pipeline installation. The U.S. Department of Transportation Federal Highway Administration *Manual on Uniform Traffic Control Devices* would be followed for all work within or adjacent to the US 93 or I-40 corridors. Although some delays may occur due to detours and/or the movement of construction equipment, access to businesses and residences would be

maintained and no significant access impacts would be anticipated from pipeline construction under the Proposed Action. However, if this could not be done, the resident or business would be compensated either through the process of eminent domain or by mutually agreeable business negotiations.

Alternative Gas Pipeline Corridors

Impacts associated with each alternative pipeline corridor are described below by segment. Only corridor segments not previously discussed under the Proposed Action are included below.

Alternative R Gas Pipeline Corridor

The Alternative R gas pipeline corridor would cross about 30 miles of private lands, 5 miles of BLM-managed lands, and 3 miles of lands managed by the ASLD. If the pipeline were located such that a residence or business would be permanently displaced, construction of the pipeline would have the potential to create the same minor, insignificant impacts for businesses and residences as the Proposed Action.

Based on the 90-foot construction area, pipeline installation in the Alternative R gas pipeline corridor would disturb about 312 acres of private lands, 58 acres of BLM-managed lands, and 37 acres of lands managed by the ASLD. Corridor segment R4 crosses through Carrow-Stephens Ranches ACEC and includes about 9 residences. Due to the width of the corridor, the pipeline could be located so that no adverse impacts on the ACEC or displacement of residences would be anticipated. Corridor segments R3 and R2 parallel US 93 through relatively undisturbed rangeland. Developed uses include only 4 residences (all within R3), which would not likely be relocated because the pipeline corridor is wide enough to avoid displacement of the residences. The transition between these two corridor segments includes the US 93 and Hackberry Road intersection.

Residents and businesses would be compensated either through the process of eminent domain or

by mutually agreeable business negotiations, (refer to Section 2.2.5), thus impacts would not be significant.

Alternative T Gas Pipeline Corridor

The Alternative T gas pipeline corridor would cross about 16 miles of private lands, 13 miles of BLM-managed lands, and 8 miles of lands managed by the ASLD. Regardless of the corridor, the pipeline would be located predominantly within new rights-of-way acquired in the same manner as the Proposed Action. Construction of the pipeline would have the potential to create the same minor, insignificant impacts for businesses and residences as the Proposed Action.

The Alternative T gas pipeline corridor would disturb about 173 acres of private lands, 149 acres of BLM-managed lands, and 91 acres of lands managed by the ASLD.

Corridor segment T5 begins at the proposed plant site and travels northwest parallel to the Mead-Liberty 345-kV and Mead-Phoenix Project 500-kV transmission lines. Although a primitive access road exists along the transmission lines, topography through this area is much more rugged than along US 93, potentially resulting in difficulties with access and pipeline installation. The corridor crosses the Big Sandy River perpendicularly to create as short of a crossing as possible. The corridor also would cross the Phelps Dodge water pipeline, and the pipeline installation would need to be coordinated to avoid impacts on this existing pipeline. The corridor includes six residences and several non-residential structures along the east side of the Big Sandy River, and three residences in Section 3 (T16N, R13W) east of US 93. The width of the corridor could allow for installation of the pipeline without displacement of the residential uses or other structures. Corridor segments T2 and T1 parallel the transmission lines north through mostly undisturbed rangeland. Developed uses within the corridor are limited to the transmission line and associated access road, Old US 93, and I-40

(corridor segment T1). Installation of the pipeline would require crossing Old US 93, via trenching, and boring under I-40. No residences are located within the corridor; therefore no adverse impacts to residential uses would be anticipated. A large natural gas compressor station is present north of I-40 in Section 24, T21N, R13W. The width of corridor segment T1 could provide adequate space for installation of the pipeline without disturbing the existing compressor station.

Installation of the either alternative pipeline would be expected to occur over six months and temporarily disturb a 90-foot-wide area within the proposed pipeline corridor. To the extent possible, terrain within the proposed corridor and in any additional work areas would be returned to natural contours following pipeline installation. Any removal of vegetation on BLM-managed land would be subject to the Reclamation Operation Management Plan for BLM-Managed Lands (Appendix B) and would be consistent with Arizona Department of Agriculture native plant salvage regulations (refer to Section 3.11). A 10-foot wide two-track would be maintained along the pipeline route for inspection and maintenance purposes.

Though the pipeline would come within close proximity to developed uses in Wikieup and along US 93 (Alternative R gas pipeline corridor), and near the Big Sandy River (Alternative T gas pipeline corridor), any potential conflicts with these uses could be avoided by adjusting the pipeline alignment within the proposed corridor. Further, Mohave County has not adopted any policies regarding the placement of natural gas pipelines near developed uses (Delmar 2001). Therefore, if these adjustments are made, the proposed pipeline would not displace businesses or residences, nor would it conflict with local regulations for the placement of pipeline facilities. Additionally, the SDA located in T20N, R13W would not be significantly affected because the pipeline would be in place prior to the residential development of the area.

Restrictions would, however, limit future development over the actual pipeline alignment.

Residents and businesses would be compensated either through the process of eminent domain or by mutually agreeable business negotiations, (refer to Section 2.2.5), thus impacts would not be significant.

