white ratany, and graythorn, where conditions are appropriate.

- As mitigation for impacts from the access road on xeroriparian vegetation and wildlife habitat in Sycamore Creek, the vegetation on gravel bars adjacent to the roadway would be enhanced. The proposed areas for enhancement would be on the downstream side of the crossing. Habitats in these locations would be most likely to persist through flood events. Potential species that should be added to the vegetation in this floodplain include desert willow, catclaw acacia, honey mesquite, graythorn, wolfberry, and desert broom.

- With the implementation of these measures, there would be no residual significant impacts.

3.12 WETLANDS, RIPARIAN AREAS, AND WATERS OF THE UNITED STATES

This section describes the affected environment and environmental consequences relating to wetlands, riparian areas, and waters of the United States.

3.12.1 Wetlands and Riparian Areas

3.12.1.1 Affected Environment

The following sections describe the current wetland and riparian area conditions; this provides a baseline for the assessment of impacts and environmental consequences.

Region of Influence

The region of influence for assessing impacts on wetlands includes the perennial flow reach of the Big Sandy River, between Wikieup and Granite Gorge, with its associated jurisdictional waters of the United States; a small wetland near the proposed power plant site; the wetland associated with Cofer Hot Spring; and the Big Sandy River marsh. The only riparian area (other than xeroriparian habitats on ephemeral streams, which are discussed in Section 3.11) of concern for this Project is the riparian area on the Big Sandy River. The Big Sandy River wetland, riparian area, and associated waters of the United States are discussed as a single system.

For the purpose of this Draft EIS, the wetland definition adopted by the U.S. Environmental Protection Agency (EPA) and Army Corps of Engineers (COE) for administering Section 404 of the Clean Water Act was used. According to this definition, wetlands are:

> "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." (33 CFR 328.3(a)[7])

In accordance with this definition, a given area is designated as under the wetland regulatory jurisdiction of the COE if the hydrology results in inundated or saturated soils during the growing season, hydric soils are present, and the dominant vegetation is hydrophytic (COE 1987). Exceptions to these criteria may be allowed in disturbed conditions.

The jurisdictional authority for wetland protection is derived from several sources, beginning with the Clean Water Act of 1972. Section 404 authorizes the COE to grant permits for activities in wetlands or other jurisdictional waters of the United States, and it gives the COE authority to enforce against violations. Executive Order 11990 directs Federal agencies to take action to minimize the destruction, loss, or degradation of wetlands. Western's (DOE) regulations to comply with this order are specified in 10 CFR 1022, Compliance with Floodplain/Wetlands Environmental Review Requirements. BLM is responsible for monitoring and preserving wetlands and riparian areas under its administration. Specific

procedures for ecological site inventories in riparian and wetland sites are discussed in BLM Manual 1737, Riparian Area Management (BLM 1992).

Delineations of the wetlands that could be directly impacted have been prepared and submitted to the COE. Final concurrence from COE has not been received, and the areas reported below for those wetlands may be subject to revision.

Wetland Delineation Methods

Delineation procedures were based on diagnostic environmental indicators of wetland vegetation, wetland soils, and wetland hydrology. These procedures, outlined in the *Corps of Engineers Wetland Delineation Manual* (1987), are commonly known as the Triple Parameter Method. By definition, an area is designated as a wetland when there are positive indicators for wetland vegetation, soils, and hydrology.

A listing of plant species has been developed for use in delineating wetland areas (USFWS 1988). This listing assigns plant species to one of five indicator status categories ranging from obligate wetland species that almost always occur in wetlands, to upland species that rarely occur in wetlands. Under normal conditions, hydrophytic vegetation is determined to be present if more than 50 percent of the dominant species are in the obligate (OBL), facultative wetland (FACW), or Facultative (FAC) indicator categories.

Diagnostic indicators of hydric soils are related to soil saturation, which leads to anaerobic conditions in the soil. Under these conditions, decomposition of organic material is inhibited and soil minerals are reduced, giving characteristic soil colors that can be quantified by comparison with Munsell Soil Color Charts. A chroma of one or less in unmottled soils or a chroma of two or less in mottled soils generally indicates a hydric soil. In addition, soils that are saturated during the growing season satisfy a criterion for hydric soils. A hand auger was used to collect soil samples from a depth of 8 to 12 inches, or below the A horizon. Larger test pits were dug with a shovel.

A site is determined to have wetland hydrology if it is inundated or saturated to the surface continuously for at least 5 percent of the growing season in most years. In most areas, this represents a period of inundation or saturation of at least 14 consecutive days during the growing season. If no water is present at the time of evaluation, other indicators may include topographic low points or channels, flood debris, complete absence of vegetation, presence of hydric soils, or oxidized rhizospheres.

Existing Conditions

Wetland and Riparian Area #1 – Big Sandy River

Wetland and Riparian Area #1 is an extensive area with wetland conditions adjacent to a perennial reach of the Big Sandy River upstream of the US 93 bridge in Section 1, T15N, R13W (Figure 3.12-1). This is the largest riparian area within the region of influence. This riparian area is particularly important because it supports a population of southwestern willow flycatchers, an endangered species (refer to Section 3.14).

This wetland and associated riparian area extends upstream and downstream from the bridge for a total length within the region of influence of approximately 6 miles (refer to Figure 3.4-5). This wetland begins where the perennial flow originates in the Big Sandy River east of Wikieup. On private land in the vicinity of the US 93 bridge, this wetland has been heavily impacted by year-long livestock grazing, not authorized by a BLM grazing permit.

The delineation of this wetland was originally conducted by Greystone in July 2000, with subsequent adjustments by Environmental Planning Group (EPG), Inc. in December 2000. In addition to the delineated wetland, the Big Sandy River bed includes a wide area of other waters of the United States on each side of the wetland (Waters of the United States is defined

below in Section 3.12.2). This area extends the full length of the bridge from one abutment to the other, for a length of approximately 1,200 feet. This entire width shows evidence of intermittent flow that probably occurs at irregular intervals based on rainfall patterns. This area is dominated by riparian vegetation, including Fremont cottonwood, Goodding willow, screwbean mesquite, arrowweed, seep willow, and saltcedar. This area exhibits a number of characteristics of the Sonoran Desert cottonwood-willow riparian forest community, which is among the most threatened habitat types in the United States.

Using the wetland classification system of Cowardin et al. (1979), Wetland #1 is primarily an upper perennial riverine system with unconsolidated bottom and shore (R3UB). The wetland area adjacent to the river channel includes areas of palustrine emergent (PEM) and palustrine scrub-shrub (PSS) vegetative communities. Because of heavy impacts of grazing and trampling, vegetation is dominated by species tolerant of disturbances, including saltcedar, screwbean mesquite, arrowweed, seep willow, and bermuda grass. Table 3.12-1 provides a list of plant species observed in the wetland areas and in surrounding uplands. Watercress is present in the stream channel. A few individuals of Fremont cottonwood, Goodding willow, and spiny rush also are present in this vicinity.

Soils within the wetland area are typical of shifting riverbeds. There generally is a relatively thin surface layer of sandy clay, with occasional cobbles, underlain by sand. Soil color is not an acceptable indicator of hydric soil conditions in sandy soils, but other indicators such as a thin organic layer and perennially saturated conditions confirm the hydric soil designation in this wetland.

