SUMMARY

INTRODUCTION TO THE PROJECT

Caithness Big Sandy, L.L.C. (Caithness) has proposed to construct, operate, and maintain the Big Sandy Energy Project, a baseload 720-megawatt (MW) power plant and ancillary facilities (Figure S-1). This Proposed Action includes the following components:

- power plant and associated facilities and operations, including the plant cooling system, waste management operations, lighting, and fire protection and other safety systems
- 500-kilovolt (kV) substation, with associated transmission line modifications and communications facilities
- water supply system consisting of deep groundwater wells and associated pipelines
- natural gas supply pipeline and interconnection facilities
- development of land for agricultural purposes
- actions to reduce or prevent environmental impacts

The United States electric utility industry currently is in transition from a highly regulated industry to one where market forces develop and shape decisions in the generation, transmission, and purchase of energy. Making wholesale and retail power markets more competitive is consistent with congressional policy reflected in the Energy Policy Act of 1992.

As an independent power producer, Caithness proposes to construct a merchant power plant, meaning the plant would not be owned by a utility or by a utility affiliate, nor would it be supported by a long-term power purchase agreement with a utility. Caithness would instead sell power to customers and the spot market, and all economic costs would be borne by Caithness. The Mohave County Economic Development Authority (MCEDA), working with Caithness, proposes limited agricultural development (about 107 acres) in conjunction with the development of the power plant.

To market the generated electrical energy, Caithness has applied to the Western Area Power Administration (Western) for an interconnection with the existing Mead-Phoenix Project 500-kilovolt (kV) transmission line, which provides access to the regional transmission grid. Caithness also has applied for authorization to build portions of the natural gas pipeline, water supply pipeline system, and electric and control lines across public lands administered by the Bureau of Land Management (BLM).

PURPOSE AND NEED

For Caithness, the purpose and need for the proposed Project includes the following:

- Generate and consistently deliver competitively priced electrical energy, to short- and mid-term electric energy markets in the western United States in response to market demands, using available capacity of the Mead-Phoenix Project 500--kV transmission line.
- Construct and operate a power plant on private land, in compliance with:
  (1) applicable laws and regulations;
  (2) industry standards for reliability; and
  (3) Caithness' corporate environmental objectives to generate power with minimal impact on the environment.
- Support MCEDA's objective for economic development in the Big Sandy Valley by providing land adjacent to the proposed facility, and water for agricultural purposes.

MCEDA's purpose and need for the proposed Project is as follows:

- Generate economic benefits, encourage economic development, and support the agricultural sector in the Big Sandy Valley of Mohave County.

For Western, the purpose and need for the Project is as follows:

- Respond to Caithness' request to interconnect the proposed power plant to the existing Mead-Phoenix Project 500-kV transmission line to meet the intent of Federal policy to provide open access for unused available transmission capacity to wholesale electrical generators, such as Caithness, while maintaining reliability of service to existing customers.

For BLM the purpose and need for the Project is as follows:

- Respond to Caithness' request for rights-of-way across public lands, ensure that natural gas pipelines constructed on public lands are safe and reliable, and ensure reclamation of public lands that would be disturbed.

THE NATIONAL ENVIRONMENTAL POLICY ACT PROCESS

The National Environmental Policy Act (NEPA) of 1969 requires that an environmental impact statement (EIS) be prepared for any Federal actions significantly affecting the human environment. Since the proposed power plant would interconnect with the transmission system managed by Western and the proposed water and gas pipelines would cross public lands managed by BLM, the proposed Project constitutes a Federal action for NEPA purposes. This EIS has been prepared in accordance with Federal regulations implementing NEPA, which are codified at Title 40, Code of Federal Regulations (CFR), Parts 1500-1508 and 10 CFR 1021.

The major steps in the EIS process are described below.

Notice of Intent (NOI) – The EIS process began with publication of a NOI in the *Federal Register* on April 18, 2000 (*Federal Register* Vol. 65, No. 75). The NOI announced Western's and BLM's intention to prepare an EIS and hold a public scoping meeting concerning the Project.

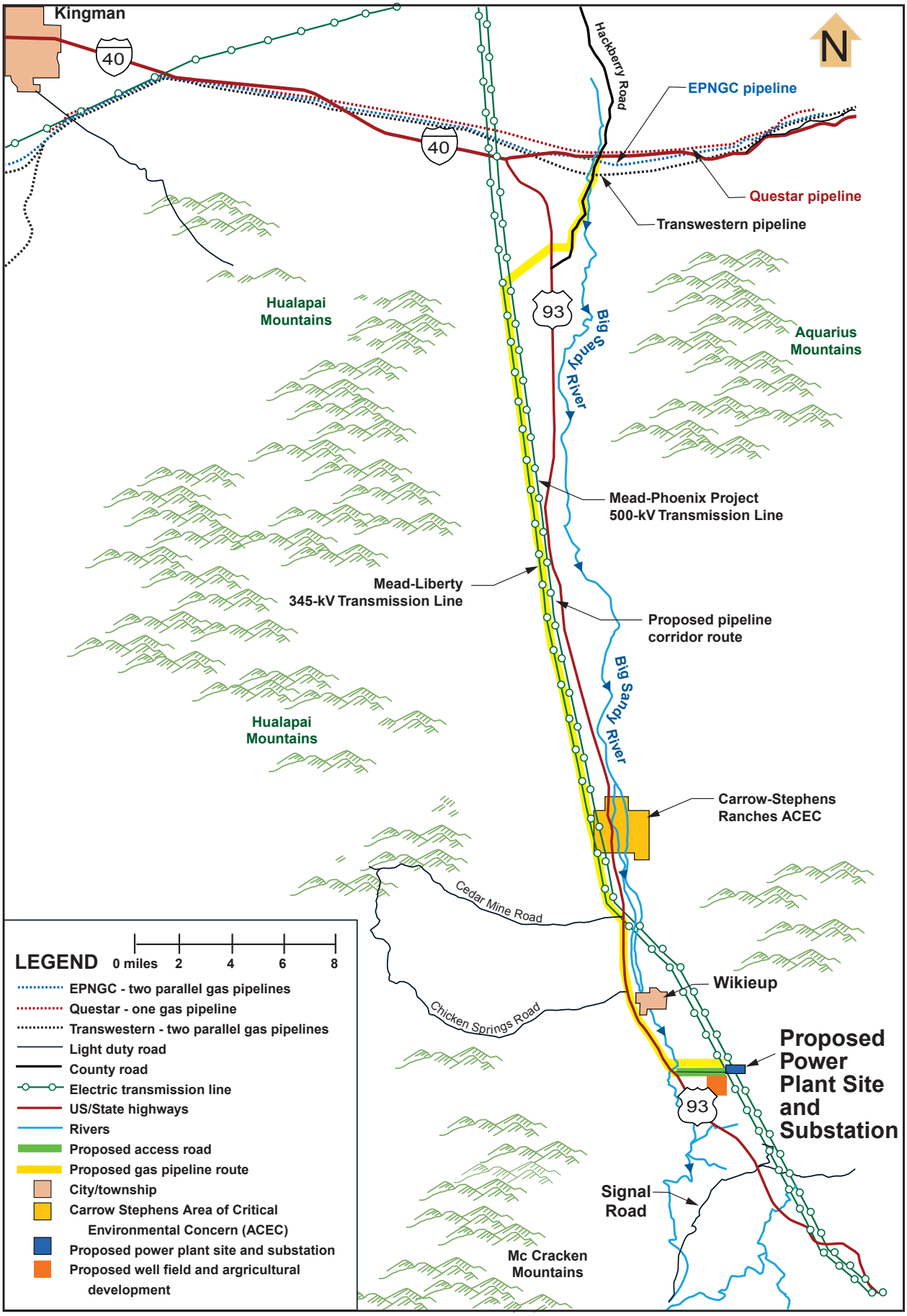
Scoping Period – The purpose of scoping was to identify public and agency issues, and alternatives to be considered in the EIS. The scoping process included notifying the general public, and Federal, state, local, and tribal agencies of the Proposed Action. BLM and Western held a public information and scoping meeting on May 3, 2000 in Wikieup, Arizona.

Draft EIS – This document is the Draft EIS. A Notice of Availability (NOA) was published in the *Federal Register.*

EIS PROCESS
Notice of Intent
Scoping Period
Draft EIS
Comment Period and Public Hearings
Final EIS
Record of Decision
Mitigation Action Plan

Comment Period and Public Hearings – The public and agencies may review and comment on the Draft EIS during a comment period. BLM and Western will hold a public workshop to provide interested parties an opportunity to ask questions about the Draft EIS analysis and hold a public hearing to receive comments.

