

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF THE STAFF'S ENVIRONMENTAL ANALYSIS

We have determined that construction and operation of the proposed Texas Gas Fayetteville/Greenville Expansion Project would result in limited adverse environmental impacts based on information provided by Texas Gas and information developed from data requests; our field investigations; literature research; alternatives analysis; comments from federal, state, and local agencies; and input from public groups and individual citizens.

As part of our review, we developed measures to avoid, minimize, or mitigate environmental impacts resulting from construction and operation of the proposed Project. We are, therefore, recommending that our mitigation measures be attached as conditions to any authorization issued by the Commission. A summary of the anticipated Project impacts and our conclusions are provided below by resource. We believe that if the proposed Project is constructed and operated in accordance with applicable laws and regulations, Texas Gas's proposed mitigation, and our additional recommended mitigation measures, it would be an environmentally acceptable action.

Geology

Construction and operation of the proposed Project would have minimal impact on geologic resources. About 55 miles of the westernmost portion of the proposed Fayetteville Lateral would cross Southwestern's Fayetteville Shale gas production area, and 10 active wells would be within 0.5 mile of the Project. Active well drilling and gathering line installation was observed during our site visits to this area. Therefore, additional wells may be within 0.5 mile of the proposed Fayetteville Lateral in the future. Texas Gas has consulted with Southwestern to develop a pipeline route through the gas production area to minimize conflicts with ongoing development of this resource and to plan locations for M&R stations to interconnect with Southwestern's gathering pipelines.

Construction and operation of the proposed Project is not likely to adversely affect development of oil and gas in the area. Operation of the Project could assist in developing this resource since the purpose of the Project is to provide pipeline capacity to transport the new natural gas supplies being developed from the Fayetteville Shale gas production area.

The Project would cross an area of relatively low seismic risk, and the potential for damage to the pipeline from earthquake or soil liquefaction hazard would be minimal. There are no areas prone to landslides or sinkhole development along any of the proposed pipeline routes or at any proposed aboveground facility site. Geologic risk associated with construction and operation of the Project would not be significant. Blasting may be required along portions of the Fayetteville Lateral but would not be required for construction of the Greenville Lateral. Blasting for grade or trench excavation would be considered only after all other reasonable means of excavation have been evaluated and determined to be unlikely to achieve the required results. Texas Gas may specify locations (foreign line crossings, nearby structures, etc.) where consolidated rock would be removed by approved mechanical equipment (e.g., rock trenching machines, rock saws, hydraulic rams, and jack hammers) in lieu of blasting. All blasting activities would comply with federal, state and local regulations and permit conditions and would be conducted by or under the direct supervision of experienced, licensed, and certified personnel. If blasting is required, Texas Gas would use the minimum explosive charge necessary to fracture bedrock and keep shot-rock from leaving the construction right-of-way in accordance with its blasting specifications (see section 4.1.3.5). Where necessary, excess rock would be hauled off site, away from the right-of-way or, subject to landowner approval and applicable permit conditions, disposed of on the right-of-way. We

believe that impacts due to blasting would be minimized by implementing Texas Gas's blasting specifications, and further, Texas Gas has agreed to repair, replace, or compensate landowners for damage caused by blasting.

No areas of special or unusual paleontological resources were identified within the proposed Project construction workspaces or within the footprints of associated aboveground facilities. If significant paleontological resources are identified during construction, Texas Gas would report findings to the Arkansas Geologic Commission or the MDEQ. Based on the lack of unusual or significant paleontological resources within the Project area, we believe that construction and operation of the proposed Project would not significantly affect paleontological resources.

Soils

Construction activities such as clearing, grading, trenching, and backfilling, as well as the movement of equipment along the construction right-of-way, may result in adverse impacts on soil resources. These impacts would include soil mixing, compaction, and erosion by water and wind. To minimize mixing of topsoil and subsoil during pipeline construction in agricultural areas, and residential areas where requested, a maximum of the upper 12 inches of topsoil would be excavated and segregated from subsoil trench spoil. The topsoil would be returned during right-of-way restoration. Texas Gas would implement decompaction measures such as para-plowing, deep tillage, or planting and plowing-in a green manure crop to improve soil bulk density for severely compacted soils. Appropriate erosion control measures, including the installation of slope breakers and sediment barriers such as silt fence or hay bales, the use of mulch and erosion control fabrics, and the restoration of the right-of-way within 20 days of backfilling the trench, weather conditions permitting, would be used to minimize and control erosion. If active drainage tiles, culverts, or other drainage facilities are damaged during construction, Texas Gas would replace or repair them to a condition that is equal to or better than preconstruction condition. Based on Texas Gas's commitment to implement the mitigation measures in our Plan and its Erosion and Sediment Control Plans, we conclude that impacts to soils would be minimized during construction and operation of the Project.

About 32 percent of the soil along the Fayetteville Lateral and about 90 percent of the soil along the Greenville Lateral are considered hydric. Areas where hydric soils would occur with wetland hydrology and vegetation are identified in section 4.4. Hydric soils are prone to compaction and rutting due to extended periods of saturation and high clay content. If construction occurs when these soils are saturated, heavy equipment operation would be impaired and compaction and rutting could occur. Texas Gas would decompact soils during restoration to alleviate compaction. High groundwater levels that accompany hydric soils could create a buoyancy hazard for the pipeline. The pipeline would have concrete coating and would be weighted to overcome buoyancy when the pipeline is buried so that the buoyancy hazard would be minimized during operation. Texas Gas also would install the pipeline and restore the right-of-way in accordance with our Plan and Procedures; therefore, we conclude that impacts on hydric soils would be minimized during construction and operation of the Project.

Water Resources

Groundwater

Construction of the pipeline and aboveground facilities could affect groundwater in several ways. Clearing, grading, trenching, and soil stockpiling activities could temporarily alter overland flow and groundwater recharge. Near-surface soil compaction caused by the operation of heavy construction equipment could reduce the soil's ability to absorb water, which could increase surface runoff and the potential for ponding and could alter aquifer recharge. However, these impacts would be localized and

temporary. Upon completion of construction, Texas Gas would restore the ground surface as closely as practicable to original contours, conduct decompaction where appropriate, and revegetate the right-of-way to restore preconstruction overland flow and recharge patterns.

Unconfined aquifers and shallow groundwater areas could be vulnerable to contamination caused by inadvertent surface spills of hazardous materials used during construction. Texas Gas has developed its SPCC Plan (appendix D), which conforms to section IV.A of our Procedures, to address preventive and mitigative measures to avoid or minimize the potential for hazardous material spills during construction. We have reviewed the SPCC Plan and find that it adequately addresses the storage and transfer of hazardous materials and the response to be taken in the event of a spill.

No public water supply wells would be within 150 feet of the Fayetteville Lateral. Three public water supply wells would be within 150 feet of the Greenville Lateral workspaces. The MDEQ has no specific requirements for construction near these wells other than a request that caution be observed to avoid damage to the wellheads. Texas Gas would clearly mark the wellheads to prevent damage during construction activities. Texas Gas also would use BMPs and implement the procedures of its SPCC Plan if any spill of hazardous materials occurs during construction.