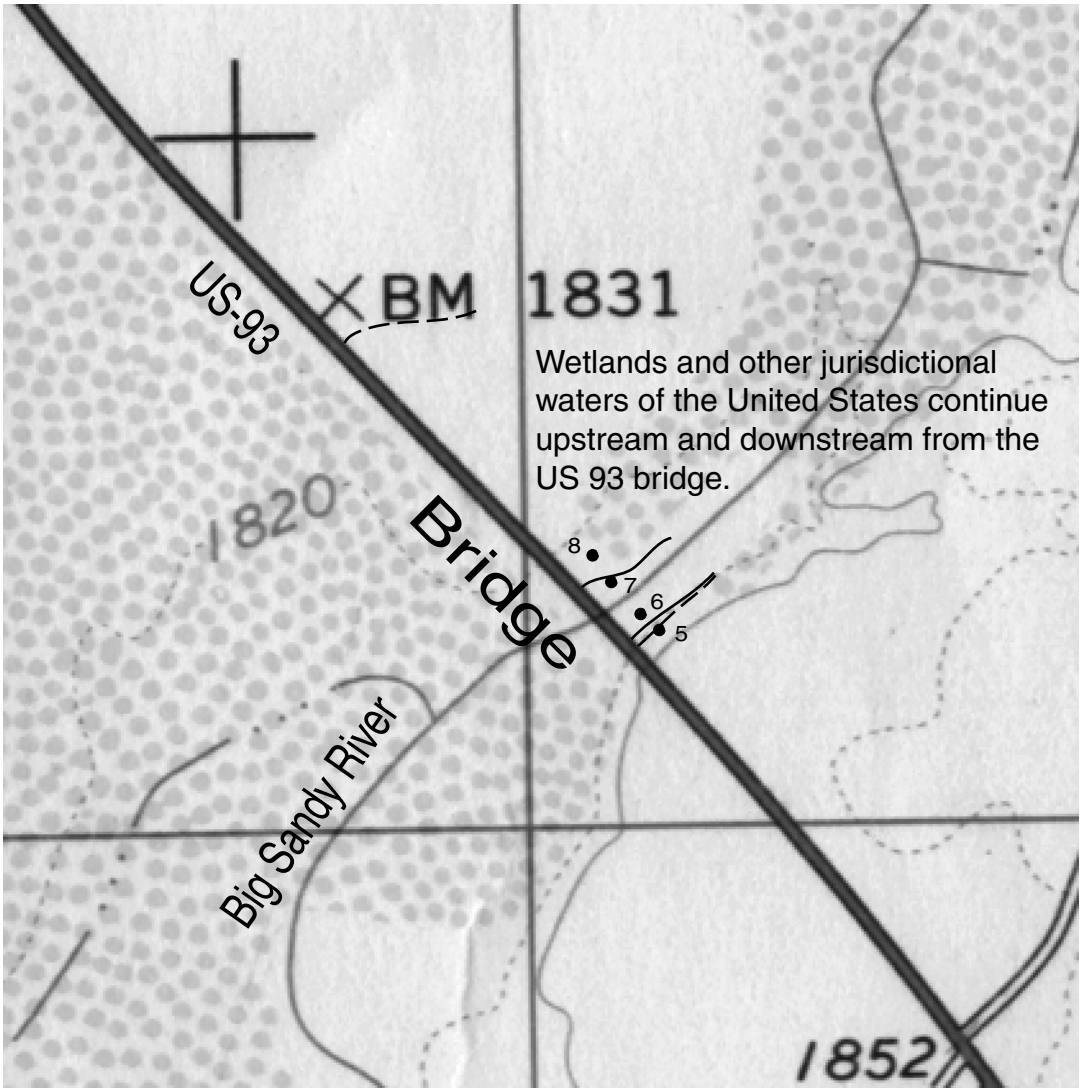
This wetland is supported hydrologically by a shallow water table and by perennial surface flow in the Big Sandy River. However, the zone of soil saturation and seasonal flow is much wider than the normal base flow width of the river. At the time of the December 2000 observations, soils were saturated at or near the surface throughout the wetland area.

Wetland #2 – Plant Site

Wetland #2 is a small area at an elevation of 2,060 feet in the southwest corner of Section 5, T15N, R12W (Figure 3.12-2). This wetland originates in an area of groundwater seepage at the head of a small channel that continues south off of the property. A portion of this wetland is fenced to exclude cattle and burros. An old springhouse is located within the fenced area. Previous water quality testing has shown water in this spring to have high concentrations of arsenic (Greystone 2001). The delineation of this wetland was originally conducted by Greystone in July 2000, with subsequent adjustments by EPG in December 2000. The area of this wetland on the Project property is estimated to be approximately 0.64 acre.

This wetland has been heavily impacted by past disturbances. Heavy grazing has stripped most of the vegetation outside the fence, and soils have been compacted. There appears to have been some grading or heavy equipment use on the northern and western edges of the wetland. An old jeep track is located on the western edge of the wetland area. There also appears to be an older area of earth movement at the easternmost part of the wetland, where no vegetation is present in the wetland or the adjacent upland.

Using the wetland classification system of Cowardin et al. (1979), this wetland contains areas of palustrine emergent vegetation (PEM) and palustrine scrub-shrub, broad-leaved deciduous vegetation (PSS1). Because of heavy impacts of grazing and trampling, the area outside the fence is limited to emergent vegetation, dominated by Olney bulrush, flat-sedge, and bermuda grass. The area within the fence has had no grazing or trampling disturbance, and it supports a wider diversity of emergent and shrub species, including southern cattail, Olney bulrush, Goodding willow, saltcedar, and seep-willow.



Approximate Wetland Boundary

Approximate Jurisdictional Waters of the United States Boundary

Approximate Data Point Location

N

0 500 1000
Feet

Ref.: USGS topographic map, Wikieup quad, 1967.

BIG SANDY ENERGY PROJECT
Sketch of Wetland #1

Date: 01/10/01

Figure 3.12-1

TABLE 3.12-1
PLANT SPECIES OBSERVED IN AND NEAR WETLAND AREAS*

Common Name	Scientific Name	Wetland Indicator Status**	Locations Observed	
			Wetland	Upland
Annual saltmarsh aster	*Aster subulatus*	OBL	X	
Arrowweed	*Pluchea sericea*	FACW	X	X
Bermuda grass	*Cynodon dactylon*	FACU	X	X
Cat-claw acacia	*Acacia greggii*	UPL		X
Creosote-bush	*Larrea tridentata*	UPL		X
Desert broom	*Baccharis sarothroides*	FAC	X	X
Fremont cottonwood	*Populus fremontii*	FACW	X	
Goodding willow	*Salix gooddingii*	OBL	X	
Graythorn	*Ziziphus obtusifolia*	UPL		X
Honey mesquite	*Prosopis glandulosa*	FACU		X
Jimmy-weed	*Isocoma heterophylla*	UPL		X
Mullein	*Verbascum thapsus*	UPL		X
Olney bulrush	*Scirpus americanus*	OBL	X	
Saltcedar	*Tamarix* sp.	NI	X	
Sand-spurry	*Spergularia marina*	OBL	X	
Screwbean mesquite	*Prosopis pubescens*	FACW	X	
Seep-willow	*Baccharis glutinosa*	FACW	X	
Smooth flat-sedge	*Cyperus laevigatus*	FAC	X	
Southern cattail	*Typha domingensis*	OBL	X	
Spiny rush	*Juncus acutus*	FACW	X	
Tree tobacco	*Nicotiana glauca*	FAC		X
Water-cress	*Rorippa nasturtium-aquaticum*	OBL	X	
White ratany	*Krameria grayi*	UPL		X
Wolfberry	*Lycium* sp.	UPL		X

* Species observed during December 2000 site visit.
** Wetland indicator status categories (COE 1987):
OBL – Obligate wetland species, nearly always found in wetlands, >99 percent in wetlands.
FACW – Facultative wetland species, usually found in wetlands, 67 to 99 percent in wetlands.
FAC – Facultative species, equally likely to be found in wetlands or uplands, 33 to 67 percent in wetlands.
FACU – Facultative upland species, usually found in uplands, 1 to 33 percent in wetlands.
UPL – Upland species, nearly always found in uplands, <1 percent in wetlands.
NI – No indicator status.