Final EIS – The purpose of the Final EIS is for BLM and Western to assess, consider, and respond to public and agency comments received on the Draft EIS. BLM and Western will encourage public review of the Final EIS after it is published.



Power Plant Location with Major Project Components

Big Sandy Energy Project EIS

Figure S-1

Records of Decision (RODs) – BLM and Western each will publish independent RODs after a NOA of the FEIS is published in the *Federal Register*. BLM and Western will explain the factors taken into consideration in making their decisions and the RODs will identify the environmentally preferred alternative. BLM and Western will encourage public review of the RODs.

Mitigation Action Plan (MAP) – After the RODs are published, Western will prepare a MAP that will address mitigation commitments expressed in its ROD.

The BLM Kingman Field Office and Western are serving as co-lead agencies for the EIS. Construction and operation of the proposed Project would require compliance with a number of other Federal, state, and local regulations and would require specific permits and approvals.

The following agencies have jurisdiction, special expertise, or interests in some of these regulatory requirements and are participating in the EIS process as cooperating agencies:

- Arizona Department of Water Resources
- Arizona Game and Fish Department
- Arizona Department of Transportation
- Mohave County (through the Planning and Zoning Department)
- Hualapai Tribe
- U.S. Fish and Wildlife Service

THE PROPOSED ACTION AND ALTERNATIVES

Power Plant

The proposed power plant, substation, and associated facilities would be built on private property in Section 5, Township 15 North, Range 12 West (T15N, R12W) (Figure S-2). The proposed power plant site is about 4 miles southeast of Wikieup, and about 2 miles east of where U.S. Highway 93 (US 93) crosses the Big Sandy River. A new road to provide access to the proposed power plant site and for other landowners east of US 93 is proposed by Mohave County. This road, along with a small section of private road, would provide access to the proposed power plant and well field.

The proposed power plant and associated facilities would occupy about 33 acres of a 120-acre site. The power plant would be built in two phases. Phase 1 would be a 500-MW natural gas-fired, combined-cycle power plant, composed of two combustion turbine generators, one steam turbine generator, and two heat recovery steam generators (HRSG) and exhaust stacks. Phase 2 would be constructed within 18 months of the startup of Phase 1, and would include one single-shaft combustion turbine/steam turbine generator, and one HRSG and exhaust stack.

The proposed power plant would be equipped with a selective catalytic reduction system as necessary to meet U.S. Environmental Protection Agency (EPA) and Arizona Department of Environmental Quality (ADEQ) air standards. Ancillary equipment for the balance of the power plant systems would include cooling towers, administration (control room) and support buildings, a communication system, water systems, fire systems, transformers, switching gear, and other facilities.Wet cooling towers would provide cooling for the steam generation cycle and turbine inlet air. Cooling water would be supplied from Project groundwater wells, and wastewater from the cooling system would be directed to one of two evaporation ponds.

Most of the solid waste generated during both construction and operation of the proposed power plant and associated facilities would be non-hazardous wastes typical of those generated by other human activities.

Several special or potentially hazardous wastes would be generated from routine operations. These would include waste lubricating oils (12 tons per year [tpy]) and associated used oil filters, spent solvents (12 tpy), empty drums

(100 per year), and spent selective catalytic reduction catalyst (24 tpy). These would be recycled or disposed of in an approved and permitted commercial disposal facility in accordance with applicable requirements.

Sanitary wastes would be directed to a septic system and drain field constructed for the proposed power plant. Process water would be used in boilers and for cooling and cleaning purposes. Process wastewater would be recycled to the maximum extent feasible. Wastewater that could no longer be recycled would be evaporated. No discharge of process wastewater is proposed. The proposed power plant would be designed and operated as a zero discharge facility.

Wastewater storage/evaporation ponds would receive discharged process wastewater, cooling tower blowdown water, and stormwater runoff from the proposed power plant site and substation. The ponds would be designed to meet permitting requirements of ADEQ and the Arizona Department of Water Resources (ADWR).

Lighting at the power plant would be limited to areas required for safety. Lighting would be directed downward and shielded in accordance with the Mohave County Night-Sky Ordinance. Highly directional, high-pressure sodium vapor fixtures would be used.

A microwave communication tower about 20 feet tall would be built with a microwave antenna aimed toward the existing communication link on Aubrey Peak or Wikieup. This system would be used to deliver signals from control centers and other remote locations, report operating status, and provide voice communication from dispatchers to power plant operators and maintenance personnel.

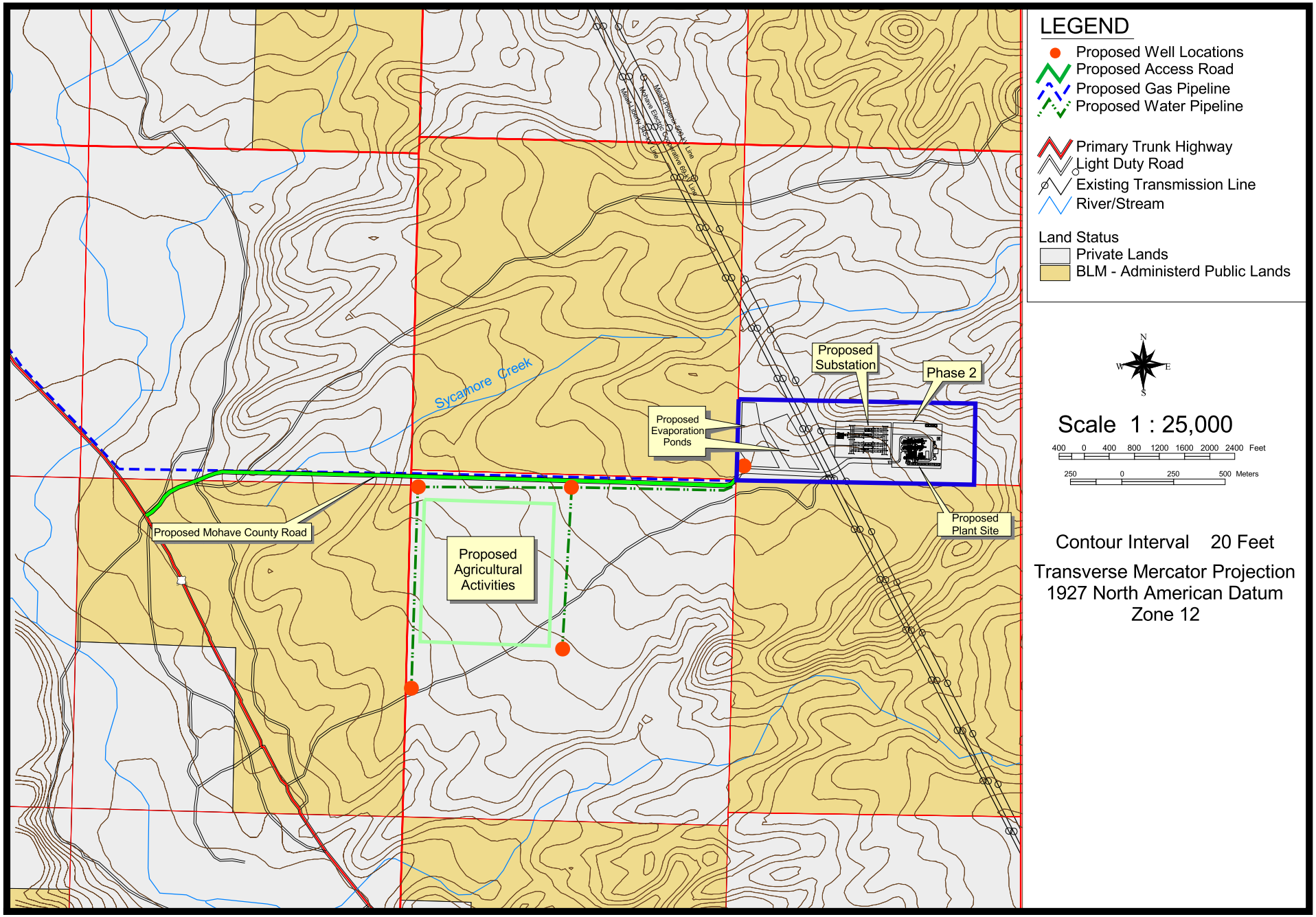
Numerous safety features would be included in the power plant design. Fire protection would be supplied by the use of diesel-driven emergency fire pumps, in accordance with National Fire Protection Association (NFPA) guidelines. Fire detection and extinguishing devices would be installed at key points throughout the proposed power plant.