The ADHHS identified three WHPAs and two water supply watersheds (Brewer Lake and Little Red River watersheds) within 1 mile of the proposed Fayetteville Lateral. The ADHHS suggested a route variation and alternative, respectively, to move the Fayetteville Lateral out of these watersheds or for Texas Gas to provide the ADHHS with its plan for constructing through the watersheds so that ADHHS may document any potential impact on the water supply. We analyzed the route variation and alternative suggested by the ADHHS but concluded that the corresponding segments of the proposed route were the preferred alternatives (see section 3.3.3). The proposed route would follow an existing pipeline corridor through these watersheds. The closest waterbody crossing to Brewer Lake would be about 8 miles upstream. Consequently, the Little Red River would be crossed by a HDD at a point about 9 miles north of the city of Searcy, Arkansas, thereby avoiding construction impacts on this drinking water resource.

Texas Gas provided the ADHHS with details about how it would construct and operate the Project in these areas. The ADHHS also expressed concern about the collection and disposal of liquids that accumulate in the pipeline during operation, and Texas Gas provided the ADHHS with a copy of its pipeline Cleaning Policy, which it would use during operation. The ADHHS concurred with Texas Gas's proposed plans. Specifically, Texas Gas's construction and operation of the Project would adhere to the documents provided to and reviewed by the ADHHS, including our Plan and Procedures and Texas Gas's ESCP, SWPP, SPCC, HDDCP, and Cleaning Policy; environmental inspectors would be present during construction and would be present during all waterbody crossings within the designated public water supply watersheds; advance notification of the construction schedule, including waterbody crossings within the public water supply watersheds, would be provided to the ADHHS and to each public water supplier (Conway Water System, Conway County Regional Water District, and Searcy Waterworks) by Texas Gas; and the ADHHS may have access to construction work areas to conduct construction inspections of the waterbody crossings.

Fifteen private water supply wells would be within 150 feet of construction workspaces, and three private wells would be within 150 feet of access roads along the Fayetteville Lateral. For the proposed Greenville Lateral, 12 private wells would be within 150 feet of the construction footprint, three private wells would be within 150 feet of access roads, and four private wells would be within 150 feet of storage yards. Texas Gas would conduct pre- and post-construction yield and water quality tests on water wells within 150 feet of construction workspaces, with landowner permission, and would repair any water supply systems damaged by construction activities. If water supplies are disrupted, Texas Gas would provide a temporary source of water until repairs are made.

No workspaces would be within 150 feet of springs. However, they may be identified during easement negotiations with landowners prior to construction, and the locations of water wells may also be known with greater refinement at that time. Therefore, we are recommending that Texas Gas update the locations of water wells and springs within 150 feet of construction workspaces prior to construction.

If Texas Gas uses BMPs during Project construction and operation, implements the mitigation measures in our Plan and Procedures and in its SPCC Plan, then impacts on groundwater resources would be minimized to the greatest extent practicable.

Surface Water

The Fayetteville and Greenville Laterals and the Kosciusko 36-inch Tie-in Lateral would cross a total of 70 perennial and 413 intermittent waterbodies. No waterbodies would be crossed by the Kosciusko 20-inch Tie-in Lateral. No potable water intakes would be within 3 miles downstream of any proposed waterbody crossing. The Project pipelines would cross 13 waterbodies that contain contaminated sediments according to the EPA's contaminated sediments database, six by the Fayetteville Lateral and seven by the Greenville Lateral. Of these waterbodies, six would be crossed by HDD methods, thereby avoiding sediment disruption. The remaining seven waterbodies would be crossed by open-cut methods. The ADEQ and MDEQ would require Texas Gas to coordinate with them about crossing these waterbodies and would require appropriate construction, notification, and mitigation procedures in any permits they issue for the Project. Texas Gas has filed permit applications with the ADEQ and MEDEQ, and states it would file these permits with the FERC when they are received.

The proposed pipelines would cross eight ecologically sensitive waterbodies, six in Arkansas and two in Mississippi. In addition, the proposed pipelines would cross 13 impaired waterbodies that do not meet water quality standards associated with their designated uses, nine in Arkansas and four in Mississippi. Eight of the sensitive and impaired waterbodies would be crossed by HDD, which would minimize the potential for impact due to construction and would minimize the potential for further degradation of water quality in waterbodies that have suspected impairment. The remaining waterbodies would be crossed using an open-cut method. The MDEQ would require special notification and mitigation for waterbody crossings in waters classified as impaired. The ADEQ states that waterbodies designated as Extraordinary Resource Waters would require individual water quality certification issued by the ADEQ prior to crossing by open cut. The only designated Extraordinary Resource Water that would be crossed by open cut would be Cadron Creek. Texas Gas has filed for all of its required section 401 permits, and they are pending. Texas Gas states it would, prior to construction, file with the Secretary copies of the permits it receives from the ADEQ and MDEQ.

The proposed pipelines would cross four waterbodies listed on the NRI: Big Creek (MP 46.1), Cadron Creek (MP 14), and Bayou De View (MP 96.0) on the Fayetteville Lateral; and Big Black River (MP 77.7) along the Greenville Lateral. With the exception of Cadron Creek, Texas Gas proposes to cross these waterbodies by HDD. We believe use of the HDD method to cross these NRI-listed waterbodies would minimize impacts to the greatest extent practicable. Texas Gas consulted with the NPS and ADEQ in regard to the proposed crossing of Cadron Creek. The NPS has recommended that Texas Gas adhere to our Plan and Procedures, restore the affected riparian corridor, and provide portage routes and ample signage for river users during waterbody crossing activities. In addition, the FWS has recommended the use of dry crossing methods (flume and/or dam-and-pump) to cross this waterbody, implementation of the *Arkansas BMPs for Fayetteville Shale Natural Gas Activities*, and advance notice to natural resource agencies prior to stream crossing activities. Texas Gas would restore sensitive areas, such as riparian areas, crossed by the Project to the extent practicable in accordance with our Plan and Procedures. Texas Gas would continue to work with the applicable state and federal agencies to develop measures to avoid

or minimize potential impacts on riparian areas. Texas Gas filed a Cadron Creek site-specific crossing plan that modifies its original proposal and by which it has incorporated these recommendations. We are recommending that Texas Gas develop a procedure for notifying us and interested agencies about the schedule for crossing perennial waterbodies that would be affected by project construction. We are also recommending that Texas Gas develop a plan to provide portage and to install warning signs for river users to alert them to construction activities in Cadron Creek (see section 4.8.3) to address this recreational issue. If these measures are implemented, impacts on NRI waterbodies would be minimized.

The proposed pipelines would cross 17 major waterbodies, including the Mississippi River. Of these waterbodies, 14 would be crossed by HDD. The remaining major waterbodies would be crossed using open-cut methods. Texas Gas has not yet completed geotechnical investigations to determine if the proposed HDDs could be successfully completed. Therefore, we are recommending that, prior to construction, Texas Gas file with the Secretary for review the reports for these investigations, site-specific construction diagrams and contingency plans for each HDD location. If the geotechnical analysis indicates that a planned HDD crossing is not feasible then Texas Gas would develop a site-specific alternative crossing plan for each waterbody in association with all relevant agencies. If an HDD is not completed successfully, Texas Gas would need to obtain permits for an alternate crossing plan from the USACE and the appropriate state agency. Texas Gas would implement its proposed HDD Contingency Plan to minimize impacts in the event that HDD attempts fail. We reviewed this plan and find it acceptable.

The proposed pipelines would cross six levees by HDD, two each at the Mississippi River, the Yazoo River, and Fannegusha Creek in the Hillside NWR. Texas Gas has been coordinating with the appropriate levee boards and the FWS about these crossing plans. Since this consultation is ongoing, we are recommending that Texas Gas file with the Secretary documentation of consultation regarding the levee crossings, and the site-specific plans for all levee crossings for review and written approval by the Director of OEP prior to construction.