Crossover Segment C2

Crossover corridor segment C2 would be limited to the Old US 93 right-of-way. Pipeline installation through this area would require disturbing a maximum of about 25 acres of undeveloped rangeland. Disturbance would likely be less, however, because the existing road has disturbed part of the right-of-way. No residences are located within the road right-of-way; no residences would be displaced.

No-Action Alternative

The Project would not be developed under the No-Action Alternative. Under this alternative, no land disturbance would occur at the proposed power plant site, no agricultural development would take place in Section 7, and the access road and pipeline would not be constructed as part of the Project. The groundwater production and monitoring wells and associated access roads and well pads completed on private land that were used to identify and test the lower aquifer would remain.

3.7.2.6 Mitigation and Residual Impacts

If adopted, the following measures would be implemented to minimize adverse impacts not considered to be significant:

- To the extent possible, pulling stations for the OPGW would be excluded within 0.25 mile of residential development, to avoid temporary negative impacts to residences.

With the implementation of this measures, there would be no residual impacts.

3.8 GRAZING MANAGEMENT

This section describes the affected environment as they apply to grazing management.

3.8.1 Affected Environment

The following sections describe the current grazing management; this represents the baseline for the assessment of impacts and environmental consequences.

3.8.1.1 Region of Influence

The region of influence for grazing management assessed in this section includes grazing allotments in the Big Sandy Valley potentially impacted by the proposed power plant and associated facilities and allotments affected by the natural gas pipeline or proposed OPGW installation.

Power Plant Site and Ancillary Facilities

Construction of the power plant, well field, and agricultural land is proposed on private land within the Gray Wash Allotment. The Groom Peak Allotment is located west of the Gray Wash Allotment and the Greenwood Peak Community Allotment is located south of the Gray Wash Allotment (Figure 3.8-1). Caithness has acquired some or all of the grazing privileges for these allotments through purchase of water rights that function as base property.

Grazing allotments in the region of influence that are present along the gas pipeline corridors and the installation of the OPGW are the Big Sandy, Cane Springs Wash, Diamond Joe, Francis Creek, Gray Wash, Groom Peak, Hibernia Peak B, Hot Springs, Little Cane, Sandy, and Wikieup allotments (refer to Figure 3.8-1).

3.8.1.2 Existing Conditions

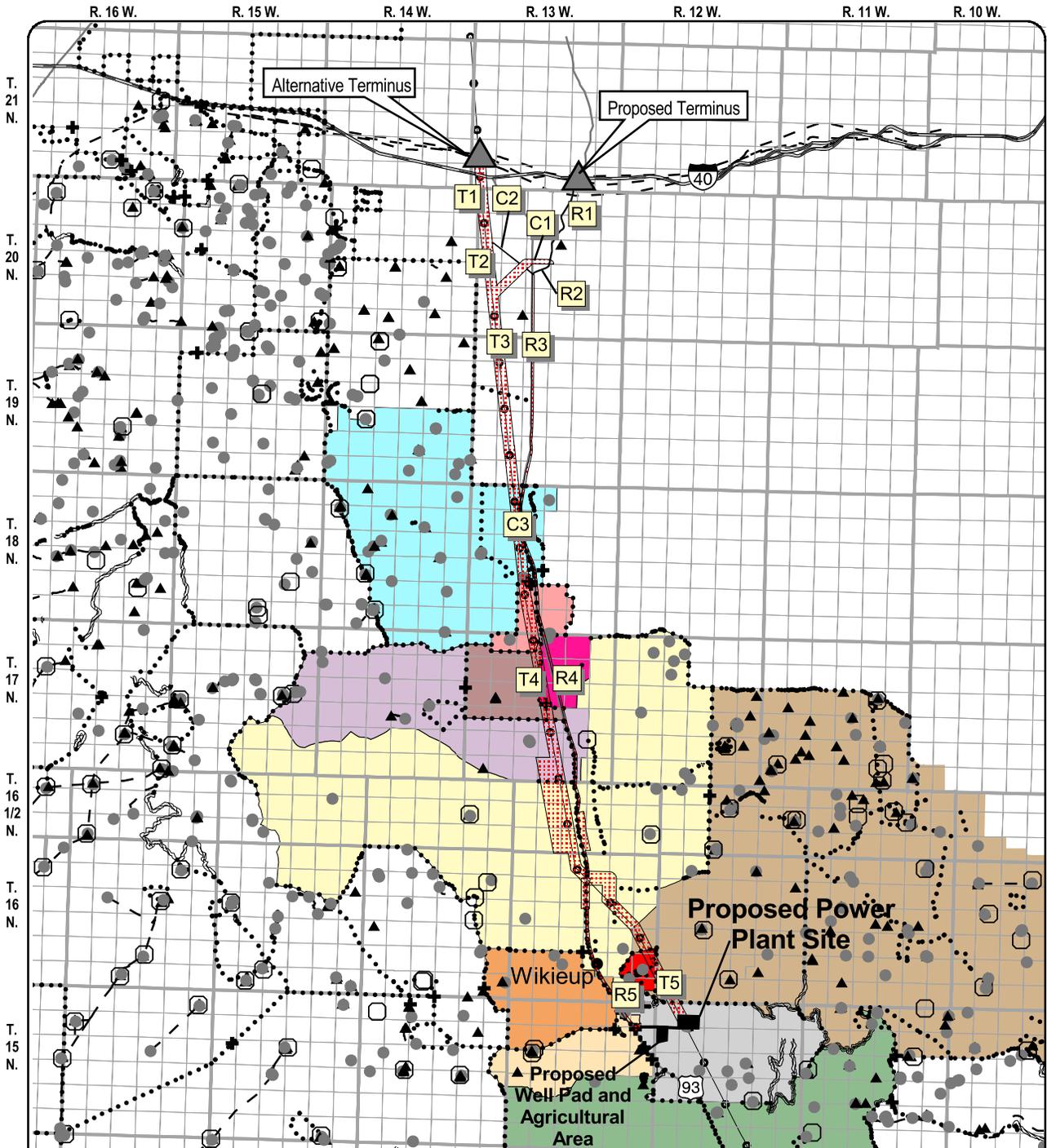
The BLM classifies grazing allotments into different management categories depending on factors such as range condition, opportunity for

