

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF THE AGENCY STAFFS' ENVIRONMENTAL ANALYSIS

The Agency Staffs have determined that construction and operation of the Phoenix Expansion Project would result in limited adverse environmental impacts. These limited impacts would be most significant during the period of construction. This determination is based on a review of the information provided by Transwestern and further developed from data requests; field investigations; scoping; literature research; alternatives analysis; and contacts with federal, tribal, state, and local agencies, and individual members of the public. The Agency Staffs have concluded that if the project is constructed and operated in accordance with applicable laws and regulations, Transwestern's proposed mitigation, and our additional mitigation measures, it would be an environmentally acceptable action. The environmental effects of constructing and operating the proposed project and Transwestern's proposed and our additional mitigation measures are summarized below. The FERC staff is recommending that these mitigation measures be attached as conditions to any authorization issued by the Commission. These mitigation measures are presented in section 5.3.

5.1.1 Geology

Construction and operation of the proposed pipeline and aboveground facilities would not materially alter the geologic conditions of the project area. Seismic hazards, landslides, flooding, and subsidence are unlikely to impact the project. However, streambed scour could potentially expose the proposed pipelines or leave short segments of the pipelines unsupported. Transwestern would bury the pipelines at greater than typical depths beneath major drainages and named waterbodies and some minor drainages and would conduct site-specific scour analyses at two locations along the Phoenix Lateral deemed susceptible to major scour events, the Gila River and Vekol Wash, to determine the appropriate depth for burial.

Blasting would be necessary in areas of shallow bedrock that could not be excavated by conventional methods. All blasting activities would be conducted in strict compliance with Transwestern's Blasting Procedure and in accordance with federal, state, and local regulations regarding the use, storage, and transport of explosives; safety; and environmental protection.

With the exception of one area near the Verde River within the Prescott National Forest, the proposed project is not located in an area with a high potential for important paleontological resources. Transwestern would implement specific measures to record and protect paleontological resources, if encountered.

5.1.2 Soils

Construction of the pipelines and aboveground facilities could expose soils to erosional forces, compact soils, affect soil fertility, bring rock to the surface, and facilitate the dispersal and establishment of weeds. Transwestern proposes to mitigate these potential impacts by implementing its UECRM Plan. Transwestern would also implement its Restoration Plan that includes project-specific measures developed in consultation with the BLM and the FS. The BLM and the FS have indicated that they are satisfied with the measures included in the Restoration Plan; however, because these agencies and other applicable agencies may identify additional restoration concerns before construction, we are recommending that Transwestern coordinate with the BLM, the FS, and other applicable agencies to finalize its Restoration Plan to address any additional restoration concerns identified by these agencies. Transwestern's UECRM and Restoration Plans would be incorporated into the BLM/FS/BOR POD for

the project, which would also include additional site-specific stipulations that are determined by the BLM, the FS, and the BOR to be necessary on federal lands under their jurisdiction.

Transwestern would implement a post-construction crop monitoring program to maintain the level of production of the affected soils. The program would evaluate crop productivity and success for a period of 2 years following construction. Transwestern would prepare activity reports during this period documenting any problems identified and describing corrective actions taken to remedy these problems. These reports would be submitted to the FERC on a quarterly basis. The FERC, BLM, and FS staffs would also monitor the right-of-way after construction. If after 2 years it is determined that cropland crossed by the pipeline has not been restored successfully, Transwestern would implement additional restoration measures. Restoration monitoring in native desert areas is discussed in section 5.1.4.

5.1.3 Water Resources

Groundwater

For the majority of the project, groundwater levels are generally well below the land surface that would be affected by construction activities. One public water supply well is located approximately 71 feet from the proposed construction work area near MP 43.8 of the Phoenix Lateral. Forty other private wells have been documented within 150 feet of the construction work area, 39 of which are along the Phoenix Lateral. Documented and undocumented wells encountered during construction that are adjacent to, or within the construction right-of-way, would be fenced with yellow/orange safety fence and marked by iron stakes to prevent physical damage to the wells. No hazardous materials would be stored and no refueling would occur within 200 feet of any private water well or 400 feet of any public water supply well. The Agency Staffs have reviewed Transwestern's SPR Procedures and find that they adequately address the storage and transfer of hazardous materials and petroleum products, and the response to be taken in the event of a spill.

Any necessary blasting would be done in accordance with Transwestern's Blasting Procedure. Transwestern would offer to conduct pre- and post-construction testing of all existing private water supply wells within 150 feet of the construction work area. If blasting or construction activities temporarily impair the quality or yield of a water supply well, Transwestern would either provide a temporary source of water (e.g., bottled) to residents or compensate the landowner. If the water is used for farming or livestock operations, temporary water would be trucked from a municipal water source until the water supply well is repaired or replaced. In the unlikely event that water quality or yield is permanently impaired as a result of blasting or other construction activities based on post-construction testing, Transwestern would arrange for the water supply well to be repaired or replaced.

Surface Waters

The proposed project would cross 8 perennial waterbodies and approximately 805 intermittent and ephemeral waterbodies. In addition, several canals that provide water for general use and irrigation would be crossed. Sixty-three waterbodies, all designated as ephemeral, would be crossed by access roads associated with the project.

Transwestern proposes to cross intermittent and ephemeral waterbodies that are dry at the time of construction using the dry open-cut method, which involves standard upland cross-country construction techniques. Intermittent and ephemeral waterbodies that are flowing at the time of construction would be crossed using the wet open-cut method. For some of the remaining waterbody crossings, Transwestern has stated that the crossing would be constructed using the methods described in its WWCM Procedures but has not provided the specific crossing method. The majority of the irrigation canals would be crossed

using a conventional bore. During construction across waterbodies, Transwestern would implement the mitigation procedures in its UECRM Plan and WWCM Procedures, its Restoration Plan, and its SPR Procedures.

Although subsurface conditions at the San Juan River may not be conducive to a successful HDD installation, in response to comments received from the COE, Transwestern proposes to attempt an HDD crossing of the river. Impacts on the San Juan River would be minimized through the successful use of the HDD crossing method. The primary impact that could occur as a result of an HDD crossing is an inadvertent release of drilling mud (also referred to as a frac-out) directly or indirectly into the waterbody. Transwestern has prepared an HDD Plan that describes how the HDD operation would be conducted and monitored to minimize the potential for inadvertent drilling mud releases as well as corrective actions and procedures for clean up of drilling mud releases and for sealing the hole if the HDD cannot be completed.

If the HDD is not successful, Transwestern proposes to cross the San Juan River using a modified wet open-cut method. Transwestern has submitted site-specific HDD and wet open-cut crossing plans for the San Juan River to the FERC staff. The site-specific HDD crossing plan depicts a 70-foot-wide construction right-of-way between the HDD entry and exit locations that would be used for installation of the HDD contractor's guidance controls that are necessary to control the location of the drill head throughout the HDD process. Transwestern has stated that some hand clearing would be necessary to install the tracking system; however, it would not clear the entire 70-foot-wide construction right-of-way shown on the site-specific plan and would minimize the impacts of clearing when installing the surface tracking coils along the HDD path. Within the notes section of the site-specific crossing plan it states that the contractor shall attempt to minimize clearing along the HDD path when installing the surface tracking coil cable. Based on our experience, this note has the potential to be overlooked before clearing activities begin. Therefore, we are recommending that Transwestern revise its site-specific HDD crossing plan for the San Juan River to include a prominent note that only minimal hand clearing to install the aboveground HDD guidance system shall be conducted between the HDD entry and exit locations.

We have reviewed the site-specific wet open-cut crossing plan for the San Juan River and determined that the extra workspace depicted on the crossing plan is acceptable. Due to the presence of the federally listed endangered Colorado pikeminnow and razorback sucker in the river and the uncertainty over whether the river can be successfully crossed using the HDD method, the FERC staff initiated formal consultation with the FWS regarding the impact of the project on these species (see section 5.1.6). The San Juan River also supports the state-listed endangered roundtail chub. In its comments on the draft EIS, the NMDGF requested that it be notified 7 days in advance of the start of in-stream construction activities at the San Juan River.