Soils within the wetland area show considerable variability, partially related to disturbance factors. The western edge of the wetland has been partially covered with a thin (1- to 2-inch) layer of material eroded from adjacent areas that have been disturbed by roads and grading. Cattle and burros have also trampled this area, leading to mixing and compaction of the upper soil layers. Soils within the fenced area are relatively undisturbed. Oxidized root zones are present in the A horizon, and the B horizon (generally greater than 8 inches below the surface) generally has low chromas with distinct mottles. A very strong sulfur smell was obvious in saturated soil samples and where the soil was disturbed by walking across it.

Areas of saturated soil and surface water were observed in July and December 2000. An old springhouse is located within the fenced area,

and pieces of plastic pipe were present in the wetland, indicating that this site had been developed for ranch use at some time in the past. The area of groundwater seepage is obvious because of a layer of whitish mineral deposits on the surface, resulting from seepage and evaporation of groundwater with a high mineral content. From this seepage area, surface flow continues south off of the property in a channel heavily covered with Olney bulrush.

Wetland #3 – Cofer Hot Spring

Cofer Hot Spring provides water to several small wetland areas These wetlands have not been delineated because they would not be subject to dredge or fill activities associated with the Project. The spring emerges in the landowner's backyard; wetland vegetation immediately surrounding the spring is routinely mowed by the landowner. Water from the spring runs through a flume and series of ditches feeding agricultural fields. Return water from irrigation, and any excess water not used for irrigation, is collected by several ditches and flows through a series of small ponds before entering a larger pond approximately 0.5 mile downstream of the spring. Wetland vegetation has developed around the ponds and to a small extent along ditches. Approximately 4 acres of wetlands are supported by waters from the spring, including approximately 2 acres of open water in the largest pond.

Wetland #4 – Big Sandy River Marsh

The Big Sandy River marsh in Section 24 contains at least a narrow strip of dense wetland vegetation closely surrounding a perennial reach of the Big Sandy River. This wetland has not been delineated because it would not be subject to dredge and fill activities associated with the Project. Due to its location within the Big Sandy River floodplain, this wetland is scoured by larger flood events, preventing the development of any substantial tree or shrub layers. The wetland contains high quality herbaceous vegetation dominated by cattail and bulrush.

Wetland vegetation covers at least 22 acres in a narrow strip along about 1 mile of river.

3.12.1.2 Environmental Consequences

Identification of Issues

The following issues were identified as the basis for the assessment of impacts:

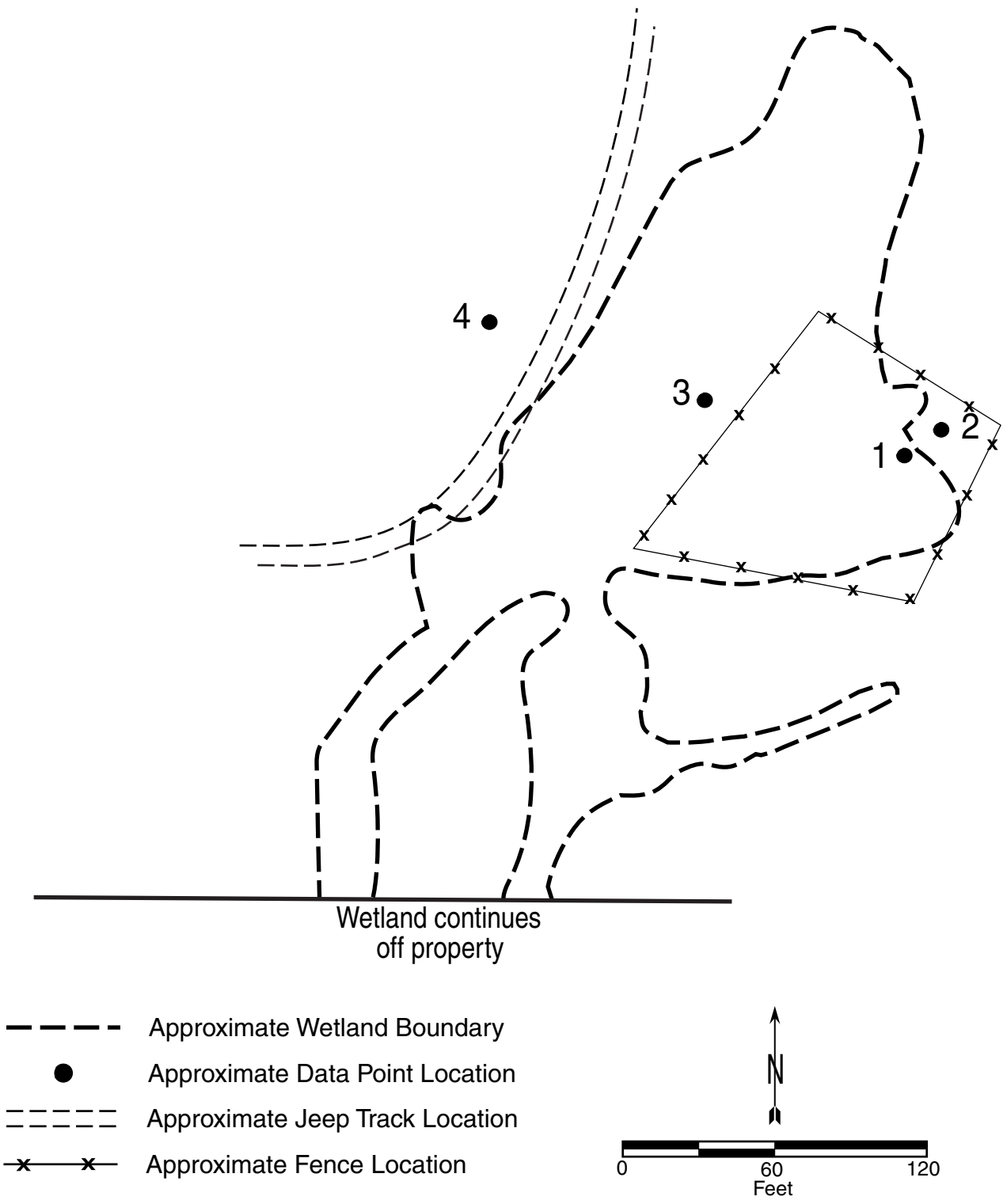
- impacts on wetlands
- loss or degradation of distinctive riparian vegetation, particularly cottonwood-willow communities
- indirect impacts on wetlands or riparian areas, which could occur through degradation of water quality, through diversion of water sources, or through erosion and sedimentation resulting from altered drainage patterns.

Significance Criteria

The effects of the Proposed Action and alternatives would be considered significant if there is any substantial unmitigated impact on wetlands or riparian zones.

Impact Assessment Methods

Wetlands were delineated using the methods described in Section 3.12.1.1. For the power plant and associated facilities, natural gas pipeline, and site access road where an area was determined to be a wetland according to the delineation criteria, the total area of impact was calculated. For the pipeline, an area of temporary impact was calculated based on a zone of impact 50 feet wide. A 50-foot zone of impact was assumed for (as opposed to a 90-foot zone of impact elsewhere on the pipeline alignment) because of special efforts incorporated into the Proposed Action to minimize impacts within these sensitive areas.



BIG SANDY ENERGY PROJECT
Sketch of Wetland #2

Date: 01/10/01

Figure 3.12-2

Actions Incorporated Into the Proposed Action to Reduce or Prevent Impacts

The following measures are included in the Proposed Action to reduce or prevent potential adverse impacts on wetlands and riparian areas.