positive economic return, and whether present management appears to be satisfactory.

All grazing allotments considered in this section currently are categorized as either Improve Management or Custodial Selective Management. The Improve Management category involves managing vegetation resources to improve currently unsatisfactory conditions. Custodial Management is a limited form of management where the potential for resource production is low and there is minimal potential for a positive return on public investment in range improvement facilities. Under Custodial Management, current resource conditions are maintained and investment in range improvements is limited.

Grazing preference is given to parties that own or control a “base property.” In the BLM Kingman Field Office management area, the base property criterion is based either on ownership of land or livestock water rights. The base property for all allotments discussed here is water. Caithness owns the base water for the entire Groom Peak and Gray Wash allotments and the majority of the base water for the Greenwood Peak Community Allotment and therefore has grazing privileges on public lands within these allotments (Table 3.8-1). Caithness intends to transfer its grazing privileges to MCEDA via a base water lease. MCEDA is expected to use all Animal Unit Months (AUMs) permitted to Caithness. AUMs are units that measure the forage used by livestock, where one AUM is the forage required to feed one cow and calf for one month.

The Greenwood Peak Community Allotment extends from the Aquarius Mountains to the east, across the Big Sandy River and US 93, to the Hualapai Mountains to the west (refer to Figure 3.8-1). Land ownership includes public, Caithness/MCEDA, and other private land. Public land managed by the BLM constitutes 82 percent of the total land within this allotment. Pastures are not used in this allotment, and no fence separates this allotment from the Groom Peak Allotment to the north. Although the right-



Legend

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| <p>Resource Components</p> <ul style="list-style-type: none"> ⊕ Cattleguard ○ Corral ● Livestock Water Source ▲ Water Development ⚡ Cliff Boundary ⋯ Fences — Pipeline <p>BLM Allotments</p> <ul style="list-style-type: none"> Big Sandy Cane Springs Wash Diamond Joe Francis Creek Gray Wash Greenwood Peak Community | <p>Project Components</p> <ul style="list-style-type: none"> ▨ Pipeline Corridor Segments Proposed Pipeline Corridor - R1, C1, T3, C3, T4, R5 Alternative R Corridor - R1, R2, R3, C3, R4, R5 Alternative T Corridor - T1, T2, T3, C3, T4, T5 ▢ Proposed Plant Facilities | <p>General Reference</p> <ul style="list-style-type: none"> — Existing Pipelines — Mead-Liberty/Mead-Phoenix Transmission Lines — Stream/River ⚡ Interstate ⚡ U.S. Route |
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**BLM Grazing Allotment and Rangeland Improvements
Big Sandy Energy Project EIS**

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Scale in Miles
Universal Transverse Mercator Projection
1927 North American Datum
Zone 12

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Figure 3.8-1

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**TABLE 3.8-1
GRAZING MANAGEMENT DATA**

Allotment ¹		Selective Management Category ²	AUMs		Public Acres	Total Acres	Acres/AUM
No.	Name		Grazing Use	Suspended Use			
0038	Gray Wash	I	373	0	10,599	17,471	46.8
0040	Greenwood Peak Community	I	2,080	0	39,817	48,173	23.2
0041	Groom Peak	I	265	0	6,049	7,090	26.8

Source: BLM 2000
¹ BLM grazing allotments where Caithness has grazing privileges and that could be impacted during construction or operation of the proposed Project.
² I = Improve Management, C = Custodial Management
AUM = Animal Unit Month

of-way for US 93 is fenced, livestock can readily move under the highway through culverts and under bridges.

Other than the Big Sandy River, perennial water sources for livestock are primarily located in the portion of the allotment east of US 93. Livestock present in the western portion of the allotment obtain water primarily at the Big Sandy River. Water also is available perennially at springs located in the Hualapai Mountains, but it is most abundant during wet or cool weather.

The Groom Peak Allotment extends from the Big Sandy River west into the Hualapai Mountains (refer to Figure 3.8-1). Land ownership in the Groom Peak Allotment includes public, Caithness, and other private land. Public land managed by BLM constitutes 85 percent of the allotment. Livestock water sources include the Big Sandy River and springs in the western portion of this allotment. Two defunct windmills are located in the western portion of the allotment.