Texas Gas would hydrostatically test its pipeline prior to operation in compliance with DOT regulations. No chemicals would be added to the water during testing. Texas Gas has identified 12 waterbodies as potential hydrostatic test water source and discharge locations. Some of these waterbodies are identified as ecologically significant (Big Black River and Cadron Creek), a trout fishery stream (Little Red River), as not meeting water quality standards (Cadron Creek, Little Red River, and Big Black River), or are known to have contaminated sediments (Yazoo River, Big Sunflower River, and Big Black River). Our Procedures require that state-designated exceptional value waters and waters that provide habitat for federally listed threatened or endangered species cannot be used for hydrostatic test water withdrawal or discharge unless appropriate federal, state, and/or local permitting agencies grant written permission (Procedures, section VII.C.2). The use of these waterbodies as hydrostatic testing water sources or discharges would be subject to approval pursuant to any required NPDES permit. Texas Gas would be required to obtain and comply with the requirements of permits issued by the ADEQ, ANRC, and MDEQ for the withdrawal and discharge of hydrostatic test water. Texas Gas would file applications for its NPDES permits a few months prior to its anticipated need to begin hydrostatic testing. Compliance with the requirements of our Plan and Procedures and the permitting requirements from state and local agencies would mitigate potential impacts resulting from the withdrawal and discharge of hydrostatic test water.

We believe that impacts due to construction and operation of the Project on surface water resources would be minimized by implementation of BMPs and our Procedures.

Wetlands

Construction and operation of the proposed Project would affect a total of 163.7 acres of wetlands, of which 129.8 acres would be temporarily impacted during construction and allowed to revert to pre-construction conditions. The remaining 33.9 acres would be permanently altered to some degree within the maintained permanent right-of-way. Of those 33.9 acres, about 13.2 acres would be permanently converted from forested and scrub-shrub wetland types to wetlands with herbaceous vegetation. These impacts would occur in a 10-foot-wide herbaceous strip Texas Gas would maintain above the centerline to facilitate operation and maintenance of the pipeline. The remaining 20.7 acres of impact would be associated with the conversion from a forested community to a shrub-scrub or emergent system within two 10-foot-wide strips on either side of the pipeline centerline.

Texas Gas would use BMPs and the measures identified in our Procedures and other permits that may be issued by other agencies to minimize impacts on wetlands during construction and operation of the Project. All wetlands in temporary construction workspaces would be allowed to revegetate and return to preconstruction conditions. Within the 50-foot-wide permanent right-of-way, maintenance activity would be limited to annual mowing along a 10-foot-wide strip centered over the pipeline and to selective cutting of vegetation that is more than 15 feet tall within a 30-foot-wide strip centered over the pipeline centerline. This would allow an additional 20 feet of wetland restoration to occur, thereby further minimizing permanent impacts on wetlands.

Texas Gas proposes using ATWSs in wetlands at certain locations, affecting about 10.7 acres of wetlands. Our Procedures require that an ATWS be located at least 50 feet away from wetland boundaries, or that justification for the placement is provided. In addition, Texas Gas must file site-specific plans for use of each of the ATWSs in wetlands. Therefore, we are recommending that, prior to construction, Texas Gas file site-specific construction plans for each ATWS with a less than 50-foot setback from wetland boundaries (except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land) and a site-specific explanation of the conditions that will not permit a 50-foot setback.

The USACE will verify the potential wetland impacts due to Project construction as part of its permitting process. Texas Gas would provide compensation for any permanent loss of wetland resulting from construction and operation of the proposed Project, as well as long-term conversion of forested wetlands to non-forested conditions. Texas Gas would develop compensatory mitigation for all wetland impacts, in consultation with the USACE Little Rock, Memphis, and Vicksburg Districts. Texas Gas is proposing to compensate for wetland impacts through purchase of wetland mitigation bank credits, but specific compensation would be finalized during the course of the USACE Section 404 permitting for the proposed Project, if approved. Mitigation for these wetland impacts would be at a mitigation ratio as determined by the USACE. We are recommending that Texas Gas file the final wetland Mitigation Plan it develops with the USACE prior to construction.

Texas Gas would implement the construction, restoration, and maintenance measures described in our Procedures for Project construction and operation. The Project pipeline routes have been developed in consultation with us and the USACE and would avoid wetlands to the greatest extent practicable. Wetland impacts would be further minimized by using HDDs to cross several larger wetlands and associated waterbodies since wetlands within the path of the HDD would be avoided. Therefore, we believe that the proposed Project would have minimal impact on wetlands.

Vegetation

Project impacts on vegetative communities would vary depending upon disturbance duration, magnitude, and vegetation cover type. Most of the affected land would be in actively cultivated agricultural areas (3,222.8 acres), which are regularly disturbed. The other primary vegetative types include upland forest (688.0 acres) and managed forest (59.4 acres). The primary wetland community impacted would be

palustrine forested/emergent (see above for a summary of wetland impacts). Long-term to permanent impacts would occur on forested habitat due to construction and operation. Although temporarily disturbed forested areas would be allowed to revegetate, it may take over 20 years for this type of vegetation to recover, depending on the age of the cleared trees. Following construction, all construction work areas would be restored, seeded with conservation grasses, legumes, native plant species or other standard erosion control/cover species, where required, and generally allowed to revegetate to preconstruction conditions in accordance with our Plan. The FWS recommends that native or non-persistent annual species be used to revegetate works areas. The permanent right-of-way would be maintained in an herbaceous state following construction. In areas other than those with active cultivation, the permanent right-of-way would be maintained by mowing or vegetative clearing in accordance with our Plan and Procedures. There would be no long-term impacts in areas with existing herbaceous cover types following restoration. However, about 340 acres of upland forest and about 33.9 acres of forested wetlands would be permanently converted from forest land to an herbaceous cover.

The wetlands associated with the Cache River and Bayou De View have been identified as wetlands of international importance by the Ramsar Convention and as the most important wintering area for mallards by the North American Waterfowl Management Plan. The ivory billed woodpecker (*Campephilus principalis*) was identified within the Bayou De View portion of the Cache River NWR. The Cache River basin contains a variety of wetland communities, including some of the most intact and least disturbed bottomland hardwood forests in the Mississippi Valley Region. The White River area also contains bottomland hardwood forests. Texas Gas proposes to use HDDs to cross the White and Cache Rivers and Bayou De View and their associated forested wetlands. We believe that Texas Gas's use of HDDs to avoid impacts on these waterbodies and adjacent forested wetlands and their use of our Procedures would minimize impacts on these vegetative resources.

The temporary removal of vegetation may result in increased opportunities for invasive and exotic species to establish themselves in Project rights-of-way and extra workspaces. Adherence to Texas Gas's proposed Exotic and Invasive Species Control Plan, in conjunction with consultations with local, state, and federal agencies, would minimize the potential for introduction or establishment of nuisance and exotic species within the Project area. Reestablishment of vegetation in all disturbed areas soon after backfilling the trench and final grading would minimize the opportunities for invasive species to become established. We believe that Texas Gas's use of its Exotic and Invasive Species Control Plan would minimize the spread of noxious weeds and invasive plants.