Because of the potential for adverse impacts on listed species should the HDD fail and a wet open-cut crossing be necessary, we are recommending that Transwestern not begin a wet open-cut crossing of the San Juan River until it: files documentation of the events leading up to the HDD failure with the Secretary; files documentation that it has provided at least 7 days advance notification of the start of in-stream activities at the San Juan River to the NMDGF; and receives written notification from the Director of OEP that a wet open-cut crossing may begin.

Groundwater and Surface Water Uses During Construction

Transwestern would use both groundwater and surface water resources for hydrostatic testing. The withdrawal of large volumes of water from surface water sources could temporarily affect the recreational and biological uses of the resource if the diversions constitute a large percentage of the source's total flow or volume. The withdrawal of large volumes of water from private or public water supply wells could exceed the delivery capacity of the system or well.

Transwestern would minimize the potential for these effects by adhering to the hydrostatic testing measures included in its WWCM Procedures. The rate of water withdrawal from private or municipal sources would be limited so as not to exceed the delivery capacity of the system or well. Transwestern would be testing only new pipe and no chemicals would be added to the test water.

The potential impacts resulting from the discharge of hydrostatic test water include soil erosion and stream scour and subsequent degradation of water quality. Hydrostatic test water discharges would be conducted in accordance with the requirements of the applicable New Mexico, Navajo Nation, and Arizona NPDES permits. The discharge rate would be regulated, and water would be discharged through an energy dissipation device and sediment barriers, as necessary, to prevent erosion or excessive flow.

Water would also be needed to control fugitive dust during construction. Although Transwestern has prepared a Dust Control Plan, it does not include estimates of the quantities of water that would be required for dust control or specify the water sources or measures to protect aquatic resources during dust control water withdrawals. Therefore, we are recommending that Transwestern prepare and file a revised Dust Control Plan that specifies the sources of water that would be used for dust control, the anticipated quantities of water that would be required, and measures to prevent fish and fish egg entrainment during dust control water withdrawals.

Wetlands

Based on Transwestern's wetland delineations, four palustrine emergent wetlands would be crossed by the project for a total distance of approximately 196.9 feet. These four wetlands would be crossed by the Phoenix Lateral. Transwestern would mitigate construction-related impacts on wetlands by implementing its WWCM Procedures. In its WWCM Procedures, Transwestern is proposing a 120-foot-wide right-of-way at the Verde River because of site-specific conditions at the crossing location. The Agency Staffs agree that due to the existing site conditions, a 120-foot-wide construction right-of-way at the Verde River would be acceptable.

In addition to implementing its WWCM Procedures, Transwestern would comply with the COE's section 404 and the ADEQ's section 401 permit conditions.

5.1.4 Vegetation

The primary impact of the project on vegetation would be the cutting, clearing, and/or removal of existing vegetation within the construction work area. Secondary effects associated with disturbances to vegetation could include increased soil erosion, increased potential for the introduction and establishment of invasive weedy species, and a local reduction in available wildlife habitat. Other potential effects on vegetation could include the contamination of soils from spills or leaks of fuels, lubricants, and coolants from construction equipment that would restrict the ability of vegetation to become re-established.

In general, to reduce impacts on vegetation communities, Transwestern would overlap its construction and permanent rights-of-way between 15 and 100 feet with existing rights-of-way for approximately 60 percent of the proposed pipeline rights-of-way and would implement the provisions of its UECRM Plan, WWCM Procedures, Restoration Plan, and SPR Procedures.

Native desert communities comprise about 3,809.3 acres (66 percent) of the vegetation communities that would be affected by the project. The removal of desert vegetation would have a long-term impact because the arid characteristic of these habitats is not conducive to plant growth and would slow the regeneration of vegetation following construction. Some of the specific measures that Transwestern would implement to reduce impacts and improve revegetation in desert environments

include segregating up to 3 inches of soil from the full width of the construction right-of-way for redistribution after construction is complete; adjusting the limits of clearing to avoid certain areas of undisturbed sensitive vegetation (e.g., large ironwood trees or saguaro cacti); crushing, shredding, or cutting vegetation in areas where grading is not required and preserving it for redistribution as mulch after construction; applying seed at selected locations to promote revegetation; and working with third parties including the Arizona Department of Agriculture and the Central Arizona Cactus and Succulent Society to facilitate the salvage of plants.

Following construction, Transwestern would monitor restoration of the native desert areas disturbed by construction both qualitatively and quantitatively for a period of 5 years following construction. The data and analysis would be provided to the applicable land management agency and if, in consultation with the land management agency, it is determined that restoration is not progressing adequately, remedial measures would be implemented. Additional monitoring would be conducted if determined necessary by the applicable land management agency.

Riparian vegetation communities are important in that they provide high quality wildlife habitat. Approximately 80.0 acres of riparian communities would be affected by construction of the project. To reduce impacts on riparian vegetation within the construction and permanent rights-of-way, Transwestern would implement the measures included in its WWCMM Procedures, which restricts vegetation maintenance within 25 feet of a waterbody. In addition, Transwestern would revegetate disturbed riparian areas with conservation grasses and legumes or native plant species, preferably woody plant species.

Transwestern has developed a Noxious Weed Management Plan to prevent the spread of noxious weed infestations within the project area. Following construction, the right-of-way would be monitored for the presence of noxious weeds for 5 years. On federal lands, Transwestern would be required to monitor for a longer period if determined necessary by the applicable land management agency. Any post-construction weed control treatment methods conducted would be coordinated in consultation with the landowner or land management agency. Although Transwestern's Noxious Weed Management Plan appears to address the majority of the weed control issues identified by the BLM and the FS, other issues may be identified by these and other applicable agencies before construction. Therefore, we are recommending that Transwestern finalize its Noxious Weed Management Plan to address any additional issues or concerns identified by these agencies.

5.1.5 Wildlife and Aquatic Resources

The impact of the project on wildlife species and their habitats would vary depending on the requirements of each species and the existing habitat present in the areas affected by the project. Direct impacts of construction on wildlife would include the displacement of wildlife on the right-of-way and the potential mortality of some individuals. During construction, Transwestern would reduce the loss of individual animals by implementing its Trenching and Wildlife Guidelines that were developed based on recommendations from the AGFD and the NMDGF. Secondary effects of construction could include lower reproductive success by disrupting courting, nesting, or breeding of some species, which could also result in a decrease in the food stock available for predators of these species. These effects, however, would cease after construction, and wildlife would return to the newly disturbed areas and adjacent, undisturbed habitats after right-of-way restoration is complete.

The cutting, clearing, and/or removal of existing vegetation within the construction work area would also affect wildlife by reducing the amount of available habitat for nesting, cover, and foraging. Transwestern's proposed conservation measures to minimize or avoid impacts on special status species, as well as any additional measures that the FWS would require, would serve to avoid, minimize, or compensate for impacts on wildlife and wildlife habitat.

The clearing of vegetation during the nesting season could have direct impacts on individual migratory birds. Although Transwestern has stated that it would attempt to schedule the majority of construction activities in native habitats outside of the breeding season for migratory birds, due to the overall duration of the construction schedule, avoidance of the breeding season would not be possible. The AGFD recommended that Transwestern conduct surveys to determine when bird species may be utilizing the project area and develop a plan to avoid disturbance during the breeding season. Transwestern has filed a preliminary Migratory Bird Plan that includes potential measures to minimize impacts on migratory birds. Some of the measures proposed include the destruction of nests during the dormant (i.e., non-breeding) season, the preclearing of suitable nesting vegetation from the right-of-way, and the installation of temporary barriers to make existing nests unusable during the construction period. Certain mitigation measures included in the plan pertain specifically to large migratory birds (e.g., raptors and ravens) and some pertain to all migratory birds; however, it is not clear exactly why the distinction is made and in certain cases it is not clear to which group the specific measures apply. Because Transwestern is currently working with the FWS to finalize the mitigation measures contained in its Migratory Bird Plan, we are recommending that Transwestern continue to consult with the FWS and finalize its plan to protect migratory bird species during construction, including: specific details of the measures that would be implemented to protect nesting migratory birds; clarification as to which measures apply only to large migratory birds and which measures apply to all migratory birds; and a discussion of the basis for those distinctions.