Wetland and Riparian Area #1 – Big Sandy River

If trenching and backfilling are used to construct the natural gas pipeline in this crossing, construction would comply with FERC's "Wetland and Water Body Construction and Mitigation Procedures," as noted in Section 2.2.7.6. Other measures to minimize erosion and sedimentation impacts in this wetland are discussed in Section 2.2.8.2. During clearing, woody plants would be cut at ground level, and roots would be left intact to allow for regeneration. For this crossing, the construction activities would be confined to a narrow zone. After construction, the disturbed areas in Wetland #1 would be restored by backfilling and recontouring to preconstruction contours as noted in Section 2.2.8.2. The disturbed area would be covered with erosion control matting and would be reseeded.

Wetland #2 – Plant Site

Appropriate measures would be taken during construction to avoid indirect impacts on this wetland resulting from erosion or sedimentation related to construction activities, as noted in Section 2.2.8.2.

Wetland #3 – Cofer Hot Spring

Caithness has agreed in concept with the landowner to provide a well to access water from the lower aquifer to replace any water lost from reduction in spring flow. The landowner could use this water in a manner that maintains these wetlands.

Wetland #4 – Big Sandy River Marsh

Because the Project has the potential to reduce the quantity of groundwater that may be supporting the wetland, Caithness has proposed to augment the flow of water to this wetland (refer to Section 3.4.2.4 for additional details).

Impact Assessment

Proposed Action

Wetland and Riparian Area #1 – Big Sandy River

Construction Impacts— The Big Sandy River wetland at the US 93 bridge would be crossed by corridor segment R5 of the proposed gas pipeline corridor (refer to Section 2.2). If the natural gas pipeline across the Big Sandy River is constructed by trenching, installation, and backfill, there would be impacts on the wetlands associated with the river. The degree of impact is related to the type of vegetation being disturbed. Areas dominated by emergent vegetation with few, widely spaced shrubs can be restored to their preconstruction condition in a relatively short time. Areas with a dense stand of medium-sized shrubs or small saplings take a longer time period to restore, with a few to several years required to approach preconstruction conditions. If large riparian trees are lost during construction, the time required for full restoration could be of decades. Assuming a 50-foot-wide construction zone and a length of impact of approximately 175 feet, the area of temporary impact would be 8,750 square feet (sq. ft.) (0.20 acre). Measures to be undertaken as part of the Proposed Action to minimize erosion and sedimentation related to pipeline construction at the Big Sandy River crossing are described in Section 2.2.8.2.

Following trenching, pipeline installation, and backfilling, this wetland area would be restored to conditions approximating conditions prior to disturbance. There would be no need for continuing access. After three to five years vegetation would become reestablished, and there would be no continuing impacts on the Big Sandy River riparian zone related to the proposed natural gas pipeline. These impacts would not be significant.

If the pipeline is installed under the Big Sandy River and riparian zone by directional drilling, there would be no impacts on these wetlands. A detailed drilling plan, including depths and distances, would be developed prior to construction. Directional drilling would require additional work areas of approximately 100 feet by 300 feet on each side of the river. These work areas would be located outside the wetlands. Because appropriate measures would be taken as part of the Proposed Action during construction to avoid indirect impacts on wetlands, no impacts would be anticipated resulting from erosion or sedimentation from these areas.

Operational Impacts—Groundwater withdrawal for cooling water at the proposed power plant and for agricultural use was considered as a potential impact on wetlands. Because the Proposed Action contains measures to augment shallow groundwater and surface water, groundwater pumping is not likely to cause adverse impacts on this wetland.

The potential for operational impacts is very small. Repair caused by a failure of the pipe installed through the wetland would require new disturbance of the wetland at the area affected by the repair. Failure of a pipeline installed by directional drilling could be replaced or repaired without wetland disturbance.

Wetland #2 – Plant Site

Construction Impacts—The proposed layout for the power plant, substation, evaporation ponds, and plant driveway has been designed to avoid any direct impacts on Wetland #2. Together with the erosion and sedimentation control measures taken as a part of the Proposed Action (refer to Section 2.2.8.2), there would be no significant impacts on this wetland.

Operational Impacts—The proposed drainage plan would divert runoff from the ridge north of the plant site to a sedimentation basin west of the substation. This basin would discharge through a culvert to a stormwater discharge erosion protection structure near the west edge of Wetland #2. Water from this structure would be sent into the drainage that runs through the wetland. This flow is not expected to cause any impacts on the wetland because it is comparable to the current runoff that reaches this wetland through the natural channels that would be altered during plant construction.

Wetland #3 – Cofer Hot Spring

As discussed in Section 3.4.2.5, the Proposed Action is likely to substantially reduce or eliminate the flow of Cofer Hot Spring during the life of the Project. The approximately 4 acres of wetlands supported by flows from the spring likely would be reduced over time. Therefore, it is likely that the size of this wetland would decline over the life of the Project and eventually be eliminated. This impact would be significant.

Wetland #4 – Big Sandy River Marsh

Groundwater withdrawal for cooling water at the proposed power plant and for agricultural use was considered as a potential impact on wetlands. Because the Proposed Action contains measures to augment shallow groundwater and surface water, groundwater pumping is not likely to cause adverse impacts on this wetland.

Communication Facilities

The OPGW option would connect the proposed Big Sandy substation with the existing Peacock substation near I-40. This line would cross the Big Sandy River north of Wikieup, upstream from the perennial reach of the river. A survey of this route for wetlands was conducted as a part of the Alternative T gas pipeline corridor, with results documented in Greystone (2000). There are no wetlands along this route, thus installation of the OPGW would have no impact on wetlands.

The microwave dishes would be installedhes on existing towers and would have no impact on wetlands.

Alternative R Gas Pipeline Corridor

Corridor segment R5 of this alternative crosses the Big Sandy River at the US 93 bridge. Potential impacts would be as described above for the Proposed Action.

Alternative T Gas Pipeline Corridor

Potential impacts on wetlands would be the same as for the Proposed Action except there are no wetlands along this alternative pipeline corridor. Thus, constructing the pipeline within this corridor would have no impacts on wetlands.

No-Action Alternative

If the proposed power plant and related facilities are not constructed, there would be no new disturbances to wetland areas, and current conditions would continue. Impacts of grazing animals in the wetlands associated with the Big Sandy River would continue, as would the impacts of grazing animals in the unfenced portion of Wetland #2.

Mitigation and Residual Impacts

No measures to mitigate the significant impact on Cofer Hot Spring have been identified.

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

- The disturbed riparian areas of the Big Sandy River would be replanted with woody native species at a density of 3 to 1 of the individuals removed to accelerate restoration. Species would include Goodding willow, Fremont cottonwood, screwbean mesquite, and arrowweed.

- Temporary fencing to exclude livestock would be installed around the restoration area at Wetland #1 to ensure success of the revegetation efforts. This fencing could be removed after the trees and shrubs have become well established and would be less susceptible to damage by livestock.

If adopted, the following measures would be implemented to enhance the existing environment:

- Conditions at Wetland #2 would be substantially restored and enhanced by installing appropriate fences around the wetland and a suitable buffer area to exclude grazing animals. This fencing also would restrict access and limit potential impacts on this wetland by humans. Restoration of the heavily impacted area outside the fence at this wetland would be accelerated by planting native shrub species in the wetter areas. Possible species would include Goodding willow, seep-willow, screwbean mesquite, and arrowweed. This site may not have enough water to support Fremont cottonwood.

3.12.2 Waters of the United States

This section describes the affected environment and environmental consequences related to waters of the United States. Additional information regarding the Big Sandy River and springs is provided in Section 3.5.