Wildlife and Aquatic Resources

Wildlife

Direct impacts of construction on wildlife would include displacement of wildlife from the right-of-way and direct mortality of some individuals. The cutting, clearing, and/or removal of existing vegetation would involve temporary alteration and permanent loss of habitat. In general, these effects are not expected to have a significant impact on wildlife populations because all of the habitats that would be affected are relatively abundant elsewhere in the proposed Project area, and about 64 percent of the land use that would be affected by the Project is already disturbed by agriculture. Furthermore, Texas Gas's implementation of our Plan and Procedures and use of seed mixes prescribed by the local NRCS offices or the appropriate land management agency would improve the potential for successful revegetation of the right-of-way after construction. Habitat loss in agricultural land and pasture would not have a significant effect on wildlife in the area because of the abundance of these types of habitat in the vicinity of the proposed Project and the limited value of these habitat types to wildlife.

The permanent pipeline right-of-way would be revegetated after construction has been completed. Although temporary and permanent impacts on food, cover, and water sources may occur, none of the species identified within the Project area are specialized in such a way that construction of a pipeline would inhibit the overall fitness or reproductive viability of the populations as a whole. Wildlife habitats that would be crossed by the Project represent a small portion of the habitat available to wildlife species in the vicinity of the Project area. With the exception of forested areas, impacts on habitats would be temporary as the construction right-of-way would be reseeded and revegetated in accordance with our Plan and Procedures.

The Project would be within the Mississippi flyway for migratory birds. Texas Gas would minimize impacts on migratory birds and their habitats by crossing the Mississippi River, White River, Cache River, Bayou De View, and their associated riparian habitats by HDD.

The Project corridor includes areas of emergent marsh and riparian habitat that could provide habitat for colonial nesting waterbirds. However, no documented rookeries would be within 0.5 mile of the Project. Given the abundant adjacent areas that can provide alternative habitat, we conclude that there would be minimal impact on colonial nesting waterbirds.

The proposed Greenville Lateral would cross one NWR: the Hillside NWR in Holmes County, Mississippi. Texas Gas proposes to cross under the Hillside NWR by HDD, thereby avoiding impacts on this resource. On November 5, 2007, Texas Gas filed an application with the southeast Region of the FWS for a Right-of-way Permit to cross the Hillside NWR pursuant to the authority of 50 CFR 29.21-2 *et seq.* This application is pending. The FWS has not expressed any special concerns about the Project in this area. Since this easement would be required before Texas Gas could construct the HDD under the Hillside NWR, we are recommending that Texas Gas update the status of the Right-of-way Permit for crossing the Hillside NWR when it files its Project Implementation Plan.

Aquatic Resources

The proposed Project would cross 70 perennial waterbodies. Potential impacts on aquatic resources from Project construction and operation include those associated with and pipeline construction across waterbodies and through wetlands. Waterbody crossings would be accomplished using open-cut or HDD methods. Impacts on fisheries resources resulting from open-cut pipeline construction activities at waterbody crossings can include sedimentation and turbidity, alteration or removal of in-stream and stream bank fish cover, introduction of water pollutants, and entrainment of small organisms during hydrostatic testing. Generally, pipeline construction through waterbodies results in temporary impacts, and there are no long-term effects on water temperature, pH, dissolved oxygen, benthic invertebrate populations, or fish populations. The open-cut method would also affect fish by blocking migration pathways and interrupting spawning activities. Our Procedures require that, in waterbodies with cold-water fisheries, in-stream work be completed between June 1 through September 30; and in waterbodies with warm-water fisheries, in-stream work be completed between June 1 and November 30. Although construction disturbances would temporarily displace fish or hinder migrations in waterbodies, we anticipate that these affects would be localized, temporary, and generally minor.

Overall impacts on the fishery resources in the Project area generally would be minimal and short-term. Pipeline construction and restoration activities within and adjacent to waterbodies would be conducted in accordance with our Plan and Procedures to minimize impacts on fisheries, their habitat, and other aquatic organisms. In addition, Texas Gas would implement additional protective measures as may be required by state and federal agencies as part of their permitting processes.

Direct spills of petroleum or other toxic products into waterbodies during construction and facility operation could be harmful to aquatic organisms, depending on the type, quantity, and concentration of the spill. To reduce the potential for direct surface water contamination, Texas Gas would implement the procedures in its SPCC Plan, including restrictions on refueling equipment and storing fuel and other potentially toxic materials at least 100 feet from waterbodies during construction.

Post-construction or operational impacts of the pipeline would be minimal. Restoration of the vegetation along the pipeline construction work areas would minimize erosion potential relative to waterbodies. Minimal impact on fisheries would be expected from maintenance mowing or manual removal of woody vegetation since maintenance activities would be conducted in accordance with our Plan and Procedures.

Threatened and Endangered Species

Based on the presence of habitat and historical records of occurrence, 11 federally listed endangered and threatened species potentially occur within the proposed Project area. These include: one mammal (Louisiana black bear), three bird species (interior least tern, ivory-billed woodpecker, and woodstork), one fish species (pallid sturgeon), four mussel species (fat pocketbook, pink mucket, scaleshell, and speckled pocketbook), one insect (American burying beetle), and one plant species (pondberry). In addition, one candidate fish species was identified: the yellow cheek darter. A number of state-listed plant and mussel species also were identified within the vicinity of the Project area.

No federally or state listed species were observed during field surveys of the Project area. In accordance with recommendations from the FWS and AGFC, Texas Gas conducted mussel surveys in 11 Arkansas waterbodies it proposes to cross using open-cut methods. No threatened or endangered mussel species were identified during the surveys. The FWS and the AGFC concurred with the results and conclusions of the mussel survey (FWS, 2007a; AGFC, 2007a). Texas Gas did not observe any occurrences of pondberry during Project field surveys conducted in the fall of 2006 and early spring of 2007. Potential pondberry habitat was identified in three locations along the Fayetteville Lateral only: MP 82 (Cache River), MP 95 (Bayou De View), and about 1,800 feet north of MP 74.4. Texas Gas would avoid potential pondberry habitat by using HDD to cross the Cache River and Bayou De View, and by locating the pipeline south of the potential habitat identified near MP 74.4. The ANHC and FWS concur that no pondberry was discovered during Texas Gas's field surveys and that the proposed Project would avoid potential pondberry habitat (ANHC, 2007d; FWS, 2007a). In a letter dated November 20, 2007, the FWS Arkansas field office concludes that the actions and strategies that have and would be undertaken by Texas Gas to avoid adverse impacts on federally endangered and threatened species would adequately protect natural resource values during construction of the Project. Further, it concurs with the results and conclusions of Texas Gas's field surveys. In a letter dated July 27, 2007 (FWS, 2007d), the FWS Mississippi field office concurs with the results and conclusions of Texas Gas's field surveys and states that the Project is not likely to adversely affect federally listed species in Mississippi and that, unless there are changes in the scope or location of the proposed Project or federally listed species are discovered during construction, no further consultation with the Mississippi field office is required. Based on our consultation with the FWS, we conclude that the Project is not likely to adversely affect federally listed threatened or endangered species in Arkansas or Mississippi.

Land Use, Recreation, and Visual Resources

Construction of the Project would disturb about 5,018.5 acres of land, including about 3,198.4 acres during construction of the proposed pipeline facilities, 76.0 acres during construction of aboveground facilities, 635.0 acres for ATWS, 946.6 acres for pipe and contractor storage yards, and 162.5 acres for access roads. About 1,693.5 acres would be required for the permanent pipeline right-of-way and aboveground facilities. Agricultural land would be the primary land use affected by construction (3,222.8

acres) and operation (1,108.5 acres) of the Project. Other land use types affected include upland and managed forest (747.4 acres during construction, 340 acres during operation); non-forested rangeland, pastureland, non-agricultural fields, prairie and other open land in the early stages of succession (437.4 acres during construction, 124.3 acres during operation); and minor amounts of commercial/industrial land and residential land. About 174.8 acres of commercial/industrial land use would be impacted by the Project, of which about 0.5 acre would be required for the permanent pipeline right-of-way.