The Gray Wash Allotment extends from the Aquarius Mountains in the east to the eastern edge of the Groom Peak Allotment. Land ownership includes public, Caithness, and other private land. Public land managed by BLM

constitutes 61 percent of this allotment. Livestock water sources for this allotment include two springs, two water troughs fed by the Phelps Dodge water line, and a windmill. Another defunct windmill is located on this allotment.

The Greenwood Peak Community, Groom Peak, and Gray Wash allotments are in the Improve Management category due in part to unsatisfactory riparian and upland ecological conditions. No grazing system (other than year-long use) traditionally has been used on these allotments.

The proposed and alternative gas pipeline corridors traverse the Big Sandy, Cane Springs Wash, Diamond Joe, Gray Wash, Groom Peak, Hibernia Peak B, Hot Springs, Little Cane, Sandy and Wikieup allotments. The acreage of public land controlled by the BLM ranges from 335 to 77,948 acres (Table 3.8-2). Five of the eight allotments are in the Custodial Management category and the other three are in the Improve Management category.

Allotment ¹		Selective Management Category ²	AUMs ³		No. Public Acres	Pipeline Alternative ⁴
No.	Name		Grazing Use	Suspended Use		
0008	Big Sandy	I	6,084	1,901	64,913	P, T, R
0016	Cane Springs Wash	C	120	69	2,310	P, T, R
0028	Diamond Joe	I	1,404	917	16,223	P, T, R
0035	Francis Creek	I	9,750	0	77,948	T
0038	Gray Wash	I	373	0	10,599	P, T, R
0041	Groom Peak	I	265	0	6,049	P
0083	Hibernia Peak B	C	120	0	335	P, T, R
0046	Hot Springs	C	52	0	1,057	T
0087	Little Cane	C	372	0	5,542	P, T, R
0064	Sandy	C	60	138	1,524	P, T, R
0076	Wikieup	I	684	0	8,446	P, R

¹ BLM grazing allotments that could be impacted during construction of the natural gas pipeline
² I = Improve Management, C = Custodial Management
³ AUM = Animal Unit Months
⁴ P = Proposed Corridor, T = Transmission Line Corridor, R = Road Corridor
Source: BLM 2000

3.8.2 Environmental Consequences

3.8.2.1 Identification of Issues

Two main issues were identified during meetings with resource managers, consultants, Caithness, and MCEDA. Potential impacts from groundwater withdrawn for the operation of the Proposed Action must be analyzed to determine impacts on surface water availability to livestock. Impacts from construction of the natural gas pipeline should be analyzed to determine any impacts on range improvement facilities (e.g., fencing, water pipelines, stock tanks, and water troughs). Additionally, livestock production for the allotment where the power plant is proposed should be analyzed to determine impacts on the carrying capacity of this allotment. Impacts on grazing management also should be analyzed to determine if rangeland conditions could be impacted by this Project.

3.8.2.2 Significance Criteria

The effects of the Proposed Action and alternatives would be considered significant if the following were to occur:

- reduction in existing water availability for livestock use occurs that cannot be mitigated or compensated for
- impact on existing range improvement facilities occurs that cannot be mitigated or compensated for
- reduction in livestock production on land or grazing rights not owned by Caithness occurs that cannot be mitigated or compensated for
- decrease in the quality of rangeland conditions occurs that cannot be mitigated or compensated for

3.8.2.3 Impact Assessment Methods

Assessing the impacts on grazing management involved determining the level of impact on

water resources, range improvement facilities, livestock production, or range condition during construction and operation of the Proposed Action. The level of impact was then compared to planned mitigation measures identified by Caithness. If the application of mitigation measures identified did not reduce impacts to levels below those described in the significance criteria, then impacts were assessed as significant.

3.8.2.4 Actions Included in the Proposed Action to Reduce or Prevent Impacts

The Proposed Action includes the following measures to reduce and prevent environmental impacts on grazing; details of the measures can be found in Sections 2.2.8.6 and 2.2.8.7:

- Pre-construction surveys would identify range improvements and an action plan to reduce temporary impacts would be developed.
- The integrity of all fences, water pipelines, and other existing range improvements would be maintained during construction of the proposed power plant, gas pipeline, and associated facilities; any improvements that are removed or disturbed would be replaced or repaired.
- Temporary gates would be used where openings are required in fences; cattle guards or gates would be installed where permanent access is required.
- Any reduction in water supply for grazing from Cofer Hot Spring would be replaced by an existing shallow well water supply.

3.8.2.5 Impact Assessment

Proposed Action

Power Plant Site and Ancillary Facilities

Pumping water to supply the proposed power plant is not expected to impact water flow in the

Big Sandy River (refer to Section 3.5). Cofer Hot Spring, located approximately 2.5 miles northwest of the proposed power plant site, is expected to have reduced water flow resulting from the pumping of water for the proposed power plant (refer to Section 3.4). This spring has provided water to livestock that graze public lands in the Hot Springs Allotment. The Proposed Action includes the use of existing shallow wells near Cofer Hot Spring to replace water for grazing (refer to Section 2.2.8.6). Based on these actions, there would be no significant impact from reduction of water availability for livestock.