Construction materials that would be purchased from commercially available sources include concrete (15,600 cubic yards), sand (4,400 cubic yards), aggregate (8,900 cubic yards), backfill gravel (18,000 cubic yards), and rebar (1,092 tons). A special train would be needed to deliver some major plant components, including three combustion turbines, four generators, and two steam turbines, from the Port of Houston, Texas to Kingman, Arizona. In Kingman, the equipment would be offloaded to oversized transport vehicles, and be delivered to the Project site via Interstate 40 (I-40) and US 93.

Construction of Phase 1 is estimated to require about 20 months, and is scheduled to begin in the third quarter of 2001. An average of about 350 workers would be employed with a maximum of about 650. Phase 2 would require a similar schedule but a smaller average work force of about 240.

Substation and Electrical Equipment

The substation, which would connect the proposed power plant and immediately adjacent Mead-Phoenix Project 500-kV transmission line, would cover about 12 acres just west of the power plant. Western would design, construct, own, and operate the proposed substation. Two new steel lattice structures would be built to provide a tie between the Mead-Phoenix Project 500-kV transmission line and the new substation. The substation would include transformers, circuit breakers, switches, and bus works arranged to perform electrical functions, minimize safety risk, and accommodate operation and maintenance. Electronic controls and monitoring equipment for the power system would be housed in a building within the proposed substation. A chain-link fence would provide security for the substation.



Proposed Power Plant and Well Field

Big Sandy Energy Project EIS

Figure S-2

The transformers each would contain about 12,000 gallons of cooling oil. An oil containment liner would be installed to collect and retain oil within the substation should an oil spill occur. The circuit breakers would be insulated by special nonconducting gas (sulfur hexafluoride [SF_6]). The use, storage, and replacement of SF_6 would be monitored and managed by Western to minimize any releases to the environment. Small amounts of hydraulic fluids would be used to open and close the electrical contacts within the breakers.

Communication Facilities

The substation equipment would be operated remotely from Western's Desert Southwest Region Operations Center in Phoenix. To provide for remote operation, a communications tower about 60 feet high would be built within the substation adjacent to the control house. A microwave dish about 10 feet in diameter would be installed on the tower and pointed toward an existing Western microwave tower at Hayden Peak in the Hualapai Mountains. A microwave dish about 10 feet in diameter would be added to the Hayden Peak tower. The addition of the microwave dishes would provide a link with Western's existing microwave communications system.

Dual or redundant communication facilities would be installed to provide backup communication system, in the event that the primary communication system is interrupted. Two options are being considered. One option would involve replacing an existing overhead static wire with a fiber optic line, referred to as an optical ground wire (OPGW), on the existing Mead-Liberty 345-kV transmission line between the proposed substation and Western's existing Peacock Substation, about 46 miles north of the proposed power plant site. From Peacock Substation, there is a fiber optic path to Western's Phoenix Substation in Phoenix. A microwave link also would need to be developed between Phoenix Substation and Perkins Substation at the southern end of the Mead-Phoenix Project 500-kV transmission line via an existing Western microwave facility at Towers Mountain (in the Bradshaw Mountains). New microwave dishes would be required at Phoenix, Towers Mountain, and Perkins substations.

The second option would involve linking the proposed substation with the existing Salt River Project (SRP) microwave system, which currently is being used as a backup for the Mead-Phoenix Project 500-kV transmission line. This option would entail installing microwave dishes at the proposed substation and an existing SRP microwave facility. An intermediate tower may be required if a microwave path cannot be found between the proposed substation and an SRP microwave tower. Western would select the redundant communication system upon completion of further technical, operational, and environmental study.

Water Supply System

Up to five groundwater supply wells would be completed on private property about 0.5 mile southwest of the proposed power plant site and on the plant site itself. These wells would provide a maximum of about 4,850 acre-feet (equivalent to 3,000 gallons per minute [gpm]) of potable and cooling water annually to the power plant from a deep aquifer about 1,000 to 1,500 feet below the ground surface.

A water pipeline would convey the water to a 250,000-gallon water storage or "head" tank in the northeast corner of Section 7, and from there to a 600,000-gallon raw water supply tank on the proposed power plant site. Under normal operating conditions, two of the wells would be pumped at any one time, each at a rate of about 1,200 gpm. The wells would be cycled at about two-week intervals. The maximum rate of pumping would be about 5,000 gpm.

Well construction would involve the clearing of about 4 acres for each well pad. Drilling would occur 24 hours per day, and completion of each well would be expected within a 45- to 60-day period.

Natural Gas Supply Pipeline

A buried, high-pressure natural gas pipeline would be constructed to supply natural gas to the

proposed power plant. The line would connect to one or more existing natural gas transmission lines located about 39 miles north of the proposed power plant site near I-40.

The pipeline would be 16 to 20 inches in diameter, and be buried at least 3 feet. At full capacity, the pipeline would deliver about 106.4 million cubic feet (MMCF) of gas per day, which is equivalent to 3,246 MMCF per month, or 38,960 MMCF per year.

Construction of the line typically would require a 50-foot right-of-way in a 90-foot-wide disturbance corridor, but a specific proposed alignment or alternative alignments have not been identified at this stage of planning. Instead, broader corridors that allow adjustments to be made in the final engineered alignment of the pipeline have been identified. This would allow constraints discovered during pre-construction surveys and right-of-way negotiations to be accommodated.

Thirteen corridor segments have been identified. The proposed route uses six corridor segments (R1-C1-T3-C3-T4-R5), which follow a combination of existing road and transmission line corridors (Figure S-3). The proposed pipeline would begin at the points of connection with one or more of the three potential gas supply pipelines near I-40, and proceed along corridor segment R1, heading south in the 100- to 150-foot-wide right-of-way of Hackberry Road, a Mohave County road. There is an existing underpass where Hackberry Road connects with I-40 that the pipeline would follow. This corridor segment is about 3.9 miles long and passes through relatively undeveloped private and state-owned lands.

The proposed pipeline would then follow corridor segment C1 to the west and then southwest until intersecting the existing transmission line corridor. This corridor segment crosses both private and state-owned lands and is about 2.8 miles long.

The proposed route then follows corridor segment T3, which parallels the existing transmission lines south for about 8.5 miles to the beginning of corridor segment C3. This corridor crosses both private and state-owned lands.

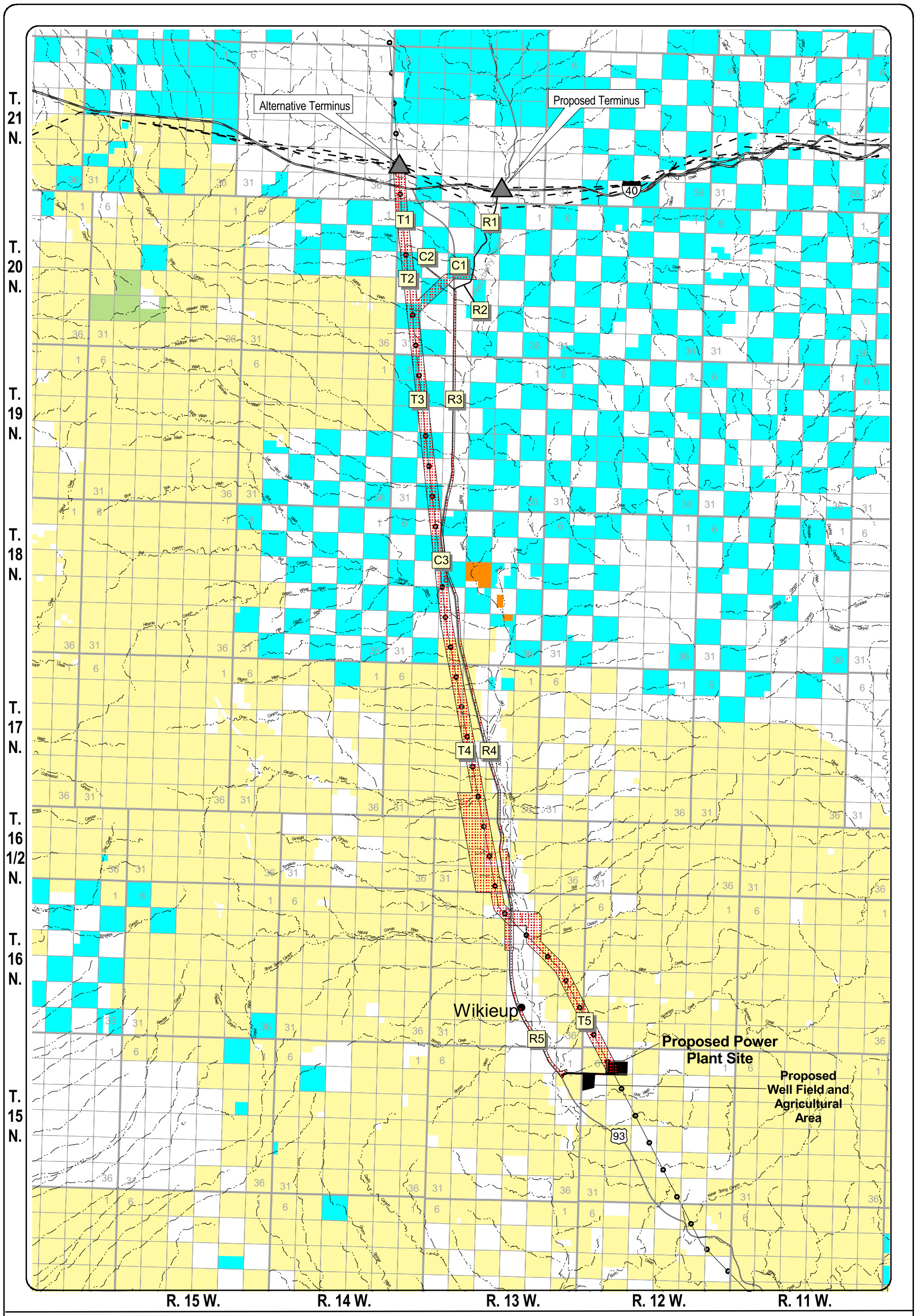
Corridor segment C3 is a crossover segment located where the transmission line and US 93 corridors overlap. The corridor segment is about 1.9 miles long and crosses private and state-owned lands.