The primary impact on agricultural land would be the loss of crops within the work area, and possibly immediately adjacent areas, since this land would be taken out of production for at least growing season. In addition, construction-related activities could damage or interrupt irrigation. If the flow of irrigation water is disrupted for a prolonged period, crops outside the Project right-of-way could be damaged and crop yields reduced. Following construction, the majority of agricultural land uses would continue within the permanent right-of-way. Because the right-of-way could be used for crop production following construction, any loss of production would be a short-term; however, some long-term impact would occur. About 99 acres of the agricultural land that would be crossed by the Project has pivot-irrigation. During construction of the pipelines, the presence of large piles of topsoil, an open trench, and construction equipment, etc., would likely make the movement of a pivot irrigation system across the pipeline corridor problematic. Texas Gas plans to coordinate closely with landowners about the feasibility of pivot irrigation during the construction period. Following construction of the pipeline, there would be no permanent impacts on any pivot irrigation systems.

Texas Gas would segregate topsoil in lands with annually cultivated or rotated crops, in hayfields, and at the landowner's request. Texas Gas would implement its agriculture compensation program for impacts resulting from construction and operation of the proposed Project, including compensating landowners for anticipated crop losses until production from the disturbed areas is restored. Based on the mitigation measures that Texas Gas would implement as part of construction and operation of the proposed Project, we believe that impacts on agricultural lands would not be significant along the proposed permanent pipeline right-of-way. Operation of the Kosciusko Compressor Station would impact about 30.5 acres of Prime Farmland. In addition, about 27.5 acres of designated Prime Farmland at the proposed M&R stations, MLVs, and other minor facilities would be lost due to operation of these aboveground facilities since these areas would be converted to an industrial land use.

The primary impact of construction on forestland by the Project would be the removal of trees and shrubs from the 100-foot-wide construction right-of-way. Following construction, trees and shrubs would be allowed to regenerate within the areas that would not be retained as part of the 50-foot-wide permanent right-of-way. Temporary workspaces would revegetate naturally, but since regrowth of forests could take over 20 years, the impact would be long-term to permanent. After final construction cleanup, the temporary workspaces would be restored in accordance with our Plan, agency requirements associated with applicable permits, and landowner requests. The impact on forest land use within the permanent 50-foot-wide right-of-way would be the permanent change to open land. Texas Gas would compensate landowners for loss of timber in accordance with negotiated easement agreements.

Texas Gas identified the locations of special crops (e.g., rice, cotton, sorghum) and orchards (e.g., fruit trees, nut trees) that would be crossed by the Project. About 270.5 acres of special crops would be affected by Project construction, with 120.9 acres occurring within the permanent rights-of-way. About 30.6 acres of orchards would be affected by Project construction, with 15.4 acres occurring within the permanent rights-of-way. Texas Gas would compensate landowners for the long-term to permanent impact to orchard crops as a result of construction and operation of the Project. Since rice fields would need precision leveling during restoration to restore productivity, we are recommending that, prior to construction, Texas Gas develop site-specific crossing plans in consultation with the landowner for each identified rice field impacted by construction.

The proposed Project would cross one tract of land enrolled in the WRP. Impacts on WRP lands generally would be temporary. Following construction, the right-of-way would be restored to preconstruction conditions, or better. Texas Gas would select specific native species for revegetation of the WRP tract in consultation with the landowner/tenant and NRCS. Coordination with the NRCS is ongoing about crossing this area. The NRCS states that Texas Gas would be required to obtain a subordination of NRCS's easement for this tract prior to construction. We are recommending that Texas Gas update the status of its consultation on the subordination agreements with the NRCS when it files its Project Implementation Plan. Based on our consultation with NRCS, the proposed route through the WRP tract would be acceptable.

The pipelines would cross and/or parallel roads, railroads, and utility corridors (e.g., pipelines and powerlines). These areas could be temporarily disturbed during grading, trenching, drilling, and backfilling. Texas Gas would obtain any required permits for crossing roads or working within road rights-of-way, and would coordinate with the owners/operators of the utilities to address any issues about working in proximity to their facilities. Following final construction cleanup, these areas would be returned to preconstruction conditions, where feasible, and agency requirements associated with applicable permits would be adhered to. Impacts on this land use would be short-term and temporary.

Seven residences have been identified within 50 feet of the proposed pipeline construction work areas. Of these, four would be within 25 feet of proposed construction workspaces. Texas Gas filed site-specific plans for all residences within 50 feet of construction workspaces. Five of these site-specific plans are reasonable; however, we are recommending that Texas Gas revise two of the plans and file them with the Secretary for additional review and written approval by the Director of OEP. Texas Gas would install and maintain construction fencing at the edge of the construction work area for a distance of 100 feet on either side of the residence and, at a minimum, maintain this fencing throughout the open trench phases of pipe installation, as well as maintain a buffer of vegetation, leaving mature trees and landscaping within the edge of the construction work areas, where practicable and feasible. In addition, Texas Gas would restore all work areas following construction in accordance with our Plan. To ensure that all landowner concerns are identified and resolved during construction, we are recommending that Texas Gas develop a complaint resolution procedure.

Construction of the proposed Project would have some short-term impacts on industrial land use, but operation of the Project is not anticipated to have any significant impact on this land use.

The proposed Fayetteville Lateral would cross the Cache River between MP 82.0 and MP 82.8 and the Bayou De View between MP 95.9 and MP 96.6 on privately owned land in proximity to the Cache River NWR; however, the crossing would not directly impact federally managed Cache River NWR lands. Although the project would not cross land within the NWR, it would cross land within the NWR acquisition boundary. Lands within the acquisition boundary are not owned by the FWS but are candidates for future purchase and addition to the NWR. In the event the land would be acquired for addition to the NWR after the pipeline would be constructed, Texas Gas would retain rights to operate and maintain the pipeline. The Cache River and Bayou De View would be crossed by HDD.

The proposed Greenville Lateral would cross the northern tip of the Hillside NWR between MP 54.1 and MP 55.9, in Holmes County. To avoid impacts on Hillside NWR, Texas Gas would cross the NWR by HDD. As addressed previously, an easement from the FWS would be required for this crossing and we are recommending that Texas Gas provide information on the status of its consultation with the FWS.

The Natchez Trace Parkway is a 444-mile parkway system that connects southern portions of the Mississippi River valley, northern Alabama, and central Tennessee. Recreational opportunities associated

with the parkway include scenic driving, hiking, biking, horseback riding, and camping. The proposed Greenville Lateral would cross the Natchez Trace Parkway from MP 92.8 to MP 93.0 in Attala County, Mississippi. To minimize impacts, Texas Gas consulted with the NPS to develop an appropriate crossing location and method. Impacts to the Natchez Trace Parkway would be minimized by crossing it by HDD.

The NRI-eligible Big Black River would be crossed by the proposed Greenville Lateral near MP 77.7. It possesses ORVs related to scenery, recreation, fish, wildlife, history, and culture. Big Black River would be crossed by HDD, thereby avoiding impacts on its ORVs.