Fishery resources in the waterbodies that would be crossed by the proposed project would be limited to the eight proposed crossings of perennial waterbodies: the San Juan River and five tributaries to the San Juan River along the San Juan Lateral Loop A in New Mexico, and the Verde River and the Enterprise Canal along the Phoenix Lateral in Arizona. The San Juan River and the five unnamed tributaries to the river are designated for both marginal coldwater aquatic life and warmwater aquatic life at the proposed crossing locations.

In Arizona, the Verde River does not support a commercial or sport fishery in the vicinity of the proposed crossing, but the river is considered sensitive because of the special status species and critical habitat it is known to support. The Enterprise Canal does not have specific water quality designations, but canals in Arizona typically support domestic water use, irrigation, and livestock watering, which are uses that are not indicative of supporting sustainable populations of aquatic resources.

Construction of the pipeline and the use of access roads across waterbodies would increase the sedimentation and turbidity of the water, the potential for streambank erosion, and the potential for fuel and chemical spills. These effects could impact aquatic resources. Construction-related impacts on aquatic resources could also result from in-stream blasting, hydrostatic testing, and water withdrawals for dust control. The degree of impact would depend on the proposed crossing method, the existing conditions at each crossing location, the mitigation measures employed, and the timing of construction.

Transwestern anticipates that some in-stream blasting may be required. Transwestern would use techniques to minimize the blast pressures and cause mobile species to move out of the blast area before detonation. It is expected that the preparation of the rock for blasting (i.e., drilling shot holes) would cause enough disturbance to displace most aquatic organisms from the immediate vicinity of the blast. Immediately following blasting, Transwestern would remove shot rock that impedes streamflow. Transwestern has also prepared a Blasting Procedure to minimize the effects of blasting and ensure safety during blasting operations.

In accordance with its WWCM Procedures, Transwestern would screen intake piping to prevent fish and fish egg entrainment during hydrostatic test water withdrawals and obtain approval from the

appropriate federal and state agencies to use the San Juan River as a water source because it supports the federally and/or state-listed Colorado pikeminnow, razorback sucker, and roundtail chub.

Transwestern's waterbody crossing plans and proposed mitigation as well as our recommended mitigation measures to protect water quality and aquatic resources are discussed in section 5.1.3. The status of the FERC's consultation with the FWS under the ESA regarding the federally listed aquatic species and designated critical habitat that would be potentially affected by the project is discussed in section 5.1.6.

5.1.6 Special Status Species

Based on consultation with the FWS, 15 federally listed threatened and endangered species were identified as potentially occurring in the proposed project area in New Mexico and Arizona. The list includes three mammals, four birds, six fish, and two plants. Two bird species, the bald eagle and the cactus ferruginous pygmy owl, have been delisted and one bird species, the yellow-billed cuckoo, is a candidate for federal listing. Eight species would not be affected due to lack of habitat in the project area or the unlikelihood of occurrence and have been eliminated from further consideration. These species include the black-footed ferret, Mexican gray wolf, Mexican spotted owl, desert pupfish, Gila chub, Gila topminnow, Arizona agave, and the Mesa Verde cactus. In consultation with the cooperating agencies, we have determined that, with the implementation of Transwestern's UECRM Plan, WWCM Procedures, Restoration Plan, SPR Procedures, HDD Plan, and proposed conservation measures, the proposed project is not likely to adversely affect four species (the lesser-nosed bat, least tern, southwestern willow flycatcher, and Yuma clapper rail). Three species (the Colorado pikeminnow, the razorback sucker, and the spikedace) were identified as likely to be adversely affected by the proposed project. We have also determined that the project is likely to result in the destruction or adverse modification of designated critical habitat for the spikedace, which occurs at the proposed crossing location of the Verde River.

In compliance with section 7 of the ESA, the FERC staff submitted a separate BA to the FWS with a request for concurrence with these determinations of effect and to initiate formal consultation. In a letter dated June 7, 2007, the FWS indicated that it concurred with the FERC's determinations of effect and that formal section 7 consultation for the Phoenix Expansion Project was initiated on May 9, 2007. The FWS is expected to issue a BO as to whether the proposed project would likely jeopardize the continued existence of the Colorado pikeminnow, the razorback sucker, and the spikedace or result in the destruction or adverse modification of critical habitat for the spikedace. The BO would contain the FWS' non-discretionary terms and conditions in order to ensure that the project would not jeopardize the continued existence of these species.

Because the FERC staff has not completed its section 7 responsibilities, we are recommending that Transwestern not begin construction activities until it completes any outstanding species-specific surveys and the FERC receives comments from the FWS regarding the preconstruction survey reports, the FERC completes formal consultation with the FWS, and Transwestern receives written notification from the Director of OEP that construction and/or implementation of conservation measures may begin.

Based on consultation with the NMDGF and a search of the natural heritage database, 14 state-listed threatened and endangered species were identified as potentially occurring within the proposed project area. Five of these species are also federally listed species and five others lack habitat in the project area or were not located during field surveys and have been eliminated from further consideration. Transwestern's proposed conservation measures would avoid or minimize impacts on three state-listed species (the bald eagle, broad-billed hummingbird, and roundtail chub). Our recommendation to conduct surveys for active peregrine falcon nests before beginning construction of the San Juan Lateral Loops and develop conservation measures to prevent impacts on active peregrine falcon nests, if found, would avoid

or minimize impacts on the remaining state-listed species, the peregrine falcon. Therefore, it is unlikely that the proposed project would adversely affect these species.

Based on consultation with the FWS, the BLM, the FS, the NNDFW, the NMDGF, and the AGFD, 78 other special status species (i.e., those not federally or state-listed or proposed listed endangered or threatened) were identified as potentially occurring within the proposed project area. Based on the results of habitat evaluations and species-specific surveys, 41 of these special status species are unlikely to occur in the project area or would not be affected by the project. The proposed project is also not expected to have significant adverse impacts on 31 of the remaining 37 species. For the six remaining special status species (the belted kingfisher, western burrowing owl, lowland leopard frog, Mexican garter snake, Sonoran desert tortoise, and Tucson shovel-nosed snake), Transwestern would conduct additional surveys, consult further with the appropriate agency to develop conservation measures, and conduct monitoring for individuals during construction. In the case of the Sonoran desert tortoise, Transwestern would compensate for any lost habitat on BLM-managed lands. In the case of the Tucson shovel-nosed snake, any shovel-nosed snakes trapped in the pipeline trench or otherwise encountered would be held and turned over to the AGFD for ongoing studies. By implementing these measures, the proposed project is not expected to have an adverse effect on these special status species.

5.1.7 Land Use, Recreation and Special Interest Areas, and Visual Resources

Approximately 86 percent of the pipeline facilities would be constructed in or adjacent to various existing rights-of-way. Approximately 22.4 miles (91 percent) of the San Juan Lateral Loops would overlap existing rights-of-way by 25 feet. Along the Phoenix Lateral, approximately 68.2 miles (31 percent) would overlap existing rights-of-way by 15 feet, about 1.9 miles (1 percent) would overlap by 50 feet, and about 85.7 miles (38 percent) would overlap by 100 feet. The customer laterals extending from the Phoenix Lateral and not immediately adjacent to the right-of-way would be constructed on newly created right-of-way.