Caithness would install a cattle guard along the main access road to the proposed power plant site at the fence that separates the Gray Wash Allotment from the Groom Peak Allotment. This cattle guard would maintain separation of cattle grazing the Gray Wash Allotment from cattle grazing the Groom Peak or Greenwood Peak Community allotments; therefore, there would not be impacts on these allotments.

Land available for grazing within the Gray Wash Allotment would be reduced by construction of the Proposed Action. The total acreage that is expected to be permanently removed from grazing is 181 acres. On the Gray Wash Allotment 46.8 acres of land provides one AUM (Table 3.8-1). Removal of 181 acres from grazing equates to the loss of about 3.9 AUMs or approximately one cow and calf for four months. This small reduction (about 1 percent) in forage availability from construction of the proposed power plant and associated facilities would take place almost entirely on private lands owned by Caithness within the Gray Wash Allotment, and would not be significant.

Communication Facilities

Impacts associated with installation of the OPGW would be short term and limited to the already disturbed areas in the Mead-Phoenix Project 500-kV transmission line right-of-way. Impacts on grazing would be short term, and all range improvements would be maintained.

Therefore, impacts associated with the OPGW would be minimal and not significant. The microwave dish installation on existing structures would have no impact on grazing.

Proposed Gas Pipeline Corridor

The proposed gas pipeline corridor crosses portions of the Big Sandy, Cane Springs Wash, Gray Wash, Diamond Joe, Groom Peak, Hibernia Peak B, Little Cane, Sandy and Wikieup allotments. The function of any range improvements encountered anywhere within the proposed gas pipeline corridor would be maintained. A list of existing range improvements located along the proposed and alternative gas pipeline corridors is provided in Table 3.8-3.

Impacts on grazing management are expected to be similar for all segments within the proposed gas pipeline corridor; therefore, individual links are not addressed separately.

Livestock production on allotments crossed by the proposed gas pipeline corridor is not expected to be impacted during construction of the pipeline. The proposed gas pipeline corridor is primarily east of the existing ADOT right-of-way for US 93, or along transmission lines. Pipeline construction could impact a total of 399 acres within this corridor; however, 351 acres would be reclaimed and forage production is expected to be restored on these lands. The permanent disturbance of 48 acres would not result in a reduction of livestock production and would not be significant.

Construction and operation of the Proposed Action are not expected to have significant impacts on the range condition of BLM grazing allotments. Temporary land disturbance at the

proposed power plant site (10 acres) and within the proposed gas pipeline corridor (351 acres) would cover a relatively small area and would neither degrade nor improve range conditions significantly.

Alternative R Gas Pipeline Corridor

The Alternative R gas pipeline corridor crosses portions of the Big Sandy, Cane Springs Wash, Diamond Joe, Gray Wash, Hibernia Peak B, Little Cane, Sandy and Wikieup allotments (refer to Table 3.8-2). Impacts on range improvements for this alternative are not expected to be greatly different than for the proposed gas pipeline corridor. A list of existing range improvements located along alternative corridors for the gas pipeline is provided in Table 3.8-3. Impacts on grazing management are expected to be similar for all segments within the Alternative R gas pipeline corridor; therefore, individual corridor segments are not addressed separately.

Construction activities would have minimal effects on livestock production. The relatively small areas of range that would be impacted during construction would be reclaimed. Long-term effects on livestock production under this alternative are not expected to be different than for the Proposed Action since forage production is expected to be restored along this corridor and would not be significant.

Construction within the Alternative R gas pipeline corridor is not expected to have significant impacts on the range condition of BLM grazing allotments. Total land disturbance would be about 386 acres, but 339 acres would be reclaimed. Temporary impacts would neither degrade nor improve range conditions significantly.

TABLE 3.8-3 GRAZING IMPROVEMENTS POTENTIALLY IMPACTED BY CONSTRUCTION OF THE PROPOSED POWER PLANT AND ASSOCIATED FACILITIES INCLUDING ALTERNATIVE GAS PIPELINE CORRIDORS		
Allotment	Range Improvement	Location
Gray Wash	Fence	North and west boundaries of allotment
Francis Creek	Fence	South boundary of allotment (T15N, R12W, Sec 30; T15N, R13W, Sec 35 and 36)
	Cofer-Green-Nogales Fence (No. 0189)	West boundary of allotment along alternative pipeline route (T15N, R13W, Sec 13, 23 and 24)
Sandy	Arizona-Copperville Cattle Guard #1 (No. 0384)	Mine Road access near southern border of allotment (T17N, R13W, Sec 15)
	Fence	South and west boundaries of allotment
Cane Springs Wash	Trout Creek Corrals (No. 0361)	Near southern boundary of allotment (T18N, R13W, Sec 34)
	Lakin and Peter – Gist Fence (No. 0649)	Central portion of allotment along proposed and alternative pipelines (T18N, R13W, Sec 28, 29, 32 and 33)
	Fence	South and north boundaries of allotment
Hot Springs	Fence	East and north boundaries of allotment along alternative pipeline
Diamond Joe	Fence	South and north boundaries of allotment along proposed and alternative pipeline routes
Big Sandy	Duncan and Boevers – Stephens Fence #2 (No. 0585)	Southern portion of allotment along the alternate pipeline (T16N, R13W, Sec 14)
	Cornwall South Line Fence (No. 0256)	Southern portion of allotment along the alternate pipeline route (T16N, R13W, Sec 11 and 12)
	Duncan and Boevers East Boundary Fence (No. 0150)	Near southern boundary of allotment along proposed pipeline (T16N, R13W, Sec 21 and 22)
	Byner Cattle Fence	Near southern boundary of allotment along proposed pipeline (T16N, R13W, Sec 22 and 23)
Little Cane	Cornwall – Crabtree Fence	East boundary of allotment along alternative pipeline route (T17N, R13W, Sec 3, 4, 9, 10, 15 and 16)
Cane Springs Ranch	Fence	South and north boundary of allotment