Visual impacts would result from the removal of existing vegetation along construction workspaces and by the construction of the permanent aboveground facilities. Visual impacts would be greatest where the Project right-of-way would parallel or cross roads, trails, or prominent observation points, and where the pipeline right-of-way would be obvious to passing motorists or recreational users. Visual impact on the Natchez Trace Parkway would be minimized by crossing this historic feature by HDD. Topographic alterations such as side hill cuts, which could be necessary for construction, would be re-contoured and re-vegetated during right-of-way restoration. The visibility of such alterations would diminish over time as the affected areas are restored and begin to blend in with the surrounding landscape. The primary Project components that could have a visual impact on the surrounding areas would be the aboveground facilities. However, existing topography and vegetation would conceal them in most instances, and landscaping would be added where feasible around the new M&R stations, MLVs, and launcher and receiver assemblies to further help these facilities blend into the surrounding landscape. Therefore, construction and operation of the proposed aboveground facilities would have a permanent impact on visual resources, but this impact would be minimized by vegetative screening, topography, and remote location.

The Kosciusko 36-inch Tie-in Lateral would cross Little Conehoma Creek, which was previously remediated for PCBs by Texas Eastern. Based on available information, we do not believe that PCB levels in Little Cohoma Creek are significant. If petroleum-stained soil is identified during excavation near Little Conehoma Creek, it would be segregated, properly characterized for disposal, and managed appropriately in accordance with all applicable regulations and handling protocols.

The NOAA, NGS commented that if there are any planned Project-related activities that would disturb or destroy geodetic control monuments, the NGS requires notification not less than 90 days in advance of such activities in order to plan for their relocation. We have recommended that Texas Gas field verify the locations of all geodetic control monuments within Project workspaces and complete notification and consultation with the NOAA, NGS.

Socioeconomics

Construction and operation of the Project would result in short- and long-term socioeconomic impacts. The construction workforce for the pipeline is expected to average 1,800 workers over a 9-month period. About 95 percent of the workforce would be comprised of non-local workers migrating into the Project area. The temporary influx of the construction workforce would cause a short-term increase in population but should not have any adverse impact on housing or public services.

Information about the Project has been readily available to the public. No disproportionately high or adverse environmental and human health impacts on minority and/or low-income populations would result from construction and operation of the Project.

Temporary and permanent fiscal benefits would result from construction and operation of the Project in the form of additional tax revenues paid to local jurisdictions. Project construction would provide some

short-term job opportunities and local expenditures by construction workers. Texas Gas would employ four full-time workers to maintain and operate the Project.

Cultural Resources

Texas Gas consulted with the Arkansas and Mississippi SHPOs and performed cultural resource investigations for areas that would be potentially affected by construction and operation of the Project.

In Arkansas, surveys to date for the Fayetteville Lateral have identified 110 archaeological sites and 75 historic architectural resources. Of these, 36 archaeological sites and 2 architectural resources have been recommended as potentially eligible for the NRHP. Thirty-seven of these would be avoided by deviations, realignments, or HDD, and one is currently undergoing additional testing. The Arkansas SHPO has requested additional information.

In Mississippi, surveys to date for the Fayetteville and Greenville Laterals have identified 180 archaeological sites and 21 historic architectural resources. Of these, 18 archaeological sites and 5 architectural resources are or have been recommended as potentially eligible for the NRHP, and one architectural resource is undetermined. All of these would be avoided by deviations, realignments, or HDD. We are currently awaiting the Mississippi SHPO's comments.

Some surveys are outstanding and the consultation process for the Project is not yet complete. Therefore, we are recommending that construction not be authorized until the required studies have been completed and we have received the SHPOs' comments on such studies.

Texas Gas prepared a Plan for the Unanticipated Discovery of Historic Properties and Human Remains during Construction for the Project, to be used in the event that any unanticipated historic properties (consisting of prehistoric or historic archaeological resources) or human remains are encountered during construction of the proposed Project.

Air Quality and Noise

Air emissions resulting from construction of the Project would not significantly affect air quality in the region. Air pollutant emissions from the operation of vehicles and the generation of fugitive dust during construction activities are expected to be minor and temporary. Texas Gas would maintain vehicles so that emissions are minimized and would minimize fugitive dust by the use of dust suppression techniques such as watering.

No impacts to air quality would result from the operation of the pipeline facilities. Emissions associated with the operation of the Kosciusko Compressor Station would be below the NAAQS.

Noise would be generated during construction of the pipeline and aboveground facilities. Construction activities in any one area could last from several weeks to several months on an intermittent, as-needed basis. While individuals in the immediate vicinity of the construction activities would experience an increase in noise, this effect would be temporary and local. Nighttime noise is not expected to increase during construction because most construction activities would be limited to daytime hours. Noise levels associated with HDD activities could potentially exceed 55 dBA at the closest NSAs at two proposed HDD locations (HDD sites 23 and 25). Therefore, we are recommending that Texas Gas develop specific mitigation plans if HDD activities result in exceedances of 55 dBA at the nearest NSAs. Permanent noise impact would result from operation of the proposed Kosciusko Compressor Station. It would be constructed and operated next to an existing Texas Eastern compressor station. Estimated noise levels from operation of the Kosciusko Compressor Station would be 52 dBA or less at the NSAs. No adverse,

long-term impacts would, therefore, be anticipated. However, to ensure that noise levels from operation of the Kosciusko Compressor Station do not adversely impact the surrounding area, we are recommending that Texas Gas make all reasonable efforts to ensure its predicted noise levels are not exceeded at nearby NSAs.

Cumulative Impacts

In addition to Texas Gas's proposed pipeline project, one other major project had been proposed for construction in the vicinity of the Fayetteville Lateral, Ozark's East End Expansion Project (Docket No. PF06-34-000). The East End Expansion Project was in the pre-filing stage at the time the draft EIS was issued, but Ozark withdrew its pre-filing request on December 21, 2007. However, it is possible that Ozark may still propose this or a similar project in the future. The cumulative impact analysis assumes a future East End Expansion Project similar to Ozark's withdrawn proposal. Cumulative impacts would be greatest where the proposed Project and the East End Expansion Project would be adjacent or in proximity to each other in Conway, Faulkner, and White Counties, Arkansas. Cumulative impacts could be greater if the two projects were to be built in the same time frame. However, since the East End Expansion Project has been withdrawn, it is unlikely that any other similar project would be approved in time to overlap the construction schedule of the proposed Project.

Although each of the unrelated projects would result in temporary and minor effects during construction, each project would be designed to avoid or minimize impacts on wetlands, waterbodies, species of concern, and other sensitive resources. In addition, any identified significant but unavoidable impacts on sensitive resources resulting from these projects would be mitigated. Mitigation generally leads to avoidance or minimization of cumulative impacts. Therefore, we consider that the cumulative impacts of the Texas Gas and Ozark have been or would be minimized through careful project routing, utilization of HDD techniques to avoid and minimize impacts on some sensitive resources, and implementation of other appropriate mitigation measures. Consequently, only a small cumulative effect is anticipated when the impacts of the proposed Project are added to reasonably foreseeable future projects in the area.

Reliability and Safety

The pipeline and aboveground facilities associated with the proposed Project would be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. Part 192 specifies material selection and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion. Therefore, we believe that the proposed Project would be operated safely.

Alternatives Considered

We evaluated the No-Action or Postponed-Action alternatives, the effects of energy conservation, system alternatives, route alternatives, route variations, aboveground facility site alternatives, and aboveground facility alternative configurations. We also considered the potential impacts on environmental resources and land uses in our alternatives analysis and evaluated alternatives that would avoid or minimize impacts on environmental resources such as forests, wetlands, and waterbodies.