The proposed route then continues southeast along the transmission line route (corridor segment T4). This corridor segment is about 13.8 miles long, terminating at the intersection of the transmission line rights-of-way and US 93. This segment extends along the western boundary of the Carrow-Stephens Ranches Area of Critical Environmental Concern (ACEC). This corridor segment crosses private, BLM-managed public, and state-owned lands.

From this point, the proposed route follows corridor segment R5 along US 93 south to the proposed Mohave County access road leading to the proposed power plant site. This corridor segment is about 8.5 miles long and varies in width from 150 feet wide along the proposed access road, to 1,800 feet wide along certain portions of US 93.

An alternative generally following US 93 was evaluated as the Alternative R gas pipeline corridor (corridor segments R1-R2-R3-R4-R5), as was an alternative generally following the Mead-Phoenix Project 500-kV transmission line, referred to as the Alternative T gas pipeline corridor (corridor segments T1-T2-T3-T4-T5).

Pipeline construction would take about 75 days to complete. Trenching, installation of the pipe, and closing of the trench at any one point along the route would take about three to five days. The crossing of the Big Sandy River is the most sensitive construction area, and the pipe may be installed beneath the riverbed either by open trenching or directional boring. Construction within the river and other washes would be performed in accordance with permits issued by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act.



Legend

Project Components

- 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
- R1 Road Corridor Segment
- T1 Transmission Line Corridor Segment
- C1 Crossover Corridor Segment
- Proposed Plant Facilities

Land Ownership and General Reference

- Private
- State
- BLM
- Hualapai Reservation
- Parks
- Existing Pipelines
- Mead-Liberty/Mead-PhoenixTransmission Lines
- Stream/River
- Interstate
- U.S. Route

Proposed and Alternative Natural Gas Pipeline Corridors

Big Sandy Energy Project EIS

0 5

Scale in Miles

Universal Transverse Mercator Projection
1927 North American Datum
Zone 12

N

Figure S-3

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Agricultural Development

The Proposed Action would involve supplying selected lands and water to MCEDA for agricultural use. Agricultural development would occur on about 107 acres located in the vicinity of the well field. Water for agricultural use would be raw groundwater provided from the same water wells that would supply water for the proposed power plant. A maximum of 400 gpm (650 acre-feet per year) of water, subtracted from the Project's maximum use of 4,850 acre-feet per year (3,000 gpm), would be made available for agricultural use in this area.

Agricultural products would be mainly forage crops or fruit or nut orchards. These crops are likely to require 2 to 6 acre-feet of water per acre per year. Agricultural fertilizers, pesticides, and herbicides would be applied as needed for specific agricultural operations. Application rates would follow manufacturers' instructions and all pesticides would be EPA-registered and approved for use on the specific crops grown. Standard agricultural practices to minimize erosion and runoff of applied chemicals and soil would be employed.

Actions to Reduce or Prevent Environmental Impact

The Proposed Action incorporates numerous measures to avoid or reduce environmental impacts, including the following:

- dust control measures
- erosion and sedimentation reduction measures
- groundwater monitoring plan
- shallow groundwater and river water flow augmentation
- stormwater pollution prevention plan and surface water diversion structures
- compensation for predicted impacts on the flow of Cofer Hot Spring
- actions to minimize impacts on grazing
- actions to reduce visual impacts
- reclamation plans
- pre-construction biological surveys, Sonoran desert tortoise impact reduction measures, and construction scheduling to avoid wildlife impacts
- implementation of a programmatic agreement to reduce impacts on cultural resources
- spill prevention control and countermeasure plan
- noise reduction measures

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The proposed Project is situated in the Big Sandy River Valley, a thinly populated desert region of eastern Mohave County. Ranching and limited farming are the major economic activities in the area. The valley is drained by the Big Sandy River, which has perennial flows and rare wetland and riparian habitat in certain locations. The major highway between the Phoenix and Las Vegas, Nevada metropolitan areas, US 93, passes through the valley. The Mead-Liberty 230-kVand Mead-Phoenix Project 500-kV transmission lines also pass through the valley, connecting the Phoenix metropolitan area with electrical substations near the hydroelectric power plant at Hoover Dam. The following aspects of the natural and cultural environment in the area are addressed in this Draft EIS:

- Air Resources
- Geology/Paleontology
- Soils

- Groundwater
- Surface Water
- Floodplains
- Land Use and Access
- Grazing Management
- Recreation, Wilderness, and Visual Resources
- Areas of Critical Environmental Concern
- Vegetation
- Wetlands, Riparian Areas, and Waters of the United States
- Fisheries and Wildlife
- Threatened, Endangered, Proposed, Candidate, and Other Special Status Species
- Cultural Resources
- Socioeconomics and Environmental Justice
- Public Safety and Services
- Noise

Major Environmental Issues

Agency and public scoping defined the following major issues:

- Short-term and long-term effects of groundwater use for power plant operations, including effects on future water supplies in the Wikieup area and stream flows in the Big Sandy River.
- Direct and indirect effects on fish and wildlife resources and habitats, including the endangered southwestern willow flycatcher and wetland and riparian habitats.
- Direct and indirect effects on the community and values of Wikieup from construction activity, air emissions, future land use changes, landscape changes, noise, and taxation changes.
- Direct and indirect effects on water quality and use in the Project area, including any effects from the proposed pipeline construction.
- Effects on cultural resources and traditional cultural values of Native Americans.
- Effects on existing land uses from the pipeline construction.
- Federal agency fulfillment of Indian Trust responsibilities.

Major Conclusions

The assessment of impacts in this Draft EIS is summarized in Table S-1 at the end of this summary. Because numerous measures have been incorporated into the Proposed Action to eliminate or reduce environmental impacts, no significant impacts are projected for most of the resources considered. Additional potential mitigation measures are also identified in this Draft EIS. The major conclusions about significant impacts that potentially could occur are summarized in the following paragraphs.

Water Issues

No significant impacts on surface water are projected, and the only significant groundwater impact would be the reduction in flow to Cofer Hot Spring.

A deep aquifer has been identified as the source of water for the proposed power plant. Exploratory drilling and groundwater modeling indicate that this aquifer is relatively isolated from a middle aquifer, as well as the shallow aquifer that is the source of virtually all groundwater used in the valley today.

Groundwater modeling conducted for this Draft EIS predicted that without flow augmentation, water levels in the shallow groundwater could drop by less than 1 foot, and surface water could be reduced. However, the Proposed Action contains measures designed to monitor groundwater levels and provide water to augment shallow groundwater and surface water flows in the Big Sandy River sufficient to prevent changes to these hydrologic systems which may otherwise occur as a result of the Project. Therefore, no changes to shallow groundwater levels or surface water flows in the Big Sandy River are predicted as a result of the Project.

Groundwater pumping is likely to affect flows from Cofer Hot Spring. Caithness has agreed in concept to compensate the private owner of this spring; however, the loss of the spring flow would be a significant impact, per the significance criteria established for this Draft EIS.

Construction is projected to impact about 13 acres of Big Sandy River and ephemeral stream channels and washes. Measures to reduce the impacts of this disturbance in those jurisdictional waters would be implemented.