Construction of the pipeline facilities (includes pipeline right-of-way, temporary extra workspace, access roads, and offsite areas) would temporarily affect about 5,992.2 acres of land. Rangeland would be the primary land use affected by construction of the pipeline facilities totaling about 3,944.8 acres (66 percent). The remaining land uses that would be disturbed consist of 1,658.3 acres (28 percent) of developed land, 351.9 acres (6 percent) of agricultural land, and 37.2 acres (less than 1 percent) of residential land. Most of this land would be allowed to return to previous uses after construction is completed; however, about 1,467.1 acres of rangeland, 142.4 acres of agricultural land, 106.8 acres of developed land, and 14.7 acres of residential land would be retained as new permanent right-of-way. Additionally, about 325.5 acres of developed land and 2.6 acres of rangeland would be permanently affected to create new or modify existing roads for access. Construction and operation of new aboveground facilities associated with the proposed project would affect 19.7 acres of range, developed, and agricultural lands.

Based on civil surveys conducted in 2006 and 2007, Transwestern has identified 55 existing residences that would be located within 50 feet of the proposed construction work area (i.e., construction right-of-way and temporary extra workspaces). Of the 55 residences, 3 are located along the San Juan Lateral Loop A, 1 is located along the San Juan Lateral Loop B, and 51 are located along the Phoenix Lateral. An additional 54 structures (e.g., buildings, sheds) are located within 50 feet of the proposed construction work area along the San Juan Lateral Loops A and B and the Phoenix Lateral. No residences or structures would be located within 50 feet of the construction work area along the customer laterals. Due to the rapid rate of development in some areas along the proposed route, Transwestern has committed to providing the FERC with quarterly updates of residences and structures within 50 feet of the construction work area.

Temporary impacts during construction of the pipeline facilities in residential areas could include increased traffic, noise, and dust generated by vehicles and equipment, personnel, and trenching of roads or driveways; ground disturbance of lawns; removal of trees, landscaped shrubs, or other vegetative screening between residences and/or adjacent rights-of-way; potential damage to existing septic systems or wells; and removal of aboveground structures, such as fences, sheds, or trailers, from within the right-of-way.

Where there are residences or business establishments that are greater than 25 feet but less than 50 feet from the edge of the construction right-of-way, Transwestern would: 1) install safety fence at the edge of the construction right-of-way for a distance of 100 feet on either side of the residence/business; 2) attempt to maintain a minimum distance of 25 feet between any residence/business and the edge of the construction work area for a distance of 100 feet on either side of the residence/business; and 3) attempt to leave plantings and landscaping intact within the construction work area unless the landscaping interferes with pipeline construction or presents unsafe working conditions.

In addition to these measures, Transwestern would follow site-specific residential and structural implementation plans to minimize disruption and to maintain access to the residences, businesses, and structures within 50 feet of the construction work area associated with the pipelines. To date, Transwestern has provided site-specific plans for some of the residences, businesses, and structures currently identified within 50 feet of the construction work area. Because these plans are not complete, and additional residences and structures within 50 feet of the construction work area are expected to be identified before construction, we are recommending that Transwestern prepare and file an updated table listing all residences, businesses, and structures within 50 feet of the construction work area and site-specific residential and structural implementation plans for these residences, businesses, and structures before construction.

During construction, Transwestern would implement a Landowner Complaint Resolution Procedure to address problems that may arise. All information regarding landowner complaints would be summarized in the applicable biweekly status report and submitted to the Commission throughout the construction phase.

In addition to the existing residences adjacent to the right-of-way, the project would cross or abut 39 different developments that are either under construction, approved, or proposed. The primary impact of the project on these developments would be to place permanent right-of-way on lots, which could affect the constructability or value of the lots. The effect of this encumbrance would be the subject of negotiation between the developer or landowner and Transwestern. Transwestern has committed to working with developers and local governments to reduce the impact of the proposed project on approved and proposed developments. For example, Transwestern would incorporate planned future street and utility crossings into the final project design at its expense. Furthermore, in response to comments, the FERC staff evaluated route alternatives and route variations in an effort to avoid or reduce impacts on approved and proposed developments and is recommending that Transwestern adopt certain route variations that would avoid direct impact on five specific developments in Pinal County, Arizona and develop a variation to minimize impact on another development in Maricopa County, Arizona (see section 5.1.13).

The proposed alignment of the Phoenix Lateral along the North Santa Cruz Wash (i.e., The Wash) would impact the City of Casa Grande's municipal golf course and could impact the City's plans to install sanitary sewer infrastructure and recreational trails along The Wash. In response to the City's concerns, the FERC staff evaluated two route alternatives that could potentially reduce impacts on the City's plans and local community, but determined that the proposed route along The Wash is environmentally and economically preferable to the alternatives (see section 5.1.13). We are

recommending that Transwestern work with the City of Casa Grande to minimize the impact of the Phoenix Lateral on the City's future sanitary sewer infrastructure in The Wash and to finalize negotiations with the City regarding the mitigation measures that Transwestern would implement to minimize impacts on the municipal golf course and future recreational trails in The Wash.

The proposed project would cross 64.7 miles of BLM-managed land under the jurisdiction of the BLM Farmington District (Farmington Field Office) in New Mexico and the BLM Phoenix District (Hassayampa and Lower Sonoran Field Offices) in Arizona. The BLM uses ROS designations to aid in the management and planning of BLM lands. A review of the BLM's resource management plans for each of the field offices indicates that the proposed project would conform to these plans in their current forms and when recently revised versions of these plans are adopted. Therefore, the proposed project would conform to BLM plans and programs, subject to site-specific conditions that may be implemented as a result of this analysis.

About 9.0 miles and 20.4 miles of the Phoenix Lateral would be located within the Kaibab National Forest and Prescott National Forest, respectively. Based on a review of the forest plans, the project would be consistent with the management plans because it would not involve the development of a new utility right-of-way through restricted areas, would be located adjacent to existing pipeline rights-of-way, and would be buried underground.

The proposed pipeline facilities would not cross any existing national or state-designated Wild and Scenic Rivers, registered national natural landmarks, national parks, or state parks. However, the proposed route would cross recreation or special interest areas and is adjacent to several others. In general, impacts on recreation and special interest areas would be temporary and would be limited to the period of active construction, which typically would last only several days to several weeks in any one area.

The FS and the BLM have expressed concern about the creation of new roads, improvements to existing roads, and the potential for improved access introducing an increase in public OHV use as a result of the newly cleared construction right-of-way and improved access roads. Transwestern has developed a Forest Service Access Management Plan for Forest System lands and has committed to preparing maps for Forest System lands and BLM-managed areas that depict OHV deterrent locations, road closures, new project access, road improvements, and road reclamation, if necessary. Transwestern has not provided these maps and has not developed an access management plan for BLM-managed lands. Therefore, we are recommending that Transwestern update its Forest Service Access Management Plan to include these maps and any necessary deterrents to prevent increased OHV use and develop a similar access management plan for BLM-managed lands. We are also recommending that the plans include information regarding the frequency of monitoring that would be conducted, the methodology for reassessing the implemented measures in the future, and enforcement measures.

The visual impacts of the project would be greatest at the aboveground facility sites. Modifications at the existing aboveground facilities would result in an incremental increase in impacts on visual resources but would generally be minor because of the presence of the existing facilities. Transwestern would paint all aboveground facilities to blend with the surrounding landscape, thus reducing visual impacts. Along the pipeline route, visual impacts would be greatest where the pipeline route parallels or crosses roads and the pipeline right-of-way may be seen by passing motorists and on residents in areas where vegetation used for visual screening of existing utility rights-of-way or for ornamental value would be removed. The duration of visual impacts would depend on the type of vegetation that is cleared or altered.

To minimize visual impacts, Transwestern would reduce the clearing of existing vegetation by adjusting the clearing boundaries to avoid selected individual specimens of native desert vegetation, feather the edge of the right-of-way in visually sensitive areas to obscure the edge of the construction right-of-way, and preserve native vegetation removed during clearing operations for redistribution over the disturbed areas as part of restoration activities. These and other measures Transwestern would implement to reduce impacts on vegetation and improve revegetation potential are included in Transwestern's Restoration Plan.