Alternative T Gas Pipeline Corridor

The Alternative T gas pipeline corridor crosses portions of the Big Sandy, Cane Springs Wash, Diamond Joe, Francis Creek, Gray Wash, Hibernia Peak B, Hot Springs, Little Cane, and Sandy allotments (refer to Table 3.8-2). Impacts on range improvements along this alternative corridor are not expected to be greatly different than for the Proposed Action. A list of existing range improvements located within alternative gas pipeline corridors is provided in Table 3.8-3. Impacts on grazing management are expected to be similar for all segments within the corridor;

therefore, individual corridor segments are not addressed separately.

Livestock production on allotments crossed by the Alternative T gas pipeline corridor is not expected to be impacted during construction of the pipeline. The relatively small acreages of range that would be impacted during construction would be reclaimed. Livestock production under this alternative is not expected to be different than for the Proposed Action because forage production is expected to be restored within this corridor.

Construction of the pipeline within the Alternative T gas pipeline corridor is not expected to have significant impacts on the range condition of BLM grazing allotments. Total land disturbance within this corridor would be about 411 acres, but 366 acres would be reclaimed. Temporary impacts would neither degrade nor improve range conditions significantly.

No-Action Alternative

Under the No-Action Alternative, no impacts on grazing resources are expected. The Project would not be constructed and associated facilities including the natural gas pipeline would not be constructed. The groundwater production and monitoring wells and associated access roads completed on private land that were used to identify and test the lower aquifer would remain.

3.8.2.6 Mitigation and Residual Impacts

No significant impacts would result from the implementation of the Proposed Action with the actions incorporated to reduce or prevent impacts. As a result, no additional measures to mitigate significant impacts have been identified for grazing management and there would be no residual significant impacts.

3.9 RECREATION, WILDERNESS, AND VISUAL RESOURCES

This section identifies and describes the affected environment and environmental consequences as they apply to recreation, wilderness, and visual resources.

3.9.1 Recreation and Wilderness

The following sections describe the current recreation and wilderness environment; this represents the baseline for assessment of impacts and environmental consequences.

3.9.1.1 Affected Environment

Region of Influence

The region of influence for the inventory and assessment of potential significant impacts to recreation resources is the area within a 20-mile radius of Wikieup. For wilderness areas the region of influence is the area within 25 miles of the proposed power plant site. This would account for a substantial amount of recreation and wilderness resources, which are situated in all directions around the Wikieup area. Two special cases were included in the analysis to address potential recreation (visibility) impacts even though they were considered outside the region of influence. The special cases were the Grand Canyon National Park (approximately 80 miles north of the proposed power plant site) and Sycamore Canyon Wilderness (approximately 95 miles northeast of the proposed power plant site).

The evaluation of impacts on BLM-designated “suitable” wild and scenic rivers is not included in this Draft EIS since it was determined that the proposed Project would not affect resources within those sections of the Big Sandy River, Burro Creek, and Santa Maria River designated by BLM as “suitable” wild and scenic rivers. Therefore, the Project would not change the status as “suitable” for designation as a wild and scenic river. Refer to Section 3.5 for the analysis of potential effects on surface water including these rivers.

Existing Conditions

The region of influence offers diverse landscapes, views, historic resources, wildlife, and wilderness areas (three within the region of influence and nine total under the jurisdiction of the BLM Kingman Field Office). These elements combine to offer a wide range of recreation opportunities including camping, hiking, horseback riding, rockhounding, off-highway vehicle use, photography, and hunting. Visitors to the area can choose to take part in active or passive recreation opportunities,

including undeveloped (primitive) activities or developed recreation facilities such as campgrounds and trails. The majority of recreation opportunities in the region occur outside the region of influence, such as along the Colorado River, Grand Canyon, and several wilderness areas. The Burro Creek Recreation Area is the closest and most widely used (moderate to high use depending upon season) recreation facility in the area. This facility is located approximately 12 miles to the south of Wikieup and consists of campgrounds, trailheads, picnic tables, and an interpretive garden, and serves as an access to Burro Creek.

Recreation opportunities immediately surrounding the Wikieup area primarily consist of hiking, hunting, wildlife viewing, horseback riding, and off-highway vehicle use. There are no special designated trails, nor use areas for these activities, and use volumes are relatively low. These activities primarily are oriented around existing access roads (such as along the Mead-Phoenix Project 500-kV transmission line route (corridor segment T5), washes, foothills, and the Big Sandy River (corridor segments T5, R5, and R4). Additionally, the Coyote Canyon Country Club (a golf course facility) is located along the east side of Wikieup (corridor segment R5). This facility provides free access to the golf course for residents of Wikieup and is a relatively low-use activity.