Fisheries and Wildlife, Including Threatened and Endangered Species and Wetland or Riparian Habitats

The Project may adversely impact riparian habitat and the endangered southwestern willow flycatcher, as well as other sensitive wildlife and plant species.

Installation of the pipeline by trenching across the Big Sandy River within corridor segment R5 would remove riparian vegetation, which represents habitat loss for the endangered southwestern willow flycatcher and provides opportunity for increase in brood parasitism by cowbirds. Installation of the pipeline by directional drilling would reduce impacts. Consultation with the U.S. Fish and Wildlife Service in compliance with Section 7 of the Endangered Species Act are ongoing to determine if significant impacts would occur, and to identify potential measures to avoid or reduce impacts on listed endangered, threatened, or proposed species

There also is the potential for significant impacts on birds if the Migratory Bird Treaty Act is violated due to bird deaths or loss of nests.

Most wetland and riparian habitats would be avoided or, if disturbed, the resulting impacts would be mitigated. However, the loss of the wetland associated with Cofer Hot Spring would be a significant impact.

Cultural Resources

The Hualapai Tribe considers impacts of the Project on their traditional cultural landscape within the Big Sandy Valley and impacts on archaeological sites reflecting their heritage to be a significant impact. Documenting aspects of traditional Hualapai culture for a tribal educational program could reduce those impacts, but even with implementation of mitigation, residual impacts would be considered significant. Although some archaeological and historical sites would be adversely affected by construction activities, data recovery studies would compensate adequately for the impacts on the informational values of those resources.

The Hualapai Tribe considers the Big Sandy Valley to be an integral part of their aboriginal territory and an important traditional cultural landscape. Early ethnographic studies documented that the Hualapais occupied at least four villages in the Big Sandy River Valley during the 1880s. Although the specific locations of these villages have not been identified, the Tribe concludes that the intrusion of the proposed Project into the Big Sandy Valley would adversely affect the traditional cultural landscape that the valley represents for the Tribe.

The Tribe also considers archaeological sites that reflect the occupation of the area by the Hualapai and their ancestors to be traditional cultural places. Construction of the power plant would destroy part of one archaeological site,

and other sites may be disturbed or destroyed by construction of the natural gas pipeline and other features of the Project. The Hualapai Tribe considers any disturbance of archaeological sites reflecting traditional occupation to be a significant adverse effect.

The Tribe has been involved in conducting cultural resource surveys and developing a programmatic agreement that would specify procedures for other pre-construction surveys and implementation of mitigation measures in compliance with Section 106 of the National Historic Preservation Act. No impacts to three parcels of Hualapai Reservation land in the upper Big Sandy River Valley are projected.

The proposed pipeline corridor would avoid direct impacts on the historic Carrow and Stephens ranches, which the BLM manages as an ACEC. Measures to mitigate impacts on other archaeological and historical sites would be developed and implemented in accordance with the Section 106 programmatic agreement and are expected to reduce residual impacts on the informational values of those resources to less than significant levels.

Indian Trust Assets

BLM and Western will continue to have discussions with the Hualapai Tribe about actions needed to protect tribal rights.

Federally recognized Indian tribes are domestic dependent nations, and the Federal government is obligated to protect tribal interests, a duty that is referred to as trust responsibility. This trust doctrine is defined through treaties, laws, executive orders, judicial decisions, and agreements. Indian trust responsibility commonly is thought of as encompassing the following three areas:

1. protection of trust land, assets, and resources
2. protection of tribal sovereignty and self-government
3. provision of services

The technical studies conducted for this Draft EIS concluded that there would be no significant impacts on Hualapai trust lands, assets, and resources. However, the Hualapai Tribal Council remains unconvinced by the technical models and is reluctant to support the Project.

Sovereignty and self-government for the Hualapai Tribe have been promoted by arranging for the Tribe to fully participate, within a government-to-government relationship, as a cooperating agency in the preparation of this EIS. The provision of services to Indian tribes typically is the role of agencies such as Bureau of Indian Affairs and Indian Health Service.

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
Air Resources	**Power Plant** • Power plant operation would result in the release of various pollutants, but there would be no significant impacts from the operation with implementation of the pollution control measures and devices included in the Proposed Action. The analysis indicates no exceedances of any National Ambient Air Quality Standards or maximum allowable Prevention of Significant Deterioration increments; no exceedances of thresholds in the Arizona Ambient Air Quality Guidelines for hazardous air pollutants; no unacceptable or discernable impairment to visibility in nearby Class I, selected Class II, or Hualapai tribal lands; and no unacceptable levels of nitrogen or sulfur in areas where AQRVs were required to be reviewed. **All Elements** • Construction activities in all locations would result in release of particulates and exhaust gases, but effects would be short term and would occur over a small area at one given time, resulting in a minor level of impact. • Dust control measures included in the Proposed Action would help limit impacts to less than significant levels. <u>Conclusion</u>: No significant impacts are expected with implementation of proposed actions to reduce or prevent adverse impacts.	Same as Proposed Action <u>Conclusion</u>: Same as Proposed Action	Same as Proposed Action <u>Conclusion</u>: Same as Proposed Action	No impacts

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
Geology/ Paleontology	**All Elements – Geology** • There would be no significant impacts on areas of regional geological importance (none is present). • There would be no impacts on substantial known potential mineral resource development areas (none is present). • No impacts are expected on existing mining operations. There would be an insignificant loss of a small portion of the valley's sand and gravel resources. • No substantial increase in impacts from earthquakes would be expected as long as structures comply with appropriate standard procedures. • No substantial increase in magnitude of mass movements would occur since cut and fill areas would be engineered to ensure stability. • Groundwater withdrawal would not result in land subsidence because it would be isolated to a volcanic aquifer and should not result in sediment compaction and/or significant drop in levels in overlying aquifers.	**Geology** – Same as Proposed Action	**Geology**-Same as Proposed Action	No impacts
	All Elements – Paleontology No impact would be expected as long as mitigation is included during construction to identify and protect previously unidentified fossil localities. <u>Conclusion</u>: No significant impacts are expected with implementation of proposed actions to reduce or prevent adverse impacts, with the addition of mitigation to protect unidentified fossil localities during construction.	**Paleontology**-Same as Proposed Action	**Paleontology**-No impacts would be as long as additional surveys are conducted should the eastern portion of corridor segment T5 be selected for the final alignment, and the same provisions as listed under the Proposed Action are followed.	

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
Soils	**All Elements** • Any proposed ground disturbance would result in disruption of soils and potential soil erosion, compaction, reduced productivity, and/or loss of topsoil. The Proposed Action would involve disturbance of about 621 acres of land surface, of which 229 acres would be permanently disturbed. Implementation of the proposed reclamation plans and erosion control measures, plus other measures such as limiting grading and access road building, and use of the directional drilling option, would reduce impacts to less than significant levels. • With implementation of the proposed Stormwater Pollution Prevention Plan and provisions for surface water diversion at the power plant site, no significant impacts would result from stormwater runoff. • There would be no significant adverse impacts associated with the installation of the optical ground wire, since the ground disturbance at the pulling and tensioning sites would be minimal, on areas already disturbed, and subject to reclamation and erosion control measures. **Pipeline** • The potential for significant impacts exists where highly erodible soils coincide with steep slopes (greater than 20 percent). These locations would be avoided during siting of the final alignment and/or be adequately mitigated, such that impacts would be reduced to less than significant levels. (There are four such areas	Same as Proposed Action, except that areas of steep slope plus erodible soils could more easily be avoided.	Same as Proposed Action; contains some areas along corridor segments T2, T3, and C1 where it may be difficult to avoid areas of steep slopes and erodible soils. This route also may cross exposures of soils that uniquely support the Arizona cliffrose. Mitigation includes measures to avoid impacts on this plant species.	The 26 acres of soil disturbed for construction of the production and monitoring wells used during testing and associated well pads and access roads would remain.

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	located in corridor segments R1, C3, T4, and the T2-T3-C1 interchange. The area in the intersection of corridor segments T2, C1, and T3 would be the most difficult to avoid, since it appears to extend across the entire corridor.) Conclusion: No significant impacts are expected with implementation of proposed actions to reduce or prevent adverse impacts.			
Groundwater	**Power Plant and Associated Facilities** ***Groundwater Quantity*** • Groundwater modeling conducted for this Draft EIS predicted that without flow augmentation, water levels in the shallow groundwater could drop by less than 1 foot, and surface water could be reduced. However, the Proposed Action contains measures designed to monitor groundwater levels and provide water to augment shallow groundwater and surface water flows in the Big Sandy River sufficient to prevent changes to these hydrologic systems which may otherwise occur as a result of the Project. Therefore, no changes to shallow groundwater levels or surface water flows in the Big Sandy River are predicted as a result of the Project. • There likely would be a reduction and eventual elimination of water discharged from Cofer Hot Spring. The Proposed Action includes measures to provide compensation to the landowner; however, the loss of the spring would be considered a significant impact.	Same as Proposed Action	Same as Proposed Action	The groundwater production and monitoring wells used to identify and test the lower aquifer would remain.