The BLM identified one major visual area of concern along the pipeline route, Sunset Point, which is a popular scenic rest area. Several areas on Forest System lands are particularly known for their visual resources. These include Little Hell Canyon Reservoir within the Kaibab National Forest and Hell Canyon within the Prescott National Forest. Transwestern conducted a detailed visual resources study along the pipeline right-of-way to inventory and assess the level of visual modification in the landscape that could result from the construction, operation, and maintenance of the proposed project and developed mitigation measures for these and other areas. Although these mitigation measures were approved by the BLM and the FS and incorporated into the Restoration Plan, these agencies noted that they may provide further comments on the detailed restoration plans specific to lands under their management. As discussed in section 5.1.2, we are recommending that Transwestern coordinate with the BLM, the FS, and other applicable agencies to finalize its Restoration Plan to address any additional restoration concerns identified by these agencies and file the final Restoration Plan before construction.

Transwestern assumes that its existing mainline system in the project area (excluding the San Juan Lateral) has the potential to contain regulated levels of PCBs, a common contaminant in natural gas transmission systems in the United States. Transwestern would remove potentially PCB-containing pipeline liquids at the Ash Fork Facility and would comply with other regulations pertaining to the storage and disposal of PCBs.

5.1.8 Socioeconomics

Construction of the project would not have a significant impact on local populations, housing, employment, or the provision of community services. There would be minor temporary increases in traffic levels due to the commuting of the construction workforce to the project area as well as the movement of construction vehicles and delivery of equipment and materials to the construction right-of-way. Construction of the project would temporarily increase the demand for public services such as emergency response, medical, and traffic control but these effects would be offset by increases in local government revenues. The only long-term socioeconomic effect of the project is likely to be beneficial, based on the increase in tax revenues that would accrue to the counties affected by the project.

No disproportionately high and adverse human health or environmental effects on minority and/or low income communities have been identified.

5.1.9 Cultural Resources

Transwestern consulted with the Arizona and New Mexico SHPOs, the BLM, the FS, the ASLD, and the Navajo Nation and has completed cultural resources investigations for the majority of the proposed pipeline corridor and ancillary facilities. A total of 221 cultural resources were recorded during surveys of the San Juan Lateral Loops A and B, the Phoenix Lateral, and associated ancillary facilities. One hundred thirty-three sites have been recommended as not eligible for listing on the NRHP. No further work is recommended at 130 of these sites. Additional archival research would be done for two historic sites and a historic pet burial would be monitored. Seventy-five sites are recommended as eligible for listing on the NRHP and 13 sites require additional work to determine their eligibility.

Transwestern indicates that 88 of the eligible and unevaluated sites can possibly be avoided by construction activities. If avoidance is not feasible, testing and/or archival research would be conducted to determine the potential project impacts and the extent of subsurface deposits.

Transwestern prepared its Unanticipated Discovery Plans to be used in the event that cultural resources or human remains are discovered during construction. Transwestern's Unanticipated Discovery Plans include contact information for its cultural resources consultant and specify contact protocols in the event of a discovery. If the discovery is determined to be of NRHP significance, a treatment plan (such as avoidance, monitoring, and/or scientific data recovery) would be developed and implemented in consultation with the appropriate parties. In addition, a treatment plan would be created for the unanticipated discovery of Native American human remains and funerary objects. Specific provisions for treatment and disposition of Native American human remains and funerary objects would be determined on a case-by-case basis in consultation with the appropriate SHPO, the landowner or land management agency, the FERC, the culturally affiliated tribe(s), and lineal descendants.

Transwestern consulted with 36 Native American tribes regarding the project. As of November 2006, 13 tribes have requested copies of the cultural resources survey report and provided comments to Transwestern. Eight tribes have expressed no specific interest in the project. The Commission's NOI dated February 6, 2006 was sent to 175 individuals from 22 Native American tribes and the Navajo Nation. In addition, the FERC staff sent consultation letters on June 9, 2006 to 11 tribes to describe the project and invite the tribes to attend a meeting on June 28, 2006. The June 28, 2006 meeting was attended by six representatives from four tribes, as well as representatives from the BIA, the Inter Tribal Council of Arizona, the BLM, and Transwestern. The meeting included discussions of the cultural resources survey procedures, results, and eligibility recommendations for possible listing of cultural resources sites on the NRHP; the PA process and the tribes' role in that process; and environmental monitoring during project construction. The concerns raised by Native American tribes throughout the environmental review process were addressed in the draft EIS.

The draft EIS was sent to 129 individuals from 36 Native American tribes and the Navajo Nation. One Native American tribe, the Hopi Tribe, submitted comments on the draft EIS. The Hopi Tribe's comments are included in Volume II of this final EIS with the Agency Staffs' response to each comment.

Based on consultations with the THPOs and the SHPOs, and staff of other federal agencies, the FERC has determined that the project would have an effect on historic properties. Therefore, a PA has been prepared for the project that provides for developing and implementing treatment plans to minimize effects on historic properties, and completing studies to identify and to evaluate these effects. Once a treatment plan is approved by the consulting parties to the PA, Transwestern would implement the specific treatment measures before notice to proceed with project construction is authorized in any given area. Implementation of treatment would occur only after certification of the proposed project.

To ensure that the FERC's responsibilities under the NHPA and its implementing regulations are met, we are recommending that Transwestern defer implementation of any treatment plans/mitigation measures (including archaeological data recovery), construction of facilities, and use of all staging, storage, or temporary work areas and new or to-be-improved access roads until it files the remaining survey reports, any cultural resources reports that were revised to address agency comments, required treatment plans, and the comments of the consulting parties on all cultural resources reports and plans submitted for review; and the Director of OEP notifies Transwestern that treatment plans/mitigation measures may be implemented or construction may proceed.

5.1.10 Air Quality and Noise

Except for the construction equipment and activities associated with building the proposed project facilities, there would be no air emissions generated that would require an air emission permit. Because there would be no stationary sources or operational emissions associated with the project, the stationary source permitting requirements of the NMED, the ADEQ, the Maricopa County Air Quality Department, and the Pinal County Air Quality Control District do not apply.

Fugitive dust regulations adopted by the Maricopa County Air Quality Department and the Pinal County Air Quality Control District do apply to the construction activities associated with the proposed project. The construction activities that would be the greatest emissions-generating activities include clearing, grading, and trenching operations. These construction activities would occur in daylight hours during the construction periods, except in situations where a specific activity would need to be completed without stopping (e.g., road crossings, hydrostatic testing, HDD operation). The intermittent and short-term emissions generated by these activities would include dust from soil disruption and combustion emissions from the construction equipment. Emissions associated with construction equipment include PM₁₀, PM_{2.5}, NO_x, CO, SO₂, VOC, and small amounts of air toxics. In areas not designated as nonattainment or maintenance for the NAAQS, these emissions could result in minor, temporary impacts on air quality in the vicinity of pipeline installation.

The only portions of the project that would be constructed in currently designated nonattainment or maintenance areas would be in Maricopa County, Arizona. Based on Transwestern's estimates, project emissions during construction of the Phoenix Lateral in 2008 would exceed general conformity pollutant thresholds for NO_x emissions in a portion of Maricopa County that is designated as a Subpart 1 ozone nonattainment area. Therefore, a General Conformity Determination is required for Maricopa County.

The 8-hour ozone nonattainment designation went into effect on June 15, 2004, and a SIP addressing attainment with the standard for this pollutant was due to the EPA on June 15, 2007. The MAG was responsible for developing the 8-hour ozone SIP. At the time of the draft EIS, the draft 8-hour SIP was still under development; however, in a letter dated March 21, 2007, the MAG provided a commitment to include the 2008 construction emissions from both ozone precursors (i.e., NO_x and VOC) for the applicable portions of the Phoenix Expansion Project as part of the emissions budgets in the draft SIP. Based on the MAG's commitment, the FERC included a Draft General Conformity Determination in the draft EIS for the Phoenix Expansion Project. Since that time, the MAG completed the draft 8-hour ozone SIP, placed the document on public notice, conducted public hearings, and responded to comments. The 8-hour ozone SIP was adopted by the MAG on June 11, 2007. The 8-hour ozone SIP was transmitted by the MAG to the ADEQ, which subsequently submitted it to the EPA on June 14, 2007 for review and approval.