Federal regulatory definitions of other waters of the United States are sufficiently broad to cover virtually any perennial, intermittent, or ephemeral stream (wash). These definitions include the following:

> "All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (33 CFR 328.3(a)[1])
>
> All interstate waters including interstate wetlands; (33 CFR 328.3(a)[2])
>
> All other waters such as intrastate lakes, rivers, streams (including intermittent

streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce; (33 CFR 328.3(a)[3])

All impoundments of waters otherwise defined as waters of the United States under the definition; (33 CFR 328.3(a)[4])

Tributaries of waters identified in paragraphs (a) [1]-[4] of this section." (33 CFR 328.3(a)[5])

These definitions can be interpreted to include all stream channels in this Project vicinity where there is evidence of flowing water. All channels in this vicinity are tributaries to the Big Sandy River, which in turn is tributary to the Bill Williams River and the Colorado River.

Delineation procedures for waters of the United States are based on environmental indicators of surface water flow. These washes do not have the characteristic soils or vegetation to be considered wetlands. The presence of surface water or saturated soil is very sporadic, depending on rainfall events, and these areas are not likely to satisfy the hydrology criterion for wetlands. The limits of waters of the United States in washes are normally considered to be the ordinary high water marks on each side of the wash. These limits are marked by evidence such as a bare sandy or gravelly streambed, lines of flow debris, or scouring evidence of flow.

The jurisdictional authority for protection of waters of the United States is derived from those sources cited for wetland protection in Section 3.12.1.1. Field characteristics to identify the limits of these jurisdictional waters of the United States are described above.

3.12.2.1 Affected Environment

The following sections describe the current waters of the United States; this provides a baseline for the assessment of impacts and environmental consequences.

Region of Influence

The region of influence for the analysis of impacts on waters of the United States includes the perennial and ephemeral portions of the Big Sandy River, washes in the proposed plant and substation vicinity, washes crossed by the plant access road, and washes crossed by either the proposed or alternative gas pipeline corridors, or the proposed OPGW route.

Existing Conditions

Proposed Power Plant Site, Substation, and Evaporation Ponds

The proposed power plant site and the associated substation and evaporation ponds would be located in the southwest corner of Section 5, T15N, R12W. This quarter-section encompasses several washes that are all tributaries of Gray Wash, which flows into the Big Sandy River about 1.5 miles south of the US 93 bridge. These washes have sandy-gravelly beds that are normally dry, except during heavy storm events. Four washes within the power plant and substation area were designated (Greystone 2001). Average widths of these washes are 9.2 feet, 9.8 feet, 8.6 feet, and 29 feet.

Well Sites in Section 7

Four water production wells and three monitor wells in the middle and lower aquifers would be located in the west half of Section 7, T15N, R12W. This half-section is crossed by six washes draining from northeast to southwest. These washes are part of a small, unnamed drainage basin between Sycamore Creek and Gray Wash, with an outlet to the Big Sandy River approximately 0.2 miles upstream from Gray Wash. These washes have sandy-gravelly beds that are normally dry, except during heavy storm events. The widths of these washes are 43.3 feet, 5.0 feet, 4.0 feet, 6.0 feet, 5.9 feet, and 4.0 feet.

Agricultural Development in Section 7

Up to 107 acres in the northwest corner of Section 7, T15N, R12W would be developed for agricultural use by MCEDA with land and water provided by Caithness as part of the Project. As noted above, this area is crossed by numerous washes that drain to the Big Sandy River.

Access Road

The proposed access road to the power plant site would run in an east-west direction from US 93 to the southwest corner of Section 5, T15N, R12W. This access road would follow the boundary line between Section 6 and Section 7, T15N, R12W, and it would connect to US 93 just east of the Big Sandy River. This access road would cross two washes, tributaries of Gray Wash, in the southwest corner of Section 5, with widths at the crossing estimated to be 70 feet and 6 feet. These washes have sandy or sandy-gravelly beds that are normally dry, except during heavy storm events.

The access road would cross washes on the boundary line between Section 6 and Section 7, all of which are in the unnamed basin between Sycamore Creek and Gray Wash. Measured widths of these washes are 7.1 feet, 18.5 feet, 71.2 feet, and 9.0 feet. These washes also have sandy or sandy-gravelly beds that are normally dry, except during heavy storm events (Greystone 2001).

The access road would cross Sycamore Creek, a wide wash in the southern half of Section 1, T15N, R13W. The total width of Sycamore Creek was measured at 1,350 feet. Sycamore Creek has a drainage basin of at least 20 square miles in the Aquarius Mountains. In this vicinity of the proposed access road crossing, Sycamore Creek is a wide zone of interbraiding channels. Because the channel locations and numbers may vary upstream or downstream from crossing, and because the channel locations will change over time as a result of flood events, the entire crossing must be considered as a water of the United States. All parts of this channel showed evidence of relatively recent flow at the time of a site visit in December 2000.

Communication Facilities

The OPGW option would connect the proposed Big Sandy substation with the existing Peacock substation near I-40. This line would be installed on existing transmission line towers. A survey of this route for waters of the United States was conducted as a part of the Alternative T gas pipeline corridor, with results documented in Greystone (2000). This route would cross 172 washes that are waters of the United States. Because installation of this line would be on existing structures with an existing maintenance road for construction access, the OPGW would have no new impact on waters of the United States.

The installation of microwave dishes on existing microwave towers would not affect waters of the United States.

Proposed Gas Pipeline Corridor

The proposed gas pipeline corridor begins at the existing pipeline north of I-40 and follows Hackberry Road to the southwest. North of the intersection with US 93, this corridor crosses over to follow the transmission line corridor south to its crossing over US 93 north of Wikieup. The corridor then follows US 93 south to the proposed access road and then east to the proposed power plant site. This corridor includes corridor segments R1, C1, T3, C3, T4, and R5, as described in Section 2.2 and illustrated on Figure 2-12.

Corridor segment R1 along Hackberry Road crosses 14 washes with sandy or sandy-gravelly beds. These channels were all measured at Hackberry Road and are tabulated in the *Big Sandy Energy Project – Wetlands and Waters of the United States Project Report* (Greystone 2001). These channels range in width from a minimum of three feet to a maximum of 170 feet at an unnamed wash about 1 mile south of I-40. Two other washes in this corridor segment are

between 20 and 30 feet wide, and four washes are between 10 and 20 feet wide, and seven washes are less than 10 feet wide. All of these ephemeral channels drain from the northwest and flow southeast into Knight Creek (Greystone 2001).

Corridor segment C1 extends west from Hackberry Road across US 93, and then southwest to connect with the transmission line corridor. This corridor segment crosses eight washes with sandy or sandy-gravelly beds. Continuations of five of these channels upstream from corridor segment C1 were measured and tabulated in Greystone (2001). One wash in this corridor segment was not measured either upstream or downstream, but it was measured on a subsequent site visit in March 2001. These channels range in width from a minimum of 3 feet to a maximum of about 40 feet at Bottleneck Wash. Only three of washes in this corridor segment are greater than 10 feet wide. All of these ephemeral channels drain from the northwest and flow southeast into Knight Creek.

Corridor segment T3 follows an existing transmission line south from corridor segment C1 for approximately 9 miles. Within this corridor segment the pipeline would cross 47 washes with sandy or sandy-gravelly beds. These channels were measured adjacent to the maintenance road in the transmission line rights-of-way. The widest of these crossings are at Mesa Wash (40.2 feet), Wheeler Wash (40 feet), Kabba Wash (36 feet), and an unnamed wash south of Wheeler Wash (31.3 feet). Five washes are between 20 and 30 feet wide, six washes are between 10 and 20 feet wide, and 32 washes are less than 10 feet wide. Because this corridor extends 1,000 feet on either side of the transmission line rights-of-way, the actual widths of wash crossings could be somewhat greater or less than these measurements, depending on whether the pipeline is located downstream or upstream from the transmission line rights-of-way. The actual number of washes could also vary because of channels combining or new washes developing up or down the slope (Greystone 2001).