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	Groundwater Quality • No significant impacts from the Proposed Action are expected, given the construction of the evaporation ponds and lack of other sources of groundwater contamination associated with the proposed Project. **Pipeline and Communication Facilities** • No impacts on groundwater quality or quantity would be expected from these Project elements. Conclusion: The loss of Cofer Hot Spring would be a significant adverse impact. With the implementation of the actions proposed to reduce or prevent adverse impacts and other mitigation, no other significant impacts would be expected.	Conclusion: Same as Proposed Action	Conclusion: Same as Proposed Action	
Surface Water	**Power Plant and Associated Facilities** ***Surface Water Flows*** • Groundwater modeling conducted for this Draft EIS predicted that without flow augmentation, water levels in the shallow groundwater could drop by less than 1 foot, and surface water could be reduced. However, the Proposed Action contains measures designed to monitor groundwater levels and provide water to augment shallow groundwater and surface water flows in the Big Sandy River sufficient to prevent changes to these hydrologic systems which may otherwise occur as a result of the Project. Therefore, no changes to shallow groundwater levels or surface water flows in the Big Sandy River are predicted as a result of the Project.	Same as Proposed Action	Same as Proposed Action	No impacts

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	Surface Water Quality • The power plant would be a zero discharge facility with no significant impacts on surface water quality. Onsite stormwater generation would be collected and routed to lined evaporation ponds. Offsite stormwater would be routed around the facility and returned to natural drainages using standard erosion control structures. • Agricultural activities should not have a significant impact on surface water quality of the Big Sandy River basin or downstream watercourses. The agricultural area would be operated in a fashion that minimizes the potential for runoff of irrigation water, applied chemicals, and fine-grained soils to surface waters. ***Surface Water Rights*** • Owners of surface water rights along the Big Sandy River downstream of Granite Gorge would not be impacted because no reduction in surface water flow is predicted. **Pipeline and Access Road** • Construction of the pipeline and access road across washes or the Big Sandy River likely would cause a temporary, minor, less than significant impact on surface water quality, including increased sedimentation and turbidity with implementation of proposed construction practices and erosion and sedimentation control measures. Special procedures are included in the			

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	Proposed Action to minimize impacts of the pipeline crossing caused by trenching on the Big Sandy River. Directional drilling under the Big Sandy River would further minimize or eliminate these water quality impacts. <u>Conclusion</u>: No significant impacts are expected with the implementation of proposed actions to reduce or prevent adverse impacts and mitigation.			
Floodplains	**Power Plant and Associated Facilities** • Since the proposed power plant and associated facilities are located outside the 100-and 500-year floodplain zone, no impacts are predicted. Culverts installed along the proposed access road would allow for adequate flows under the road; no significant impacts on floodplains are predicted. • Impacts to floodplains along the optical ground wire route would be eliminated because the area needed for pulling/tensioning sites is small and floodplains could be avoided. **Pipeline** • The pipeline would cross numerous 100-year floodplains; actual total would depend on final alignment selected within corridor. Temporary disturbance of these floodplains and downstream areas would occur during pipeline installation. With the implementation of proposed erosion and sedimentation control measures, impacts would be reduced to minor, insignificant levels. • If the directional drilling option were selected	**All Elements**-Same as Proposed Action; possibly would have more floodplain crossings.	**All Elements**-Same as Proposed Action; possibly would have fewer floodplain crossings; directional drilling under the Big Sandy River would not be an option.	No impacts

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	for crossing the Big Sandy River, adverse impacts would be further minimized or eliminated. Conclusion: No significant impacts are expected with the implementation of proposed actions to reduce or prevent adverse impacts.	Conclusion: Same as Proposed Action	Conclusion: Same as Proposed Action without the directional drilling option	
Land Use and Access	**Power Plant and Associated Facilities** • No significant adverse land use impacts would be expected, since there would be conformance with existing zoning, County land use plans, and County transportation planning, and no impacts are expected on residences or businesses. **Pipeline** • The proposed pipeline would generally follow existing utility corridor and road rights-of-way. Several residences and businesses are located along these routes, especially fronting the road rights-of-way. Any potential conflict with existing residences or businesses could be avoided by adjusting the final alignment within the proposed corridor to avoid these uses or by providing compensation. Also, potential impacts to the Carrow-Stephens ACEC could be avoided. Construction adjacent to any residence or business is completed within three to five workdays, and impacts would not be considered significant.	Similar to Proposed Action, but with possibly more potential conflict with use of roads being used or followed. Also, there is more potential for conflict with residences and use of the ACEC along Segment R4 and less space to make adjustments within Segments R2 and R3.	Similar to Proposed Action, but with possibly more difficult access and installation along Segment T5, due to rugged topography. However, there would be fewer residences and businesses to avoid and there would be no potential conflicts with road use during construction.	No impacts

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	Communication Facilities • Primary communication facilities would be located within the plant site and on existing facilities, causing no adverse impacts to land uses. The optical ground wire option, if installed, would occur within existing right-of-way and on existing transmission line structures, and involve only short-term and limited disturbance; therefore, no adverse impacts to land use would be expected. Conclusion: No significant impacts are expected with the implementation of proposed actions to reduce or prevent adverse impacts.	Conclusion: Same as Proposed Action but with slightly higher potential for conflicts with existing residences and businesses near roadways	Conclusion: Same as Proposed Action, but with slightly less potential for conflicts with residences and businesses primarily due to use of Segment T5	
Grazing Management	**Power Plant and Associated Facilities** • To avoid significant impacts from the loss of flow from Cofer Hot Spring, the Proposed Action would provide compensation by replacing the lost stock water using shallow well water. • Land available for grazing would be permanently reduced by the forage available for grazing by about one cow and calf for four months. This is a small reduction in forage availability (about 1 percent) and does not constitute a significant impact on livestock production. • The Proposed Action includes measures to maintain all range improvements, thereby avoiding significant impacts from loss or damage to these improvements.	**All Elements** Similar to Proposed Action, except that pipeline construction would permanently disturb 47 acres.	**All Elements** Similar to Proposed Action, except that pipeline construction would permanently disturb 45 acres.	The 26 acres of grazing lands already disturbed for construction of the production and monitoring wells constructed for testing the groundwater aquifers, and the well pads, and well access roads would remain disturbed.

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	Pipeline • Actions included in Proposed Action would ensure that any range improvement facilities would be maintained during pipeline construction. • Livestock production on land crossed by the pipeline would not be significantly impacted by construction activities because only 48 acres would be permanently disturbed, and the reseeding done per the proposed reclamation plans would restore forage production on other disturbed land. • No significant land disturbance would be expected on BLM grazing allotments along the pipeline during construction. <u>Conclusion</u>: No significant impacts are expected with the implementation of proposed actions to reduce or prevent adverse impacts.	<u>Conclusion</u>: Same as Proposed Action	<u>Conclusion</u>: Same as Proposed Action	
Recreation, Wilderness, and Visual Resources	**All Elements** • Impacts on recreation resources and wildernesses would be low and less than significant over the life of the Project, since there would be a relatively small increase in population and no discernible impacts to visibility in wilderness areas included in the analysis. • Permanent effects on visual resources would be noticeable to co-dominant for the power plant, due to the surface disturbance, introduction of additional industrial facilities into foothill landscapes, intermittent water vapor plumes, and night lighting. Impacts would be low to	Same as Proposed Action, but with more impacts on viewers (residents and travelers) along roads during pipeline construction.	Same as Proposed Action, but with more impacts on viewers along the path of transmission lines during pipeline construction.	No impacts

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	moderate and less than significant after the application of measures to reduce impacts and due to the presence of a BLM-designated utility corridor. **Pipeline** • The pipeline would result in low to moderate impacts, since it would generally follow existing rights-of-way with roads and transmission lines, which would reduce the effect of the intrusion of the pipeline into the landscape. Also, application of reclamation measures would reduce the visual contrast of the pipeline with the surroundings. Short-term impacts would result from the visibility of equipment and dust related to the construction process, especially in view of populated areas. These impacts would be reduced by dust control measures included in the Proposed Action and would be moderate and less than significant. Conclusion: No significant impacts are expected with the implementation of proposed actions to reduce or prevent adverse impacts			
Areas of Critical Environmental Concern	**Carrow-Stephens Ranches Area of Critical Environmental Concern (ACEC)** ***Pipeline (Corridor Segment T4)*** • An alignment within the corridor to avoid the ACEC would reduce impacts to less than significant. An alignment within the ACEC would require the removal of native plants, which is not consistent with BLM Prescription 10 and would result in a significant impact.	Corridor segment R4 crosses the ACEC where the ACEC cannot be avoided. If the pipeline is not placed within the US 93 right-of-way, significant impacts would occur because of the proximity of the pipeline to historic buildings, the	Same as Proposed Action	No impacts