Under Title 40 CFR Part 51.858(a)(5)(i)(A) and Title 40 CFR Part 93.158(a)(5)(i)(A), conformity of a general federal action is demonstrated if the total of direct and indirect emissions from the action (or portion thereof) is determined and documented by the state agency primarily responsible for the applicable SIP (i.e., the ADEQ), when combined with all other emissions in the nonattainment or maintenance area, to not exceed an emissions budget specified in the applicable SIP. Although the 8-hour ozone SIP for the Phoenix-Mesa Planning Area has been submitted to the EPA and contained this demonstration, it will not be considered the "applicable SIP" with respect to Title 40 CFR Part 51 and Title 40 CFR Part 93 until it has been approved by the EPA. Therefore, the "applicable SIP," as defined by Title 40 CFR Part 51 and Title 40 CFR Part 93, for ozone for the Phoenix-Mesa Planning area is the 1-hour ozone SIP, even though the 1-hour ozone standard has been revoked. The MAG completed an assessment of its 1-hour ozone SIP and determined that the emissions from the Phoenix Expansion

Project, when evaluated with all other emissions in the area, would remain within the emissions budget in the 1-hour ozone SIP.

Title 40 CFR Part 51.858(a)(5)(i)(B) and Title 40 CFR Part 93.158(a)(5)(i)(B) provide another option for demonstrating conformity. Under these parts, conformity of a general federal action can be determined if the state agency primarily responsible for the applicable SIP (i.e., the ADEQ) provides a written commitment to the EPA to modify the applicable SIP to include the direct and indirect emissions from the action (of portion thereof). Title 40 CFR Part 51.858(a)(5)(i)(B) and Title 40 CFR Part 93.158(a)(5)(i)(B) outline five specific items that must be included in the written commitment.

Since the issuance of the draft EIS, the FERC has worked with the MAG; the ADEQ; and the EPA, Region IX to ensure that appropriate documentation has been received to complete the general conformity analysis and allow the issuance of a Final General Conformity Determination for the project. The basis for the Final General Conformity Determination includes documentation demonstrating that the project would not exceed emissions budgets in the 1-hour ozone SIP for the Phoenix-Mesa Planning area as well as documentation from the ADEQ fulfilling the commitment requirements under Title 40 CFR Part 51.858(a)(5)(i)(B) and Title 40 CFR Part 93.158(a)(5)(i)(B). As a result, the FERC has determined that the Phoenix Expansion Project would be in conformance with the federal General Conformity requirements.

Fugitive dust generated by construction activities would be minimized by the implementation of Transwestern's Dust Control Plan. Some of the measures included in this plan include applying water to unpaved roads and active construction areas and reducing vehicle speeds on unpaved roads. Although many of these measures clearly specify the performance requirement, the implementation of other specific performance requirements and the lack of clearly defined responsible parties would make the Dust Control Plan difficult to implement and enforce during construction. We are recommending that Transwestern revise its Dust Control Plan to provide more specific information regarding the precautions that would be taken to minimize fugitive dust from construction activities and the parties responsible for ensuring compliance with these precautions.

Noise would be generated during construction of the pipeline and aboveground facilities. This noise would be temporary and intermittent because equipment would be operated on an as-needed basis during daylight hours. Pipeline construction would proceed at rates averaging about 1 mile per day. However, construction activities in any one area could last for longer durations based upon sensitive resources or terrain. Transwestern estimates that the HDD activities at the San Juan River would most likely occur 24 hours a day for 4 to 5 weeks. The nearest NSAs to the San Juan River crossing are several residences on the north side of the river, of which the nearest NSA would be 600 feet north of the HDD entry location. Transwestern's noise analysis showed that the estimated noise contribution from the HDD operation would exceed the FERC-recommended noise standard of 55 dBA L_{dn} at this nearest NSA. The noise analysis also showed that mitigation measures (e.g., the installation of a noise barrier near the HDD entry site) would lower the noise contribution from the HDD activities at this NSA to below 55 dBA L_{dn} . As an alternative to installing a noise barrier, Transwestern has proposed to provide alternative lodging arrangements or financial compensation to the affected residents.

5.1.11 Reliability and Safety

The pipeline and aboveground facilities associated with the Phoenix Expansion Project would be designed, constructed, operated, and maintained to meet or exceed the DOT Minimum Federal Safety Standards in Title 49 CFR Part 192 and other applicable federal and state regulations. These regulations, which are intended to protect the public and to prevent natural gas facility accidents and failures, include

specifications for material selection and qualification; odorization of gas; minimum design requirements; and protection of the pipeline from internal, external, and atmospheric corrosion.

The pipeline facilities would be clearly marked at line-of-sight intervals and at other key points to indicate the presence of the pipeline. The pipeline system would be inspected by air and on the ground to observe right-of-way conditions and identify indications of leaks, evidence of pipeline damage, evidence of encroachment (i.e., landowners building permanent structures on the permanent right-of-way), or damage to erosion controls resulting from erosion or washouts. Aerial patrols would be conducted along all portions of the project on a monthly basis. Road crossings would be checked by vehicle quarterly in Class 3 locations and semi-annually in Class 2 locations. Transwestern would comply with other DOT surveillance, leak detection requirements such as leakage surveys and pedestrian surveys of its facilities. The pipeline would be designed to be piggable, allowing for the use of smart pigs for internal integrity inspection.

While the primary focus of these standards is prevention of accidents, Transwestern would prepare an emergency plan that would be coordinated and tested (through drills and exercises) with local fire/police departments and emergency management agencies as part of its liaison program.

By designing and operating the proposed project in accordance with the applicable standards, the project would not result in a significant increased public safety risk.

5.1.12 Cumulative Impacts

When the impacts of the Phoenix Expansion Project are considered additively with the impacts of other past, present, or reasonably foreseeable future projects, there is some potential for cumulative effect on resources such as soils, vegetation and wildlife (including special status species), land use, recreation, visual resources, socioeconomics, transportation and traffic, cultural resources, air quality, and noise. For the Phoenix Expansion Project, mitigation has been developed or recommended to minimize, avoid, or compensate for adverse impacts on each of these resources. While the Phoenix Expansion Project would result in cumulative impacts on vegetation and wildlife resources, because the project would affect only a small portion of the regionally available vegetation communities/habitats, the project would not contribute to a cumulative adverse effect on the region's environment. Cumulative impacts on special status species would be reduced by the non-discretionary terms and conditions contained in the FWS' BO to ensure that the project would not jeopardize the continued existence of the affected species.

5.1.13 Alternatives

The Agency Staffs collectively evaluated several alternatives to the Phoenix Expansion Project to determine whether they would be reasonable and environmentally preferable to the proposed project; for some alternatives, the analysis was done solely by the FERC staff. The No Action and Postponed Action Alternatives were considered. If the FERC and/or another federal agency with approval authority were to deny or postpone action on Transwestern's applications, Transwestern would be unable to meet its goals of delivering up to 500 MMcfd of natural gas, adding natural gas supply reliability, and providing an alternative source of competitively priced natural gas to Arizona markets. The likely outcome of this decision would be the construction of other new pipeline facilities to meet the growing demand in the Phoenix area, which would result in specific environmental impacts that could be less than, similar to, or greater than those associated with Transwestern's current proposal.

The use of alternative fuels, renewable fuels, and energy conservation programs was considered but would not offer environmentally preferable, technically feasible, or viable alternatives to the proposed project.

Alternatives involving the use of other existing pipeline systems were evaluated. No existing pipeline system was identified with the available capacity to deliver the volume of natural gas that would be delivered by Transwestern without the construction of new facilities. This expansion would result in environmental impacts that could be less than, similar to, or greater than the impacts associated with the Phoenix Expansion Project and would not accomplish two of the major objectives of the proposed project, which are to increase reliability and flexibility of natural gas supplies and to provide an alternative source of competitively priced natural gas to Arizona markets.