There are no defined recreation uses at the proposed power plant site since it is located on private land zoned for industrial use. The proposed and alternative gas pipeline corridor cross the Carrow-Stephens Ranches ACEC within the US 93 right-of-way (corridor segment R4) and a BLM-designated utility corridor (corridor segment T4). This ACEC contains historic resources from late nineteenth century farming and ranching activities. This ACEC has the potential for future recreational and educational development as stated in the *Kingman Resource Area Proposed Resource Management Plan and Final Environmental Impact Statement* (BLM 1993). If the ACEC is developed in the future, visitor use volumes

likely would be moderate. The remaining areas crossed by the gas pipeline alternatives have no defined recreation uses and consist primarily of dispersed low-use activities such as off-highway vehicle use, hiking, horseback riding, and hunting.

There are three wilderness areas within the region of influence. The Upper Burro Creek Wilderness is located approximately 10 miles to the east of the proposed power plant site, Arrasta Mountain Wilderness is located approximately 13 miles south of the proposed power plant site, and Aubrey Peak Wilderness is located approximately 20 miles to the southwest of the proposed power plant site. These wilderness areas are characterized by rugged, mountainous terrain with a diversity of plants, wildlife, and riparian habitat. This diversity creates outstanding scenic and recreational opportunities throughout the wilderness areas (BLM 1993). The wilderness areas are remote and access difficult, resulting in relatively low visitor use volumes. However, these users are afforded the opportunity to take advantage of solitude and natural conditions by participating in undeveloped recreation activities including hiking, backpacking, camping, horseback riding, and scenery and wildlife viewing.

The Grand Canyon National Park and Sycamore Canyon Wilderness are Class I areas of special national and/or regional value with respect to air quality (visibility). The Upper Burro Creek Wilderness, Arrasta Mountain Wilderness, and Aubrey Peak Wilderness are Class II areas (refer to Section 3.1 for additional details). Currently, these areas have good to excellent visibility overall, contributing to outstanding recreation opportunities (viewing landscape scenery). There are exceptions to this in the case of the Grand Canyon National Park, where there are days where visibility is reduced due to regional haze. Maintaining these high levels of visibility is a primary objective for management of the wilderness areas.

3.9.1.2 Environmental Consequences

Identification of Issues

The issues identified for use in evaluating potential impacts on recreation and wilderness areas included the following:

- potential increase in the demand for undeveloped and developed recreation activities due to the increase in population
- changes to the air quality or visibility in adjacent wilderness areas and national parks including the Burro Creek Wilderness, Arrasta Mountain Wilderness, Aubrey Peak Wilderness, Grand Canyon National Park, and Sycamore Canyon Wilderness

Significance Criteria

The effects of the Proposed Action and alternatives would be considered significant if the following were to occur:

- increased demand for recreation activities (i.e., due to the influx of people during construction and operation of the proposed power plant) would exceed capacity for that activity in a given area such as a campground, wilderness, and/or trail
- predicted air pollutant emissions would cause a change in visibility greater than 5 percent for any 24-hour period in a Class I area or Class II wilderness area within the region of influence

Impact Assessment Methods

The methods used for determining potential impacts on recreation resources consisted of evaluating current demand for recreation as well as estimating future demand as a result of increased population from construction, operation, and maintenance of the proposed Project. If the future demand for recreation resources in the region of influence would not exceed existing capacities, then impacts on those

resources would be low and less than significant. However, if future demand for recreation resources resulting from the Project would exceed capacity, impacts would be high and potentially significant, warranting mitigation measures. Additionally, evaluation of potential degradation of visibility for Class I areas and Class II wilderness areas (with respect to air quality) was derived from Section 3.1.

Actions Incorporated into the Proposed Action to Reduce or Prevent Impacts

The Proposed Action includes the following measures to reduce or prevent impacts on recreation:

- The private road portion of the proposed access road (within Section 5) would be posted to reduce unauthorized access.

Impact Assessment

Proposed Action

The work force required to construct the Project would average 350 employees with a peak of 650 employees during Phase 1 and 240 employees with a peak of 430 employees during Phase II. Operation and maintenance of the proposed Project would require approximately 25 people (refer to Section 3.16).

The demand for recreation resources within the region of influence as a result of these workers would not exceed current capacity. This would hold true for both developed and undeveloped recreation areas including adjacent wilderness areas. Therefore, impacts on recreation resources and wilderness areas are expected to be low and less than significant over the life of the Project.

The improved roads (paved) leading to the proposed power plant site would make adjacent landscapes more accessible. However, off-highway vehicle use is not expected to increase dramatically, since the amount of potential users during and after construction would be low. Therefore, impacts would remain low. Also, the

private road portion of the access road near the proposed power plant site would be posted to reduce unauthorized access to the Mead-Phoenix Project 500-kV transmission line access roads. Impacts would not be significant.

There would be no discernable change to visibility within Class I areas or Class II wilderness areas as a result of the Project's emissions. Details on the visibility analysis are included in Section 3.1.

The proposed pipeline corridor would generally follow major rights-of-way including US 93 (corridor segment R5), the Mead-Phoenix Project transmission line (corridor segments T4, C3, and T3) and Hackberry Road (corridor segment C1 and R1). This would not change existing access or encourage off-highway vehicle use beyond what currently exists. Therefore, the proposed pipeline corridor would result in no impacts on recreation resources.