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	Communication Facilities • An optical ground wire installation pad may be required within the ACEC. One pad may result a small amount of land disturbance within an existing transmission line right-of-way, away from vegetation, and Section 106 protection provisions would apply, thus limiting impacts to low and less than significant levels. **Three Rivers Riparian ACEC** ***Power Plant and Associated Facilities*** • Groundwater modeling conducted for this Draft EIS predicted that without flow augmentation, water levels in the shallow groundwater could drop by less than 1 foot, and surface water could be reduced. However, the Proposed Action contains measures designed to monitor groundwater levels and provide water to augment shallow groundwater and surface water flows in the Big Sandy River sufficient to prevent changes to these hydrologic systems which may otherwise occur as a result of the Project. Therefore, no changes to shallow groundwater levels or surface water flows in the Big Sandy River are predicted as a result of the Project. Conclusion: No significant impacts would occur with mitigation consisting of avoiding the Carrow-Stephens Ranches ACEC.	cemetery, and inconsistency with the BLM objectives for the ACEC. Any direct impact on graves would be a significant impact. Also, the removal of vegetation within the ACEC would be a significant impact, even with reclamation. Conclusion: At Carrow-Stephens ACEC, significant impact would occur due to removal of native plants, and potential for other significant impacts exists. For Three Rivers Riparian ACEC, same as Proposed Action.	Conclusion: Same as Proposed Action	

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
Vegetation	**Power Plant and Associated Facilities** • Construction and operation of the plant and associated facilities would result in the permanent loss of 181 acres of Sonoran desert scrub, previously disturbed by livestock grazing, which would not be a significant impact on a regional level. Loss of xeroriparian vegetation in drainages could result in significant impact, but losses would be replaced through revegetation and reclamation efforts defined in reclamation plan(s). In all areas, measures in the proposed reclamation plan would reduce loss of state-protected plants and may promote re-vegetation of temporary disturbed areas. • Sites for installation of the optical ground wire (5 acres) would be temporarily disturbed and reclaimed per proposed reclamation plans, which would minimize adverse impacts. **Pipeline** • Construction would result in disturbance of approximately 406 acres, of which 48 acres would remain permanently disturbed due to need for access over pipeline. • Disturbance of vegetation and xeroriparian vegetation along pipeline would be primarily temporary and would not result in significant impacts, as long as reclamation plans are successful. Conclusion: No significant impacts are expected with the implementation of proposed actions and mitigation to reduce or prevent adverse impacts.	Similar to Proposed Action. Pipeline would involve disturbance of approximately 393 acres, of which 47 acres would remain permanently disturbed. As with Proposed Action, most disturbances would be temporary and would not result in significant impacts, as long as reclamation plans are successful and no permanent loss of xeroriparian vegetation would occur. Conclusion: Same as Proposed Action	Similar to Proposed Action. Pipeline would involve disturbance of approximately 418 acres, of which 45 acres would remain permanently disturbed. As with Proposed Action, most disturbances would be temporary and would not result in significant impacts, as long as reclamation plans are successful and no permanent loss of xeroriparian vegetation would occur. Conclusion: Same as Proposed Action	The loss of vegetation (Sonoran desertscrub) from construction of the production and monitoring well pads and access roads would remain.

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
Wetlands, Riparian Areas, and Waters of the United States	**Power Plant and Associated Facilities** ***Wetlands and Riparian Areas*** • The layout of the Proposed Action would avoid direct impacts to the wetland on the plant site, and implementation of erosion control measures included in the Proposed Action would keep indirect impacts to a low, insignificant level. No long-term impacts are expected. • The reduction in flow to Cofer Hot Spring would dry up a small wetland in that area, resulting in a significant impact. • The Proposed Action contains measures designed to prevent changes to the wetland/marsh upstream of Granite Gorge in the Big Sandy River. ***Waters of the United States*** • The combined direct impact on waters of the United States from the proposed power plant and associated facilities would be a loss of approximately 5 acres. There would be no impacts on waters associated with the optical ground wire installation or microwave dish installation. No indirect impacts to downstream waters would be expected with the implementation of the surface water diversions, and erosion and sedimentation control measures included in the Proposed Action. **Pipeline** ***Wetlands and Riparian Areas*** • If trenching is used to cross the Big Sandy River wetland and riparian area, there would be	Same as Proposed Action, except with approximately 11 acres of direct impact (loss) on waters of the United States for the pipeline route	Same as Proposed Action, except with approximately 6 acres of direct impacts (loss) on waters of the United States	No impacts

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	temporary impacts on about 1.4 acres of wetland and riparian vegetation. Proposed erosion and sedimentation control and reclamation measures included in the Proposed Action would reduce impacts to less than significant levels. If the directional drilling option is used, then no impacts would be expected. ***Waters of the United States*** • Construction of the proposed pipeline would result in approximately 8 acres of direct impacts on waters of the United States. Impacts would be on "functions" of these waters discussed in other sections of this Draft EIS. Conclusion: Significant impacts would occur because of the loss of the Cofer Hot Spring wetland. Otherwise, impacts to wetlands would be less than significant, with the implementation of proposed actions to reduce or prevent adverse impacts and mitigation.	Conclusion: Same as Proposed Action	Conclusion: Same as Proposed Action	
Fisheries and Wildlife	**All Elements** • Construction and operation activities would result in loss of habitat and some direct mortality of wildlife. The following significant impacts may occur: 1. The loss of one active zone-tailed hawk, common black hawk, ferruginous hawk, Swainson's hawk, or golden eagle nest, or loss of two or more nests of any other raptor species, which would be significant. Preconstruction surveys and the additional mitigation of working around nests and	Same as Proposed Action	Same as Proposed Action, except there would be no or limited short-term impact to aquatic habitat in the Big Sandy from pipeline construction, since the river has no perennial flow at the Alternative T crossing area.	The 26 acres of wildlife habitat already disturbed for construction of the production and monitoring wells constructed for testing the groundwater aquifers would remain.

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	fledging periods would help to reduce the likelihood of theses losses. 2. Mitigation, including habitat management practices to limit bird and other wildlife use of the ponds, use of fences around the ponds, and monitoring programs for waterfowl use and water chemistry would help reduce the potential impacts of wildlife exposure to toxic levels of contaminants in the evaporation ponds to less than significant; 3. Mortality of migratory birds using the evaporation ponds as a result of collision with the nearby transmission lines or from the chemicals used on the agricultural area would be reduced by the implementation of measures to exclude birds from the ponds and/or increase visibility of the transmission lines. However, incidental loss of any migratory bird without a permit would be significant. 4. Preconstruction surveys would help identify migratory bird nests, eggs, or nestlings. However, incidental loss of any migratory bird without a permit would be significant. • Additional adverse (but less than significant) impacts that would be expected include direct mortality of fossorial mammals and reptiles from construction activities; mortality of small mammals and reptiles that would fall into the pipeline trench or attempt to cross the access road; interruption of breeding or foraging activities of birds and other mammals in			

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	proximity to construction activities; interruption of movement of large mammals during construction hours; substrate disturbance and turbidity on fish and other aquatic communities from construction near or in the Big Sandy River; permanent loss of breeding and foraging areas for species that use Arizona Upland vegetation; and long-term loss of habitat • There would be no impacts expected on aquatic species from groundwater withdrawal, and no loss of habitat for riparian species near the plant site would be expected. After reclamation is conducted in all temporarily disturbed areas, there should be no long-term impacts on aquatic resources. Conclusion: Significant impacts could occur only due to violation of the Migratory Bird Treaty Act, stemming from the accidental collision of birds with transmission lines or disruptional loss of nests.	Conclusion: Same as Proposed Action	Conclusion: Same as Proposed Action	
Threatened, Endangered, Proposed, and Other Special Status Species	**All Elements** ***Southwestern Willow Flycatcher*** • No direct or indirect impacts at plant site would occur. Groundwater modeling conducted for this Draft EIS predicted that without flow augmentation, water levels in the shallow groundwater could drop by less than 1 foot, and surface water could be reduced. However, the Proposed Action contains measures designed to monitor groundwater levels and provide water to augment shallow groundwater and surface water flows in the Big Sandy River sufficient to prevent changes to these hydrologic systems	Same as Proposed Action	Similar to Proposed Action, except that this alternative does not cross the Big Sandy River in an area of perennial water with associated riparian habitat; therefore, there would be no impacts from construction on southwestern willow flycatcher, and there would be fewer adverse	No impacts