Eight route alternatives to the proposed alignment of the Phoenix Lateral were considered, including routes that would begin to the east and west of Ash Fork, an alternative through the AFNM, an alternative that would remain parallel to the EPNG right-of-way through heavily populated areas of Maricopa County, two alternatives in the Town of Buckeye area, and two alternatives in the City of Casa Grande area. All of these route alternatives were eliminated because they would not be environmentally preferable, would pose significant constructability constraints, would be uneconomic, or would create additional safety and reliability concerns when compared to their corresponding segments of the Phoenix Lateral. No environmentally preferable route alternatives were identified for the San Juan Lateral Loops or the customer laterals associated with the Phoenix Lateral.

Six route variations that could potentially reduce impacts on specific, localized resource issues or communities along the proposed route of the Phoenix Lateral were evaluated. Four of the six route variations (Haystack Estates, Prescott Valley, and the EPNG and APS Variations in Black Canyon City) would not offer an environmental advantage or reduce impact on the communities in which they would be located when compared to the proposed route and, therefore, were eliminated. For one of the remaining variations, the Waste Management Arizona Variation, we are recommending that Transwestern adopt the variation. We are also recommending that Transwestern adopt the Pinal County EPNG Collocation Variations that would reduce impacts on five specific approved or proposed developments in Pinal County. No local resource issues that would necessitate a route variation were identified on the San Juan Lateral Loops or customer laterals.

Approximately 245.2 miles (86 percent) of the proposed pipeline facilities would be constructed within or adjacent to existing rights-of-way. Transwestern has proposed 31 deviations from existing rights-of-way based on site-specific terrain conditions, existing structures, federal special-use designations, or residential/commercial development that has occurred along these existing rights-of-way. Thirty of these deviations were determined to be warranted and environmentally acceptable. The remaining deviation is necessary to avoid a flood control structure, but could have an impact on a proposed development referred to as Desert Creek. We are recommending that Transwestern develop a route variation within Desert Creek that would minimize the impact of the permanent right-of-way on planned residential lots by utilizing other planned rights-of-way, greenspaces, and other land uses within the Desert Creek development.

All of the compressor station piping modifications would be located within Transwestern's existing, developed compressor station sites, and the location of new aboveground facilities would be dictated in large part by the location of customer delivery points (such as meter station sites) and DOT safety regulations (such as for the placement of valves). As such, no environmentally preferable or practical alternatives were identified for the location of the proposed aboveground facilities.

5.2 IRREVERSIBLE/IRRETRIEVABLE COMMITMENT OF RESOURCES; SHORT- AND LONG-TERM USES OF THE ENVIRONMENT

The major nonrenewable resources that would be consumed by the proposed project are fossil fuels used to power construction vehicles and, over the life of the project, the pipeline itself.

Theoretically, the pipeline components could be reclaimed at the end of the pipeline's operational life. However, there would be a number of irretrievable resources committed to the proposal if the necessary authorizations are granted. The primary resources irretrievably lost would include the following:

- soils (water and wind erosion could occur in disturbed areas);
- crop production (crops are generally lost or reduced for one season; however, in the case of orchards, the impacts would be permanent because the crop would be restricted from growing over the permanent easement);
- land use (aboveground facilities and permanent access roads would replace rangeland, agricultural, and developed/disturbed cover types for the life of the project);
- vegetation (right-of-way maintenance activities would result in the permanent conversion of riparian cover types);
- visual resources (the presence of aboveground facilities would permanently affect viewsheds);
- wildlife habitat (right-of-way maintenance activities would result in the permanent loss of riparian habitat); and
- special status species (mortalities could occur during construction, additionally, the FERC staff has determined that the project is likely to adversely affect the Colorado pikeminnow, the razorback sucker, and the spikedace and its designated critical habitat).

The Agency Staffs have concluded that overall the proposed project would result in limited adverse environmental impacts. While the losses described above would occur, the majority of the losses would be minimized and compensated for by Transwestern's mitigation plans and our additional mitigation measures. For these reasons, the irreversible and irretrievable resource commitments are considered acceptable.

5.3 FERC STAFF'S RECOMMENDED MITIGATION

If the Phoenix Expansion Project is approved, the FERC staff recommends that the following measures be included as specific conditions of the Commission's authorization to further mitigate the environmental impact associated with the construction and operation of the project.

1. Transwestern shall follow the construction procedures and mitigation measures described in its applications, supplemental filings (including responses to staff data requests), and as identified in the EIS, unless modified by the Order. Transwestern must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
 - b. justify each modification relative to site-specific conditions;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
 - d. receive approval in writing from the Director of OEP **before using that modification.**

2. The Director of OEP has delegation authority to take whatever steps are necessary to ensure the protection of all environmental resources during construction and operation of the project. This authority shall allow:
 - a. the modification of conditions of the Order; and
 - b. the design and implementation of any additional measures deemed necessary (including stop work authority) to assure continued compliance with the intent of the environmental conditions as well as the avoidance or mitigation of adverse environmental impact resulting from project construction and operation.
3. **Prior to any construction**, Transwestern shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs before becoming involved with construction and restoration activities.
4. The authorized facility locations shall be as shown in the EIS, as supplemented by filed alignment sheets, and shall include the FERC staff's recommended facility locations, if any. **As soon as they are available, and before the start of construction**, Transwestern shall file with the Secretary revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

Transwestern's exercise of eminent domain authority granted under NGA section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. Transwestern's right of eminent domain granted under NGA section 7(h) does not authorize it to increase the size of its natural gas pipelines to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. Transwestern shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**.

This requirement does not apply to extra workspace allowed by Transwestern's authorized UECRM Plan or minor field realignments per landowner needs and requirements that do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

- a. implementation of cultural resources mitigation measures;
- b. implementation of endangered, threatened, or special concern species mitigation measures;

- c. recommendations by state regulatory authorities; and
 - d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.
6. **Within 60 days of acceptance of the Certificate and before construction begins**, Transwestern shall file an initial Implementation Plan with the Secretary for the review and written approval of the Director of OEP describing how Transwestern will implement the mitigation measures required by the Order. Transwestern must file revisions to the plan as schedules change. The plan shall identify:
- a. how Transwestern will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
 - b. the number of EIs assigned per spread and how Transwestern will ensure that sufficient personnel are available to implement the environmental mitigation;
 - c. company personnel, including EIs and contractors, who will receive copies of the appropriate materials;
 - d. what training and instructions Transwestern will give to all personnel involved with construction and restoration (initial and refresher training as the project progresses and personnel change), with the opportunity for OEP staff to participate in the training session(s);
 - e. the company personnel (if known) and specific portion of Transwestern's organization having responsibility for compliance;
 - f. the procedures (including use of contract penalties) Transwestern will follow if noncompliance occurs; and
 - g. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
 - i. the completion of all required surveys and reports;
 - ii. the mitigation training of onsite personnel;
 - iii. the start of construction; and
 - iv. the start and completion of restoration.
7. Transwestern shall file updated status reports with the Secretary on a **biweekly** basis **until** all construction-related activities, including restoration, are complete. These status reports shall also be provided to other federal and state agencies with permitting responsibilities upon request. Status reports shall include:
- a. the current construction status of each spread, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;
 - b. a listing of all problems encountered and each instance of noncompliance observed by the EI(s) or the third-party Compliance Monitors during the reporting period (both for the conditions imposed by the FERC and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
 - c. corrective actions implemented in response to all instances of noncompliance, and their cost;
 - d. the effectiveness of all corrective actions implemented;
 - e. a description of any landowner/resident complaints that may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and