Communication Facilities

Installation of the OPGW would not have any substantial impact on recreation and wilderness resources. The addition of microwave dishes on existing towers would have an insignificant impact on recreation and wilderness resources.

Alternative R and T Gas Pipeline Corridors

The alternative pipeline corridors would have the same impacts on recreation and wilderness areas as the Proposed Action.

No-Action Alternative

There would be no impacts on recreation resources and wilderness areas associated with the No-Action Alternative.

Mitigation and Residual Impacts

No significant impacts would result from the implementation of the Proposed Action with the actions incorporated to reduce or prevent impacts. No additional measures to mitigate

adverse impacts have been identified for recreation and wilderness. There would be no residual significant impacts.

3.9.2 Visual Resources

The following sections describe the current visual resources; this assessment represents the baseline for the assessment of impacts and environmental consequences.

The visual resources inventory and assessment of potential impacts included the evaluation of landscape scenic quality, views from key observation points (KOPs), and BLM Visual Resource Management (VRM) Classes. The methods used for the visual resources study were based upon guidelines established by the BLM's 8400 series manual (Visual Resource Inventory and Contrast Rating System, 1986) and tailored to address specific issues related to the construction, operation, and maintenance of the proposed Project. Data were collected from several sources including previous environmental studies conducted for this Project, the *Kingman Resource Area Proposed Resource Management Plan and Final Environmental Impact Statement* (BLM 1993), aerial photography, numerous maps, various environmental documents for other projects occurring in the vicinity, and field review.

3.9.2.1 Affected Environment

The following sections describe the current visual conditions. The description of current conditions represents the baseline for the assessment of impacts.

Region of Influence

The visual region of influence represents the landscapes within which construction, operation, and maintenance of the proposed Project potentially could result in significant impacts on visual resources. The visual region of influence was determined to be the area within a 5-mile radius of the proposed power plant site (Figure 3.9-1) and a 2-mile-wide area (1 mile on either

side of the assumed centerline) for the proposed and alternative gas pipeline routes. The 5-mile radius was established to account for height and potential visibility of the plant HRSG stacks (130 feet high) and other vertical facilities at the plant site (e.g., tanks, transmission line structures), as well as vapor plumes emanating from the HRSG stacks and cooling towers. There are locations (e.g., higher elevations in the Hualapai and Aquarius mountains and the Carrow-Stephens Ranches ACEC) beyond these distances where the proposed power plant could be seen under ideal conditions (i.e., no intervening terrain or vegetation and clear visibility). However, at distances beyond 5 miles significant impacts are not expected (refer to Section 3.9.2.2).

The region of influence for the required communication facilities at Hayden Peak and the Phoenix and Perkins Substations would consist of the area within 2 miles of the facilities. Beyond 2 miles the proposed modifications would not be recognizable.

Existing Conditions

Scenic Quality

The region of influence falls within the Basin and Range Physiographic Province (Fennemen 1931). The Basin and Range landscape is characterized by isolated, roughly parallel, north-south trending mountain ranges separated by basins and/or drainages. The mountains can be steep-sloped with jagged ridgelines or smooth-sloped with rounded peaks. The higher elevation mountain slopes have a sparse to moderate cover of vegetation (e.g., juniper, piñon, globe mallow, barberry, banana yucca) due to the rocky outcrops and soils. The lower elevation mountain slopes have a sparse cover of Arizona Upland Sonoran Desertscrub vegetation (e.g., paloverde, mesquite, saguaro, ocotillo, cholla, yucca). The drainages are primarily ephemeral with a moderate to dense cover of xeroriparian vegetation (e.g., paloverde, mesquite, creosote, desert willow) along the edges of the channels. The vegetation in the

drainages adds color and distinctly contrasts with the surrounding desert landscape. There is limited landscape diversity in the basins consisting mainly of flat to gently rolling terrain with sparse Arizona Upland Sonoran Desertscrub or Semi-Desert Grassland (e.g., bush muhly, black grama, creosote, snakeweed, yucca) vegetation types.

Distinctive landscapes in the region of influence include the Hualapai Mountains on the west, Aquarius Mountains on the east, and Big Sandy Valley in between the mountains.

<i>Scenic Quality</i>
Scenic quality is determined by evaluating the overall character and diversity of landform vegetation, water, color, and cultural or manmade features in a given landscape. Typically, more complex or diverse landscapes have higher scenic quality. The landscapes in the region of influence were assigned one of the following three scenic quality classifications based on these elements:
Class A – landscapes of outstanding or distinctive diversity or interest
Class B – landscapes of common or average diversity or interest
Class C – landscapes of minimal diversity of interest.

There are five distinct scenic quality units located in the region of influence, including mountains, foothills, rivers/drainages, juniper plains, and desert scrub. The Hualapai Mountains (west of the proposed power plant site and along corridor segments R5, T4, C3, and T3) and Aquarius Mountains (east of the proposed power plant site along corridor segments T5, R4, C3, and R3) are Class A landscapes that dominate the setting due to their size and diversity of characteristics. These mountains are characterized by jagged ridgelines (3,500 to 7,000 feet) and dissected slopes leading into major drainages. There are little to no visible manmade modifications in the mountains with the exception of some minor