Selection of the No-Action Alternative would not meet the purpose and need of the proposed Project. While the No-Action Alternative would eliminate the environmental impacts identified in this EIS, Texas Gas's customers would be denied access to the new natural gas transportation capacity that would be created by construction and operation of the proposed Project. Other gas transportation projects would still be required to meet the demand for natural gas and to transport the new Fayetteville Shale

production. If other natural gas facilities are approved and constructed, each project would result in its own set of specific impacts that could be greater than, equal to, or less than those associated with the current proposal. The use of alternative energy sources is infeasible because solar, wind, hydroelectric, and other energy sources such as geothermal or fuel cells are either not physically or commercially available in the market region or have not been developed to the point where they would be viable substitutes for natural gas. In addition, the purpose of the proposed Project is to transport new supplies of natural gas being produced from the Fayetteville Shale production area to market areas by constructing new pipeline capacity in this capacity-constrained area; thus, the use of alternative energy sources would not meet the Project's purpose. A delay in approval (Postponed-Action Alternative) would only defer any construction-related environmental impacts to the future.

Our analysis of system alternatives included an examination of existing and proposed natural gas systems that currently or would eventually serve the markets targeted by the proposed Project, and considered whether those systems would meet the proposed Project's need and purpose while offering an environmental advantage over the proposed Project. None of the additional existing pipeline systems in the Project area are located in the appropriate area to meet the purpose and need of the proposed Project, unless major laterals and aboveground facilities similar to those proposed in this Project are constructed. Construction and operation of these alternative facilities would have environmental impacts similar to those identified and analyzed for the proposed Project. We did not identify any existing pipeline system or proposed pipeline system whose expansion would be environmentally preferable to the proposed facilities. Therefore, we eliminated other pipeline system alternatives from further consideration.

In evaluating pipeline alternatives, we reviewed both alternative corridors and specific route variations. These alternatives were evaluated during the pre-filing period and were critical to development of the Project as it was ultimately filed with the FERC in Texas Gas's certificate application. As part of its Project development and route selection process, Texas Gas identified two significant route alternatives to the Fayetteville Lateral, Alternatives A and B, and one alternative to the Greenville Lateral, Alternative C.

Prior to and during pre-filing, Texas Gas identified 59 minor route variations to the initially planned route for the Fayetteville Lateral and 26 route variations to the initially planned route for the Greenville Lateral through consultation with affected landowners and subsequent field surveys. These were incorporated into the proposed Project that was evaluated in this EIS. The advantages of these variations include lower potential impacts on the environment, cultural resources, and residences; lower cost; and improved safety conditions during construction.

Consultation with federal (USACE and FWS) and state (ADHHS) resource agencies resulted in analysis of five route alternatives and 23 route variations. These were suggested to evaluate their potential to minimize impacts on various resources, but primarily forests and wetlands. One of the route alternatives (USACE Alternative 4 [in part]) and five of the route variations (FWS Variations 10, 11 [in part], 12, 15, and 16 [in part]) were incorporated by Texas Gas into its proposed Project. The others were not incorporated for various reasons, including the proposed route followed existing utility corridors more closely, avoided residential areas, avoided cultural resources, avoided side hill construction, or improved constructability at waterbody/road/railroad crossings. We concur that use of the adopted route alternative and five route variations would be environmentally preferable. The USACE and FWS agree with our assessment of these alternatives. The ADHHS suggested a route alternative and variation that would move the Fayetteville Lateral out of the Little Red River and Brewer Lake watersheds, respectively. It also commented that, if its suggested route alternative and variation were not used, Texas Gas should provide the ADHHS with its plans for construction methods for review and to consult with it regarding construction within the Little Red River and Brewer Lake watersheds. We are not recommending these alternatives since they would be longer and would impact many more residential areas than the proposed

route. We are, however, recommending that Texas Gas continue to consult with the ADHHS to address any additional concerns it may have about construction in these areas.

We looked at alternative sites for M&R stations, MLVs, and pig launchers/receivers. The locations of many of these facilities would be determined by the locations of the interconnections with other pipelines and DOT regulations. No comments were filed about the locations of aboveground facilities. We concluded that alternative sites offered no environmental advantages and we eliminated them from further consideration.

The Kosciusko Compressor Station would be located on mostly agricultural land. We identified no significant advantages to other adjacent parcels near the terminus of the proposed Greenville Lateral. Originally, the proposed compressor station would have permanently affected about 0.2 acre of wetland. We had recommended in the draft EIS that Texas Gas consider an alternative site plan that would minimize permanent impact on this wetland. Texas Gas subsequently modified the proposed footprint for this facility so it would not enclose this wetland within the fenced compressor station. The modified facility site plan is reasonable and would avoid permanent impact on this wetland.

In conclusion, we have determined that the proposed Fayetteville/Greenville Expansion Project as modified by our recommended mitigation measures, is the preferred alternative.

5.2 FERC STAFF'S RECOMMENDED MITIGATION

If the Commission issues a Certificate for the proposed Project, we recommend that the Commission's Order include the following specific conditions. We believe that these measures would further mitigate the environmental impacts associated with construction and operation of the proposed Project:

1. Texas Gas shall follow the construction procedures and mitigation measures described in its application, supplemental filings (including responses to staff information requests), and as identified in the EIS, unless modified by the Order. Texas Gas 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 delegated 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 to the Commission's Order; and
 - b. the design and implementation of any additional measures deemed necessary (including stop work authority) to ensure 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**, Texas Gas 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 all of the staff's recommended facility locations. **As soon as they are available and before the start of construction**, Texas Gas shall file with the Secretary any 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 this Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

Texas Gas'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. Texas Gas's right of eminent domain granted under Section 7(h) does not authorize it to increase the size of its natural gas pipeline to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. Texas Gas 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, and 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 **prior to construction** in or near that area.

This requirement does not apply to route variations required herein 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 prior to the start of construction, Texas Gas shall file** an initial Implementation Plan with the Secretary for review and written approval by the Director of OEP describing how Texas Gas will implement the mitigation measures

required by the Order. Texas Gas must file revisions to the plan as schedules change. The plan shall identify:

- a. how Texas Gas 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 on-site construction and inspection personnel;
 - b. the number of EIs assigned per spread and how the company 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 material;
 - d. the training and instructions Texas Gas 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 Texas Gas's organization having responsibility for compliance;
 - f. the procedures (including use of contract penalties) Texas Gas will follow if noncompliance occurs; and
 - g. for each discrete facility, a Gantt or Program Evaluation and Review Technique (PERT) chart (or similar project scheduling diagram), and dates for:
 - (1) the completion of all required surveys and reports;
 - (2) the mitigation training of on-site personnel;
 - (3) the start of construction; and
 - (4) the start and completion of restoration.
7. Texas Gas shall employ one or more EIs per construction spread. The EIs shall be:
- a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
 - b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract and any other authorizing document;
 - c. empowered to order correction of acts that violate the environmental conditions of the Order and any other authorizing document;
 - d. a full-time position, separate from all other activity inspectors;
 - e. responsible for documenting compliance with the environmental conditions of this Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and