Corridor segment C3 includes both the transmission line route and the US 93 route for a distance of approximately 1 mile. Greystone (2001) measured six washes along the transmission line right-of-way in this corridor segment, and nine washes adjacent to the highway. Because some washes flow together and new washes originate between the transmission line and US 93, there is no direct correspondence between the transmission line washes and the US 93 washes. In addition, a large ridge east of the highway diverts stream flow to the north or south. The two widest of these crossings are at an unnamed tributary of Knight Creek (28 feet) and an unnamed tributary of Cane Springs Wash (22 feet), and the minimum wash width in this corridor segment is 1.1 feet. Four of these washes are between 10 and 20 feet wide, and the remaining nine washes are less than 10 feet wide. Because this corridor extends 1,000 feet on either side of the transmission line corridor, the actual widths of wash crossings could be somewhat greater or less than these measurements, depending on the specific location of the pipeline.

Corridor segment T4 follows the transmission line south from C3. Greystone (2001) measured 61 washes along the transmission line right-of-way in this corridor segment. These washes range from a minimum width of 1.5 feet to a maximum of 51.3 feet. The widest of these wash crossings are an unnamed wash about 9 miles north of Wikieup (51.3 feet), an unnamed wash about 10 miles north of Wikieup (48.5 feet), Tompkins Canyon (39.5 feet), an unnamed wash about 3 miles north of Wikieup (34.8 feet), and Cane Springs Wash (36.1 feet). Six of the channels in this corridor segment are between 20 and 30 feet wide, 24 of these washes are between 10 and 20 feet wide, and the remaining 26 washes are less than 10 feet wide. Because this corridor extends 1,000 feet on the east side of the Mead-Liberty 345-kV transmission line right-of-way and up to 3,000 feet on the west side of the Mead-Liberty 345-kV transmission line right-of-way, the actual widths of wash crossings could be somewhat greater or less than these measurements, depending on the specific

location of the pipeline. The actual number of washes could also vary because of washes combining or new washes developing up or down the slope. All of these washes drain from the west and flow east into the Big Sandy River.

Corridor segment R5 follows US 93 south from T4 to the proposed county road. Greystone (2001) measured washes and one perennial channel adjacent to the highway in this corridor segment. The minimum wash width in this corridor segment is 2.1 feet. The widest ash is the Big Sandy River, where waters of the United States are approximately 1,200 feet wide, as discussed under Wetland #1 in Section 3.12.1.1. The widest of washes are Bronco Creek (257.6 feet), an unnamed wash on the south edge of Wikieup (117.5 feet), Natural Corrals Wash (123 feet), and an unnamed wash on the north edge of Wikieup (41.4 feet). Two of these washes are between 20 and 30 feet wide, two washes are between 10 and 20 feet wide, and the remaining 28 washes are each less than 10 feet wide. Because this corridor extends up to 400 feet on east side of the highway right-of-way, the actual widths of wash crossings could be somewhat greater or less than these measurements, depending on the specific location of the pipeline. All of these washes drain from the west and flow east into Big Sandy River.

Alternative R Gas Pipeline Corridor

The Alternative gas pipeline corridor would follow corridor segments R1, R2, R3, C3, R4, and R5, as described in Section 2.2.

Corridor segments R1, C3, and R5 are the same as described above for the proposed gas pipeline corridor.

Corridor segment R2 follows Hackberry Road between corridor segment C1 and US 93. Only washes are located in this corridor segment. These washes have widths of 8.5 feet and 2.6 feet, respectively. Both of these washes drain from the northwest and flow southeast into Knight Creek.

Corridor segment R3 follows US 93 south from Hackberry Road to corridor segment C3. Within this corridor segment, the pipeline would cross 39 washes with sandy or sandy-gravelly beds. The widest of these crossings are at Antelope Wash (96.0 feet), Moss Wash (65.0 feet), Kabba Wash (60.0 feet), two unnamed tributaries of Knight Creek (49.0 and 47.0 feet), and Bottleneck Wash (45.0 feet). Two washes are between 30 and 40 feet wide, five washes are between 20 and 30 feet wide, six washes are between 10 and 20 feet wide, and 20 washes are less than 10 feet wide. The narrowest wash in this corridor segment is 1.7 feet wide. Because this corridor segment extends 400 feet east of the highway right-of-way, the actual widths of wash crossings could be somewhat greater or less than these measurements, depending on the final pipeline location (Greystone 2001). All of these washes drain from the northwest and flow southeast into Knight Creek.

Corridor segment R4 follows US 93 south from corridor segment C3 to the transmission line crossing. Within this corridor segment, the pipeline would cross 74 washes with sandy or sandy-gravelly beds. The widest of these crossings are at Cane Springs Wash (170.0 feet), Deluge Wash (147.0 feet), and an unnamed wash about 9 miles north of Wikieup (60.7 feet). Eight other washes are between 40 and 60 feet wide, three washes are between 30 and 40 feet wide, two washes are between 20 and 30 feet wide, 14 washes are between 10 and 20 feet wide, and 44 washes are less than 10 feet wide. The narrowest wash in this corridor segment is 1.1 feet wide. Because this corridor segment extends at least 400 feet east of the highway right-of-way, the actual widths of wash crossings could be somewhat greater or less than these measurements, depending on the final pipeline location. In one area near Gunsight Canyon, the corridor segment extends approximately 1,500 feet east of the highway right-of-way to accommodate a future relocation of the highway (Greystone 2001). All of these washes drain from the west and flow east into the Big Sandy River.

Alternative T Gas Pipeline Corridor

The Alternative T gas pipeline corridor would parallel the transmission line from the existing pipeline north of I-40 to the proposed power plant site. This route would include corridor segments T1, T2, T3, C3, T4, and T5, as described in Section 2.2.

Corridor segment T1 would follow the transmission line south from the existing pipeline to the old route of US 93. Within this corridor segment, the pipeline would cross 18 washes with sandy or sandy-gravelly beds. The widest of these crossings are unnamed washes with widths of 48.0, 45.2, 38.3, and 35.0 feet. Five washes are between 20 and 30 feet wide, four washes are between 10 and 20 feet wide, and five washes are less than 10 feet wide. The narrowest wash in this corridor segment is 1.5 feet wide. Because this corridor segment extends 1,000 feet on either side of the transmission line rights-of-way, the actual widths of wash crossings could be somewhat greater or less than these measurements, depending on whether the pipeline is located downstream or upstream from the transmission line rights-of-way. The actual number of washes could also vary because of channels combining or new washes developing up or down the slope (Greystone 2001). All of these washes drain from the northwest and flow southeast into Knight Creek.

Corridor segment T2 would follow the transmission line rights-of-way south from the old route of US 93 to the crossover corridor, C1.Within this corridor segment, the pipeline would cross 15 washes with sandy or sandy-gravelly beds. The widest of these crossings is Bottleneck Wash with a width of 31.3 feet. Five washes are between 10 and 20 feet wide, and nine washes are less than 10 feet wide. The narrowest wash in this corridor segment is 4.0 feet wide. Because this corridor segment extends 1,000 feet on either side of the transmission line rights-of-way, the actual widths of wash crossings could be somewhat greater or less than these measurements, depending on whether the pipeline is located downstream or upstream from the transmission line right-of-way. The actual number of washes could also vary because of channels combining or new washes developing up or down the slope (Greystone 2001). All of these washes drain from the northwest and flow southeast into Knight Creek.

Corridor segments T3, C3, and T4 are the same as described above for the proposed gas pipeline route.