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	which may otherwise occur as a result of the Project. Therefore, no changes to shallow groundwater levels or surface water flows in the Big Sandy River are predicted as a result of the Project. Therefore, no impacts on southwestern willow flycatcher habitat from groundwater pumping is expected. Impacts would occur along corridor segment R5 if trenching is used for crossing the Big Sandy River, due to removal of riparian vegetation (a direct habitat loss and an opportunity for increase in brood parasitism by cowbirds). ***Bald Eagle*** • The Proposed Action is unlikely to result in any impacts because of the lack of roosting sites and the eagle's known tolerance to noise. Adverse impacts that could occur in the unlikely event that eagles feed on any waterfowl contaminated by ingesting toxic compounds from the evaporation ponds and /or collision with the transmission line near the ponds would be reduced by measures to avoid waterfowl use of the ponds and pond toxicity. ***Yuma Clapper Rail*** • No impacts would be expected. ***Arizona Cliffrose*** • No impacts would occur, since the Proposed Action would not affect any known population and surveys would be required prior to		impacts expected on amphibians and fish.	

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	construction to detect and avoid any identified populations. ***Other Special Status Species – Bats, Birds, Reptiles, Amphibians Fish, Plants*** • With pre-construction surveys, anticipated daytime construction, avoidance of sensitive areas by making adjustments in the pipeline route, and implementing the planned reclamation and wildlife protection measures contained in the Proposed Action, there may be minor adverse or short-term impacts, but no significant impacts would occur. Conclusion: Impacts could occur to the southwestern willow flycatcher because of riparian habitat loss at the Big Sandy River crossing that cannot be avoided or eliminated. Impacts also could occur from bald eagle collisions with transmission lines. The final determination of impact significance will be made through consultation with U.S. Fish and Wildlife Service and the completion of a Biological Assessment, which will be incorporated into the Final EIS. Impacts on sensitive species would be below the level of significance.	Conclusion: Same as Proposed Action	Conclusion: Similar to Proposed Action except that there would be no potential for southwestern willow flycatcher – no significant impacts would be expected.	
Cultural Resources	**Power Plant and Associated Facilities** • Construction activities would destroy part of one archaeological site; adverse effects to informational values can be adequately mitigated by data recovery studies pursuant to the Section 106 programmatic agreement. • Intrusion of the plant into the traditional cultural landscape of the Hualapai Tribe would be a	Same as Proposed Action	Same as Proposed Action	No impacts

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	significant impact. Even with implementation of mitigation measures, significant impacts would remain. **Pipeline** • Potential exists for adverse impacts on archeological and historical sites located within the corridor, depending on the alignment selected. Section 106 programmatic agreement surveys and avoidance or mitigation measures would be implemented along the final alignment. These measures would adequately mitigate impacts on informational values, but the Hualapai Tribe would consider residual impacts on the traditional Hualapai cultural landscape and archaeological sites to be significant. **Communication Facilities** • Construction activities associated with the primary or redundant communication systems are not expected to result in adverse effects, but would be reviewed and treated in accordance with the Section 106 programmatic agreement. Conclusion: Potential impacts are expected to be "adverse" per NHPA regulations, and the disruption to the traditional cultural setting of the Big Sandy Valley represents a significant impact. Impacts on informational values can be adequately mitigated through implementation of treatment measures in accordance with a Section 106 programmatic agreement. Although mitigation measures will	Conclusion: Same as Proposed Action	Conclusion: Same as Proposed Action	

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	reduce the level of impacts on the traditional Hualapai cultural landscape and related archaeological sites, residual impacts would be considered significant.			
Socioeconomics and Environmental Justice	***Population*** • Temporary population increases would occur with construction of the Project, the pipeline, and the access road. A permanent population increase is expected for the operation of the plant, which would be noticeable, but would not be significant or disruptive to the community. • Changes to quality of life in Wikieup would be temporary and not substantial or significant. • Construction and operation of Project including the agricultural development, would increase short-term and long-term employment in Mohave County, a beneficial impact. Since a natural gas connection in Wikieup is uncertain and not under the control of this Project, no impacts can be predicted. ***Quality of Life*** – Adverse impacts would be temporary and not significant. ***Employment*** – The Project would increase short-term and long-term employment in Mohave county, a beneficial but not significant impact; there may be increases in worker salaries and wages. ***Taxes*** – Taxes paid by the Project would be a beneficial impact on the community, but real estate taxes on houses may increase if housing prices increase.	Same as Proposed Action	Same as Proposed Action	No impacts

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	Education – Construction of the plant would not cause adverse effects on the Mohave County schools since construction workers would most likely not bring families for the duration of the construction period. ***Housing*** – There would be a temporary demand for housing, but no significant impacts would be expected. ***Health Care, Fire Protection, Law Enforcement*** – No significant impacts would be expected, since the plant would supply its own fire and security services and adequate health care exists in the area. ***Low Income and Minority Populations*** – A disproportionate environmental justice impact would not occur because the region is rural and sparsely populated with scattered residences. Conclusion: No significant impacts expected with the implementation of proposed actions to reduce or prevent adverse impacts.	Conclusion: Same as Proposed Action	Conclusion: Same as Proposed Action	
Public Safety and Services	**Power Plant and Associated Facilities** ***Electric and Magnetic Fields (EMF)*** • No additional adverse impacts would occur. The proposed interconnection, substation, and power plant would create EMF within some areas that are not currently subjected to fields. The proposed new transmission line connection segments would generate EMF at the same strengths of the Mead-Phoenix Project 500-kV	***EMF*** Same as Proposed Action	***EMF*** Same as Proposed Action	No impacts

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	transmission line. The Proposed Action would not lead to increase in EMF exposures because the line is in a location generally inaccessible to the public. ***Safety Issues*** • Short-term minor traffic increases on US 93 and I-40 would occur due to plant construction. Traffic increases would be noticeable during plant construction and operation. The increases would not be significant and would not result in downgrading the Level of Service for either I-40 or US 93. • Oversized loads would require an oversize load permit. Strict compliance with all provisions of the permit and close coordination with ADOT and provision of turnouts would ensure that significant traffic impacts would not occur. **All Elements** • Proper measures would be taken to ensure public health and safety as well as worker safety in both the construction and operation of the plant and pipeline. • No additional demands for county public services would result from the construction and operation of the plant or pipeline because the Proposed Action would include all necessary utilities, including fire, security, water, wastewater disposal, and emergency medical care.	***Safety Issues*** Effects on traffic are similar to the Proposed Action but potentially more disruptive, since it includes use of Segment R3 and R4, which are also used for equipment deliveries and by commuters.	***Safety Issues*** Effects on traffic are less than Proposed Action, or Alternative R as Alternative T pipeline construction would take place parallel to a transmission line and not in close proximity to US 93. Other safety issues are the same as the Proposed Action.	

TABLE S-1 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE				
Affected Environment	Proposed Action	Alternative R Gas Pipeline Corridor	Alternative T Gas Pipeline Corridor	No Action
	Pipeline • The Proposed Action includes routine maintenance, aerial pipeline patrols, and leak inspection, which would reduce or eliminate potential impacts related to safety. <u>Conclusion</u>: No significant impacts are expected with the implementation of proposed actions to reduce or prevent adverse impacts.	<u>Conclusion</u>: Same as Proposed Action.	<u>Conclusion</u>: Same as Proposed Action.	
Noise	**Power Plant** • During plant operations, sound levels at closest residence would be approximately 54dBA Ldn, and no significant impacts would be expected. **All Elements** • Construction activities would result in temporary increases in noise levels in vicinity of construction activity. **Pipeline** • Sensitive receptors along the proposed pipeline (residences, businesses) would experience short-term and temporary noise from construction during weekday daylight hours, although these impacts are not expected to be significant. <u>Conclusion</u>: No significant impacts expected with the implementation of actions proposed to reduce or prevent adverse impacts.	**All Elements** Similar to Proposed Action, but includes more sensitive receptors along corridor segments R3 and R4; would also impact Carrow-Stephens ACEC users. <u>Conclusion</u>: Same as Proposed Action.	**All Elements** Similar to Proposed Action, but with more residences along corridor segment T5 along river and along US 93. <u>Conclusion</u>: Same as Proposed Action.	No impacts