- f. responsible for maintaining status reports.
8. Texas Gas shall file updated status reports with the Secretary on a **weekly basis until all construction-related activities, including restoration, are complete for each phase of the Project**. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. 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) during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
 - c. a description of 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 Texas Gas from other federal, state, or local permitting agencies concerning instances of noncompliance, and Texas Gas's response.
9. **Within 30 days of placing the certificated facilities in service**, Texas Gas 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 Texas Gas has complied with or will comply with. This statement also shall identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.
10. Texas Gas must receive written authorization from the Director of OEP **before commencing service** on each pipeline segment. Such authorization will be granted only following a determination that rehabilitation and restoration of the project area is proceeding satisfactorily. (page 2-12)
11. Texas Gas shall develop and implement an environmental complaint resolution procedure. The procedure shall provide landowners with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the Project and restoration of the right-of-way. **Prior to construction**, Texas Gas shall mail the complaint procedures to each landowner whose property would be crossed by the Project.
- a. In its letter to affected landowners, Texas Gas shall:

- (1) provide a local contact that the landowners should call first with their concerns; the letter should indicate how soon a landowner should expect a response;
 - (2) instruct the landowners that, if they are not satisfied with the response, they should call Texas Gas's Hotline; the letter should indicate how soon to expect a response; and
 - (3) instruct the landowners that, if they are still not satisfied with the response from Texas Gas's Hotline, they should contact the Commission's Enforcement Hotline at (888) 889-8030, or at hotline@ferc.gov.
- b. In addition, Texas Gas shall include in its weekly status report a copy of a table that contains the following information for each problem/concern:
- (1) the date of the call;
 - (2) the identification number from the certificated alignment sheets of the affected property and an approximate MP;
 - (3) the description of the problem/concern; and
 - (4) an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved. (page 2-15)
12. **Prior to construction**, Texas Gas shall file with the Secretary the MP locations of water wells and springs within 150 feet of construction workspaces and include their distance and direction from the construction workspace. (page 4-25)
13. **Prior to construction**, Texas Gas shall file with the Secretary for review the results of its geotechnical feasibility investigations, site-specific construction diagrams, and contingency plans for each HDD location. If a planned HDD crossing is not feasible, then Texas Gas shall develop a site-specific alternative crossing plan for each waterbody in consultation with all relevant agencies. Texas Gas's plans and documentation of consultations regarding the site-specific HDD plans shall be filed with the Secretary for review and written approval by the Director of OEP. (page 4-33)
14. In the event of an unsuccessful HDD, Texas Gas shall file with the Secretary a site-specific crossing plan for the waterbody. The site-specific plan shall address how Texas Gas would seal the abandoned drill hole and shall include scaled drawings identifying all areas that would be disturbed by construction. Texas Gas shall file the plan concurrent with its application to the USACE for a permit to construct using this plan. The Director of OEP must review and approve this plan in writing **prior to construction of the crossing**. (page 4-33)
15. Texas Gas shall provide to the USACE, ADEQ, MDEQ, and FWS, as appropriate, and for each construction spread, the schedule for crossing perennial waterbodies in Arkansas and Mississippi that is included in Texas Gas's weekly construction status report that is filed with the Secretary. (page 4-34)
16. **Prior to construction**, Texas Gas shall file the status of consultation with all appropriate levee boards to cross levees at the Mississippi River, the Yazoo River, and Fannegusha Creek by HDD

and the site-specific levee crossing plans for review and written approval of the Director of OEP (page 4-34)

17. **Prior to construction**, Texas Gas shall file with the Secretary for review and written approval by the Director of OEP a site-specific construction plan for each ATWS with a less than 50-foot setback from wetland boundaries (except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land) and a site-specific explanation of the conditions that will not permit a 50-foot setback. (page 4-46)
18. **Prior to construction**, Texas Gas shall file with the Secretary a copy of the Section 404/10 permit issued by the USACE and the finalized wetland Mitigation Plan developed in consultation with the USACE. (page 4-49)
19. Texas Gas **shall file with its Project Implementation Plan** the status of its Right-of-way Permit from the FWS for crossing the Hillside NWR. (page 4-60)
20. **Prior to construction**, Texas Gas shall file with the Secretary a crossing plan for construction and restoration of rice fields crossed by the Project that includes provisions for consultation with affected landowners for review and written approval of the Director of OEP. (page 4-80)
21. Texas Gas **shall file with its Project Implementation Plan** the status of the subordination agreements with the NRCS for the WRP tract crossed between MP 43.0 and 43.3 of the Greenville Lateral and the site-specific restoration plan for construction and restoration of this WRP tract. (page 4-83)
22. **Prior to construction**, Texas Gas shall file with the Secretary for review and approval by the Director of OEP:
 - a. A revised site-specific plan for the residence at MP 46.85 on the Fayetteville Lateral that clearly identifies the limits of the construction right-of-way and any additional measures Texas Gas would implement to minimize impacts on the residence; and
 - b. A revised site-specific plan for the residence at MP 55.1 on the Greenville Lateral that either reduces the construction right-of-way to maintain at least 10 feet of separation between the residence and construction workspaces and any additional measures Texas Gas would implement to minimize impacts on the residence. (page 4-86)
23. Texas Gas shall develop a plan in consultation with NPS to provide portage routes and ample signage for river users affected by Project construction across Cadron Creek (MP 14). This plan should be filed with the Secretary for review and written approval by the Director of OEP **prior to construction**. (page 4-95)
24. **Prior to construction**, Texas Gas shall field verify the locations of all geodetic control monuments within Project workspaces and complete notification and consultation with the NOAA, NGS, as needed. (page 4-98)
25. Texas Gas shall defer construction of the pipeline, compressor station, meter stations, and use of all staging, storage, and temporary work areas and new or to-be improved access roads **until**:
 - a. Texas Gas addresses the Arkansas SHPO's comments on the Arkansas Phase I survey report, including addressing the SHPO's comments regarding avoidance and protection of historic

architectural resources 38, 39, 46 and 71, and files a revised Phase I report and the Arkansas SHPO's comments on the report;

- b. Texas Gas files a Phase II NRHP-eligibility testing report for Site 20E-1 in Arkansas and the SHPO's comments on the report;
- c. Texas Gas files the Mississippi SHPO's comments on the Mississippi Phase I survey report;
- d. Texas Gas files the Mississippi SHPO's comments on the existing Greenville Compressor Station;
- e. Texas Gas files a Phase I survey report for the two pipe storage yards on the Fayetteville Lateral in Arkansas, any newly identified areas requiring survey, and the SHPO's comments on the report(s);
- f. Texas Gas provides interested Native American tribes with any requested information;
- g. the ACHP is afforded an opportunity to comment if historic properties would be adversely affected;
- h. Texas Gas files any required treatment/mitigation plans and the SHPO's and NPS', comments on the plans; and
- i. the Director of OEP reviews and approves all reports and plans and notifies Texas Gas in writing that it may proceed with treatment/mitigation or construction. (page 4-114)

All material filed with the Commission 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."**

- 26. For the HDD locations listed in table 4.11.2-2 of the EIS with projected noise levels above 55 dBA L_{dn} at the closest NSA, Texas Gas shall file noise mitigation plans with the Secretary for review and written approval by the Director of OEP, **prior to construction**. The noise mitigation plan shall include either a commitment to daytime drilling only or provide mitigation measures to reduce noise levels at the NSAs. (page 4-126)
- 27. Texas Gas shall make all reasonable efforts to ensure its predicted noise levels from the Kosciusko Compressor Station are not exceeded at nearby NSAs and file with the Secretary noise surveys showing this **no later than 60 days** after placing the Kosciusko Compressor Station in service. However, if the noise attributable to operation of the Kosciusko Compressor Station at full load exceeds an L_{dn} of 55 dBA at any nearby NSAs, Texas Gas shall file a report on what changes are needed and shall install additional noise controls to meet the level **within 1 year** of the in-service date. Texas Gas shall confirm compliance with this requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls. (page 4-127)