Corridor segment T5 would follow the transmission line rights-of-way southeast from the crossover of US 93 to the proposed power plant site, except for a diversion to cross the Big Sandy River at a perpendicular location. Within this corridor segment, the pipeline would cross 25 washes with sandy or sandy-gravelly beds. These washes range in width from a minimum of 2.5 feet to a maximum of 725 feet at the Big Sandy River. Other wide washes are at Bitter Creek (89.0 feet), Sycamore Creek (64.2 feet), and Boner Canyon (39.3 feet). Nine washes are between 10 and 20 feet wide, and 12 washes are less than 10 feet wide. Because this corridor segment extends 1,000 feet on either side of the transmission line rights-of-way, the actual widths of wash crossings could be somewhat greater or less than these measurements, depending on whether the pipeline is located downstream or upstream from the transmission line rights-of-way. The actual number of washes could also vary because of channels combining or new washes developing up or down the slope (Greystone 2001).

Crossover Segment C2

Crossover segment C2, on the old route of US 93 between the current highway and the transmission line rights-of-way, is not proposed to be used in any of the alternatives. Because this corridor segment is oriented parallel to the primary drainage direction in this vicinity, it would cross only one wash with a width of 3 feet. This stream channel flows from northwest to southeast into Bottleneck Wash.

3.12.2.2 Environmental Consequences

Identification of Issues

The following issue was identified as the basis for the assessment of impacts:

Impacts on jurisdictional waters of the United States may include the effects of filling or dredging waters of the United States for construction of the plant, substation, associated facilities, evaporation ponds, and access road, and the natural gas pipeline. Temporary impacts would be related to construction of the natural gas pipeline between the proposed power plant site and the existing pipeline near I-40.

Significance Criteria

Because "Waters of the United States" are part of a specifically defined regulatory program, the effects of the Proposed Action and alternatives would be considered significant if there would be significant impacts on the resources associated with the functions of the waters of the United States. For the purposes of this Draft EIS, significant impacts on the following resources also would be considered significant impacts on waters of the United States:

- *Groundwater* – Waters of the United States perform valuable functions of groundwater recharge and baseflow discharge from groundwater.
- *Surface Water* – Waters of the United States provide channels to transport surface flow in perennial, ephemeral, or intermittent systems.
- *Floodplains* – Waters of the United States and associated floodplains provide storage areas for storm waters.
- *Recreation, Wilderness, and Visual Resources* – Waters of the United States may provide recreational areas and may be aesthetically valuable as visual resources.
- *Vegetation* – Waters of the United States may support broadleaf riparian forests adjacent to perennial channels or xeroriparian vegetation adjacent to washes.
- *Wetlands* – Waters of the United States constitute a broad group of aquatic features that include wetlands.
- *Fisheries* – Waters of the United States in perennial or intermittent systems may support native fish populations.
- *Wildlife* - Waters of the United States and their associated vegetative communities support valuable wildlife habitat.
- *Threatened, Endangered, or Sensitive Species* - Waters of the United States and their associated vegetative communities may support a variety of threatened, endangered, and sensitive species.

Impact Assessment Methods

Waters of the United States were delineated using the methods described in Section 3.12.2.1 for the proposed power plant and associated facilities, natural gas pipeline, and site access road. Where an area was determined to be a jurisdictional water according to the delineation criteria, the total area of impact was calculated. For the pipeline, an area of temporary impact was calculated based on a zone of impact 90 feet wide. For the access road, the zone of permanent impact with regard to waters of the United States would be 75 feet, including the paved surface, the shoulders, and the slope areas down to undisturbed conditions.

Actions Incorporated Into the Proposed Action to Reduce or Prevent Impacts

The following actions have been incorporated into the Proposed Action to reduce or prevent impacts on waters of the United States.

Proposed Power Plant Site

- To minimize erosion, the offsite stormwater system would discharge through an erosion protection structure into an existing wash that enters the west side of Wetland #2.

- To provide for the stormwater transport function of the existing washes on the proposed plant site, an offsite ditch and the onsite stormwater collection system would be constructed.

Access Road

- The stormwater transport function of Sycamore Creek and other washes would be maintained by providing culverts sized to handle the 100-year, 24-hour storm event at each of the crossings. At the Sycamore Creek crossing, the expected culvert design would be as described in Section 2.2.4.

- During construction in or near waters of the United States, appropriate measures would be taken to avoid or minimize downstream indirect effects, as noted in Section 2.2.8.2. Silt fences and/or straw bales would be used to control erosion and sedimentation. Any spills of fuels, lubricating fluids, or hydraulic fluids from construction equipment would be recovered immediately to avoid downstream movement in subsequent rainstorms.

Well Sites in Section 7

- During drilling activities in or near waters of the United States, measures would be taken to avoid or minimize downstream indirect effects, as noted in Section 2.2.8.2. Silt fences and/or straw bales would be used to control erosion and sedimentation. Any spills of fuels, lubricating fluids, or hydraulic fluids from construction or drilling equipment would be recovered immediately to avoid downstream movement in subsequent rainstorms.

- Impacts on waters of the United States caused by construction of the monitoring wells would be reduced by providing an alternate channel for transport of stormwater that would have been carried in the disturbed channels.

Gas Pipeline Route

- Construction in this area would comply with FERC's "Wetland and Water Body Construction and Mitigation Procedures," as noted in Section 2.2.7.6. Other measures to minimize erosion and sedimentation impacts in this wetland are discussed in Section 2.2.8.2. During clearing, woody plants would be cut at ground level, and roots would be left intact to allow for regeneration. Any spills of fuels, lubricating fluids, or hydraulic fluids from construction equipment would be recovered immediately to avoid downstream movement in subsequent rainstorms. After construction, these streams would be recontoured to their preconstruction conditions, and would be reseeded. During construction in these waters of the United States, appropriate measures would be taken to avoid or minimize downstream indirect effects. Silt fences and/or straw bales would be used to control erosion and sedimentation.

Impact Assessment

Proposed Action

Proposed Power Plant Site

The proposed power plant site is located in the southern part of Section 5, T15N, R12W, adjacent to the existing Mead-Phoenix Project 500-kV transmission line. Three small washes would be impacted by construction of the power plant and substation. These washes flow into an unnamed wash that is a tributary of Gray Wash. Gray Wash flows into the Big Sandy River about 1 mile downstream from Sycamore Creek. Construction of the evaporation ponds west of the existing Mead-Phoenix Project transmission

line would impact four other small washes and one larger wash. These washes are also tributaries of Gray Wash.

Construction activities would result in the losses of 1,544 linear feet of wash channel. The total area of impact on waters of the United States for the power plant and substation would be 24,977 sq. ft. (about 0.6 acre).

Impacts on washes from the evaporation pond were estimated from the preliminary drainage plan map (refer to Figure 2-15) prepared by Caithness. The four small washes have a combined length of approximately 1,960 feet, as measured on the preliminary drainage plan map. The larger wash has a length of approximately 210 feet. The total area of impact for the small washes would be 9,800 sq. ft., and the impact area for the larger wash would be 4,200 sq. ft., for a total impact area of 14,000 sq. ft. (about 0.3 acre).

Access Road

Between US 93 and the proposed plant site, the proposed access road would cross one large wash and several small washes. The most significant crossing is on Sycamore Creek, in the southeast corner of Section 1, T15N, R13W. The total width of this wash was measured at approximately 1,350 feet (Greystone 2001). Assuming a construction width of 75 feet on the road, the total temporary area of direct impact in Sycamore Creek would 0.75 acres. The concrete box culvert across Sycamore Creek would be constructed of 10 individual boxes each having a dimension of 8 by 12 by 58 feet. The adjacent boxes would be placed parallel to the stream flow, and at a 60-degree angle to the road, as described in Section 2.2.4. The total area of permanent impact would be 0.47 acre.The other wash crossings are much smaller. All of these are located near the heads of small drainage basins, with drainage areas much less than 0.25 square mile. These washes have widths of 3.6 feet to 18.8 feet. The combined area of impact for these channels would be 0.02 acre of permanent disturbance.