- f. copies of any correspondence received by Transwestern from other federal, state, or local permitting agencies concerning instances of noncompliance, and Transwestern's response.
8. Transwestern must receive written authorization from the Director of OEP **before commencing service for each component of the project**. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way are proceeding satisfactorily.
9. **Within 30 days of placing the certificated facilities in service**, Transwestern shall file an affirmative statement with the Secretary, certified by a senior company official:
 - a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
 - b. identifying which of the Certificate conditions Transwestern has complied with or will comply with. This statement shall also identify any areas along the right-of-way where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.
10. Transwestern shall work with the City of Casa Grande to minimize the impact of the Phoenix Lateral on the City's future sanitary sewer infrastructure in the North Santa Cruz Wash. Transwestern shall provide a report documenting the results of this consultation and include additional engineering documents to support the collocation of the Phoenix Lateral and the City's future sewer infrastructure along the North Santa Cruz Wash. In addition, Transwestern shall work with the City to finalize negotiations regarding the mitigation measures that Transwestern would implement to minimize impacts on the City's municipal golf course and future recreational trails within the Greenbelt Utility Corridor. The status of these negotiations and the mitigation measures developed shall be included in the above-referenced report. The report shall be filed with the Secretary for the review and written approval of the Director of OEP **before construction**. (Page 3-31)
11. Transwestern shall adopt the Waste Management Arizona Variation and work with WMA to minimize the amount of temporary extra workspace outside of WMA property. Transwestern shall file alignment sheets depicting the permanent and construction rights-of-way of the Waste Management Arizona Variation and all associated temporary extra workspace with the Secretary for the review and written approval of the Director of OEP **before construction**. (Page 3-39)
12. Transwestern shall adopt the Pinal County EPNG Collocation Variations through the planned developments of Terrazo, Solana Ranch North, Maratea, Vista Canyons, and Verona. Transwestern shall file alignment sheets depicting the permanent and construction rights-of-way of the Pinal County EPNG Collocation Variations and all associated temporary extra workspace with the Secretary for the review and written approval of the Director of OEP **before construction**. (Page 3-41)
13. Transwestern shall obtain detailed maps of the Desert Creek development from the developers. Based on these maps and consultation with the developers, Transwestern shall develop a route variation that would minimize the impact of the permanent right-of-way on planned residential lots by utilizing other planned rights-of-way, greenspaces, and other land uses within the Desert Creek development. Transwestern shall file documentation of its consultation with Desert Creek and alignment sheets depicting the permanent and construction rights-of-way of the variation and all associated temporary extra workspace with the Secretary for the review and written approval of the Director of OEP **before construction**. (Page 3-43)

14. Transwestern shall coordinate with the BLM, the FS, and other applicable agencies to finalize its Restoration Plan to address any additional restoration concerns identified by these agencies. The final Restoration Plan shall be filed with the Secretary **before construction**. (Page 4-29)
15. Transwestern shall revise its site-specific HDD crossing plan for the San Juan River to include a prominent note that only minimal hand clearing to install the aboveground HDD guidance system shall be conducted between the HDD entry and exit locations. Transwestern shall file the revised HDD Plan with the Secretary for the review and written approval of the Director of OEP **before construction of the San Juan Lateral Loop A**. (Page 4-51)
16. Transwestern shall not begin a wet open-cut crossing of the San Juan River **until** it: files documentation of the events leading up to the HDD failure with the Secretary; files documentation that it has provided at least 7 days advance notification of the start of in-stream activities at the San Juan River to the NMDGF; and receives written notification from the Director of OEP that a wet open-cut crossing may begin. (Page 4-51)
17. Transwestern shall coordinate with the BLM, the FS, and other applicable agencies to finalize its Noxious Weed Management Plan to address any additional issues or concerns identified by these agencies. The final Noxious Weed Management Plan shall be filed with the Secretary **before construction**. (Page 4-74)
18. Transwestern shall continue to consult with the FWS and finalize its plan to protect migratory bird species during construction, including: specific details of the measures that would be implemented to protect nesting migratory birds; clarification as to which measures apply only to large migratory birds and which measures apply to all migratory birds; and a discussion of the basis for those distinctions. The plan and documentation of consultation with the FWS regarding the plan shall be filed with the Secretary **before construction**. (Page 4-81)
19. If construction of the San Juan Lateral Loops has the potential to occur during the peregrine falcon nesting season, Transwestern shall conduct surveys for active peregrine falcon nests during the nesting season **before beginning construction of the San Juan Lateral Loops**. These surveys shall extend 1 mile from either side of the construction work area where suitable peregrine falcon nesting habitat is identified. If active peregrine falcon nests are found within the survey corridor, Transwestern shall consult with the NMDGF and the Navajo Nation to develop conservation measures to prevent adverse impacts on the nests. The results of the surveys and the conservation measures developed shall be filed with the Secretary **before initiating construction within a 1-mile radius of any active peregrine falcon nest**. (Page 4-102)
20. Transwestern shall not begin construction activities **until**:
 - a. Transwestern completes any outstanding species-specific surveys and the FERC receives comments from the FWS regarding the preconstruction survey reports;
 - b. the FERC completes formal consultation with the FWS; and
 - c. Transwestern receives written notification from the Director of OEP that construction and/or implementation of conservation measures may begin. (Page 4-114)
21. Transwestern shall prepare an updated table listing all residences, businesses, and structures within 50 feet of the construction work area and site-specific residential and structural implementation plans for these residences, businesses, and structures. The site-specific residential and structural implementation plans shall show the area that would be disturbed during construction and the safety measures that would be implemented, such as construction fencing,

access provisions, and use of steel plates. The plans shall also show landscaping that would be removed during construction activities within 50 feet of residences, businesses, and structures. The updated table and site-specific residential and structural implementation plans shall be filed with the Secretary for the review and written approval of the Director of OEP **before construction.** (Page 4-136)

22. Transwestern shall coordinate with the BLM and the FS to develop access management plans that conform to agency standards. Specifically:
- a. The BLM access management plan shall include supporting maps depicting key elements of the access management plan including OHV deterrent locations, road closures (temporary and permanent), new project access, road improvements, and road reclamation, if necessary. The plan shall also include a commitment to develop and implement a post-construction schedule of maintenance for access roads on BLM-managed lands.
 - b. The Forest Service Access Management Plan shall be updated to include maps similar to those to be included in the BLM access management plan and stipulations for restricting vehicle access during construction if determined necessary by the FS.
 - c. Both plans shall include information regarding the frequency of monitoring that would be conducted, the methodology for reassessing the implemented measures in the future, and enforcement measures.

The plans shall be filed with the Secretary **before construction across BLM-managed or Forest System lands.** (Page 4-144)

23. Transwestern shall defer implementation of any treatment plans/mitigation measures (including archaeological data recovery), construction of facilities, and use of all staging, storage, or temporary work areas and new or to-be-improved access roads **until**:
- a. Transwestern prepares and files with the Secretary, and submits to the consulting parties, as appropriate, any outstanding cultural resources reports, any cultural resources reports that were revised to address agency comments, and necessary treatment plans, including those for the Waste Management Arizona Variation;
 - b. Transwestern files with the Secretary the comments of the consulting parties on all cultural resources reports and plans submitted for review; and
 - c. the Director of OEP reviews and approves all cultural resources reports and plans, and notifies Transwestern in writing that treatment plans/mitigation measures may be implemented or construction may proceed.

All material filed with the Secretary containing **location, character, and ownership information** about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: **“CONTAINS PRIVILEGED INFORMATION - DO NOT RELEASE.”** (Page 4-180)

24. Transwestern shall prepare a revised Dust Control Plan that specifies the following:
- a. the sources of water that would be used for dust control;
 - b. the anticipated quantities of water that would be required;
 - c. measures to prevent fish and fish egg entrainment during dust control water withdrawals;
 - d. the measures that would be taken to limit visible density (opacity) of emissions to less than or equal to 20 percent;

- e. how visual density would be measured to determine that it is less than or equal to 20 percent;
- f. how compliance with the 20 percent visual density requirement would be recorded;
- g. the individuals with authority to determine if/when water needs to be reapplied for dust control;
- h. the individuals with authority to determine if/when a palliative needs to be used;
- i. the individuals with authority to stop work if the contractor does not comply with dust control measures; and
- j. the speed limit that would be required on unsurfaced roads.

The revised Dust Control Plan shall be filed with the Secretary for the review and written approval of the Director of OEP **before construction**. (*Pages 4-55 and 4-190*)