Including Sycamore Creek, the total area of impact on waters of the United States related to the proposed access road would be 0.75 acre. The access road would be a permanent installation, and therefore impacts would be permanent. However, because the final access road surface would be narrower than the 75-foot-wide corridor assumed for construction, permanent disturbance would be 0.49 acre.

Well Sites in Section 7

Four of the production and monitoring wells were located to avoid impacts on waters of the United States. Production well PW2, and observation well OWMA2 and observation well OW2 would each impact one ephemeral wash. Impacts were calculated for these wells based on a 200-foot square pad centered at the well sites. The areas of impact for these three wells are 1,953 sq. ft., 1,017 sq. ft., and 1,215 sq. ft., respectively. The total area of impact related to these wells would be 4,185 sq. ft. (0.096 acre).

Agricultural Development in Section 7

As noted above, the Proposed Action includes providing land and water to MCEDA for agricultural development in Section 7, T15N, R12W. Up to 107 acres could be developed for growing a variety of crops. The area available for development includes numerous washes that would be affected by conversion to agricultural fields. Based on Greystone (2001), the northwest corner of Section 7 is crossed by two medium-sized washes and nine tributary washes. Conversion of this area to agricultural use would result in a loss of these waters of the United States. The total impact on waters of the United States for the agricultural development would be approximately 3.260 acres. This area could be reduced if larger washes could be avoided, but irrigated agriculture requires large, flat areas for crops. Because of the density of washes in this area, it would not be possible to avoid all washes.

Communication Facilities

The OPGW option would connect the proposed Big Sandy substation with the existing Peacock substation near I-40. Because the line would be installed on existing structures and drainage would be avoided during selection of pulling and tensioning sites, installation of the OPGW would have no impact on waters of the United States.

The microwave dishes would be installed on existing towers and would have no impact on waters of the United States.

Proposed Gas Pipeline Corridor

The proposed natural gas pipeline route would follow the route of the proposed access road from the proposed power plant site to US 93. The pipeline would be located adjacent to the roadway and would have a temporary impact width of 40 feet. As noted above under the access road impacts, this segment of the pipeline would cross one large and six small washes. At the Sycamore Creek crossing, the anticipated area of impact would be 1.240 acres. The total area of impact in this corridor segment, including Sycamore Creek, would be 1.408 acres.

From the junction of the proposed access road and US 93, the proposed pipeline route would cross approximately 172 washes that are jurisdictional waters of the United States, not including the Big Sandy River. The actual number could be slightly higher or lower, depending on the exact alignment of the pipeline within the corridor. In each of these washes, the pipeline construction procedure would include trenching, laying the pipe, backfilling, and recontouring the surface.

The width of each of these washes was measured, and areas of direct construction impacts were calculated based on a 90-foot-wide construction corridor. It is important to remember that the final placement of the pipeline within the corridor may change the number of wash crossings and the total area of impact, but the anticipated areas of impact given below are expected to be representative of the final impacts.

Within corridor segment R1, the anticipated area of impact on waters of the United States would be 0.67 acre in 14 washes. In corridor segment C1, there would be approximately 0.2 acre of impact in 8 washes. In corridor segment T3, the anticipated area of impact would be 1.050 acre in 47 washes. Within corridor segment C3, the anticipated area of impact is expected to be between about 0.09 acre on six washes and 0.18 acre on nine washes, depending on the final location of the pipeline. Another wash is located parallel to US 93 and within 400 feet of the highway for a distance of approximately 1,500 feet. If the pipeline were not located to avoid this wash, there would be an additional impact on waters of the United States of up to about 0.31 acre.

In corridor segment T4, the anticipated area of impact would be about 1.64 acre in 61 ephemeral streams. Within corridor segment R5, the expected area of impacts would be about 1.51 acre in 36 washes. In addition, the impact on waters of the United States associated with the Big Sandy River crossing by trenching would be 1.38 acres.The maximum total area of impact on waters of the United States for the proposed pipeline route would be approximately 8 acres, including the 1.38 acres for the Big Sandy River crossing. This assumes that the pipeline would avoid those waters of the United States that parallel the pipeline route.

Alternative R Gas Pipeline Corridor

The Alternative R gas pipeline route would cross approximately 175 washes that are jurisdictional waters of the United States. The actual number could be slightly higher or lower, depending on the exact location of the pipeline within the corridor. In each of these washes, the pipeline construction procedure would include trenching, laying the pipe, backfilling, and recontouring the surface.

The width of each of these washes was measured at the highway, and areas of impact were calculated based on a 90-foot-wide construction corridor. It is important to remember that the final placement of the pipeline within the corridor may change the number of wash crossings and the total area of impact, but the anticipated areas of impact given below are expected to be representative of the final impacts. The impacts on waters of the United States in corridor segments R5, C3, and R1 would be the same as the Proposed Action.

In corridor segment R2, there would be approximately 0.02 acre of impact in two ephemeral streams. In corridor segment R3, the anticipated area of impact would be about 1.49 acres in 39 washes. In corridor segment R4, the anticipated area of impact would be about 2.67 acres in wash. In addition, another wash is located parallel to US 93 and within 400 feet east of the highway for a distance of approximately 4,500 feet, north of Cane Springs Wash. If the pipeline were not located to avoid this wash, there would be additional impacts on waters of the United States of up to about 1.67 acre. Near the south end of corridor segment R4, the corridor extends about 1,500 feet east of the existing highway. This portion of the corridor includes a linear distance of about 8,000 feet within the Big Sandy River floodplain in waters of the United States. If the pipeline were not located to avoid this floodplain, there would be an additional impact on waters of the United States of up to about 16.53 acres.

The total area of impact on waters of the United States for the Alternative R gas pipeline corridor would be approximately 11 acres, assuming that the pipeline would avoid those waters of the United States that parallel the pipeline route.

Alternative T Gas Pipeline Corridor

The Alternative T gas pipeline route would cross approximately 172 washes that are jurisdictional waters of the United States. The actual number could be slightly higher or lower, depending on the exact location of the pipeline within the corridor. In each of these washes, the pipeline construction procedure would include trenching, laying the pipe, backfilling, and recontouring the surface.

The width of each of these washes was measured at the transmission line rights-of-way, and areas of impact were calculated based on a 90-foot-wide construction corridor. It is important to remember that the final placement of the pipeline within the corridor may change the number of wash crossings and the total area of impact, but the anticipated areas of impact given below are expected to be representative of the final impacts. The impacts on waters of the United States in corridor segments T4, C3, and T3 would be the same as the Proposed Action.

Within corridor segment T1, the anticipated area of impact on waters of the United States would be about 0.75 acre in 18 washes. In corridor segment T2, there would be approximately 0.34 acre of impact in 15 washes. Within corridor segment T5, the expected area of impacts would be about 2.26 acres in 25 washes. The crossing at the Big Sandy River accounts for most of this area, with an impact area of 1.498 acre.

The total area of impact on waters of the United States for the Alternative T gas pipeline route would be approximately 6.22 acres, assuming that the pipeline would avoid those waters of the United States that parallel the pipeline route.

No-Action Alternative

Under the No-Action Alternative, there would be no disturbances to waters of the United States at the proposed power plant site. No natural gas pipeline would be constructed, and there would be no disturbance to wash crossings on either of the potential routes. The access roads and well pads constructed on private land to serve the wells that were used to identify and test the lower aquifer would remain.