



**Federal Energy Regulatory Commission
Office of Energy Projects**

December 2017

Texas Eastern Transmission, LP

Docket No. CP17-468-000

Marshall County Mine Panel 18W Project

Environmental Assessment

Washington, DC 20426

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ENVIRONMENTAL ASSESSMENT
Marshall County Mine Panel 18W Project
Texas Eastern Transmission, LP
Docket No. CP17-468-000

A. PROPOSED ACTION

1. Introduction

The staff of the Federal Energy Regulatory Commission (Commission or FERC) has prepared this environmental assessment (EA) to identify the environmental effects of a natural gas pipeline project proposed by Texas Eastern Transmission, LP (Texas Eastern) in Marshall County, West Virginia, referred to as the Marshall County Mine Panel 18W Project (Project). On June 30, 2017, Texas Eastern filed an application with the Commission in Docket No. CP17-468-000 for the Project. The Project was filed under section 7(c) of the Natural Gas Act (NGA) and Part 157 of the Commission's regulations requesting authority to excavate, elevate, replace, and reinstall certain sections of several different pipelines due to the anticipated longwall coal mining activities of Marshall County Coal Company (Marshall Coal).

We¹ prepared this EA in compliance with the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality regulations for implementing NEPA (Title 40 of the Code of Federal Regulations, parts 1500-1508 [40 CFR 1500-1508]), and the Commission's implementing regulations under 18 CFR 380. The assessment of the environmental impacts is an important and integral part of the Commission's decision on whether to issue Texas Eastern a Certificate of Public Convenience and Necessity (Certificate) to construct, operate, and maintain the Project facilities.

2. Purpose and Need

Texas Eastern states that the purpose of the Project is to mitigate safety hazards associated with the longwall mining of coal under Texas Eastern's existing pipeline facilities in Marshall County, West Virginia. Texas Eastern was notified that Marshall Coal plans to mine its Panel 18W in the Marshall Coal Mine in the near future. Longwall mining is a form of underground coal mining where a long wall of coal is mined in a single slice and the roof of the mine is allowed to collapse as mining advances. Texas Eastern has designed the Project to ensure the integrity of Texas Eastern's facilities and to ensure that certificated levels of service are maintained throughout the duration of the mining activities.

¹ "We," "us," and "our" refers to the environmental staff of the Commission's Office of Energy Projects.

Under section 7(c) of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate to construct and operate them. The Commission bases its decisions on technical competence, financing, rates, market demand, gas supply, environmental impact, long-term feasibility, and other issues concerning a proposed project.

3. Public Review and Comment

On July 24, 2017, the Commission issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Marshall County Mine Panel 18W Project and Request for Comments on Environmental Issues* (NOI). The NOI was sent to affected landowners; owners of minerals rights; federal, state, and local government agencies; elected officials; Native American tribes; other interested parties; and local libraries and newspapers. No comments were received in response to the NOI.

4. Proposed Facilities

Texas Eastern's existing Lines 10, 15, 25, and 30 are all collocated within a pipeline right-of-way corridor located within Panel 18W of the Marshall County Mine. Specific activities for the Project are detailed below.

- Excavate and replace the approximate 1.6-mile-long section of the 30-inch-diameter Line 10 from approximately milepost (MP) 720.3 to MP 721.9.
- Excavate and replace the approximate 1.6-mile section of 30-inch-diameter Line 15 from approximately MP 720.8 to MP 722.4.
- An approximate 250-foot-long section of Line 10 within the Project is located within wetlands. Also, an approximate 230-foot-long section of Line 15 within the Project is located within wetland. These two sections would be abandoned in place during the mining activities to limit excavation in wetlands and to minimize impacts. When the replacement pipeline would be reinstalled underground, the abandoned sections of the pipelines would be removed.
- Excavate an approximate 1.5-mile-long section of the 36-inch-diameter Line 25 from approximately MP 40.0 to MP 41.5.
- Excavate an approximate 1.5-mile-long section of the 36-inch-diameter Line 30 from approximately MP 720.8 to MP 722.4.

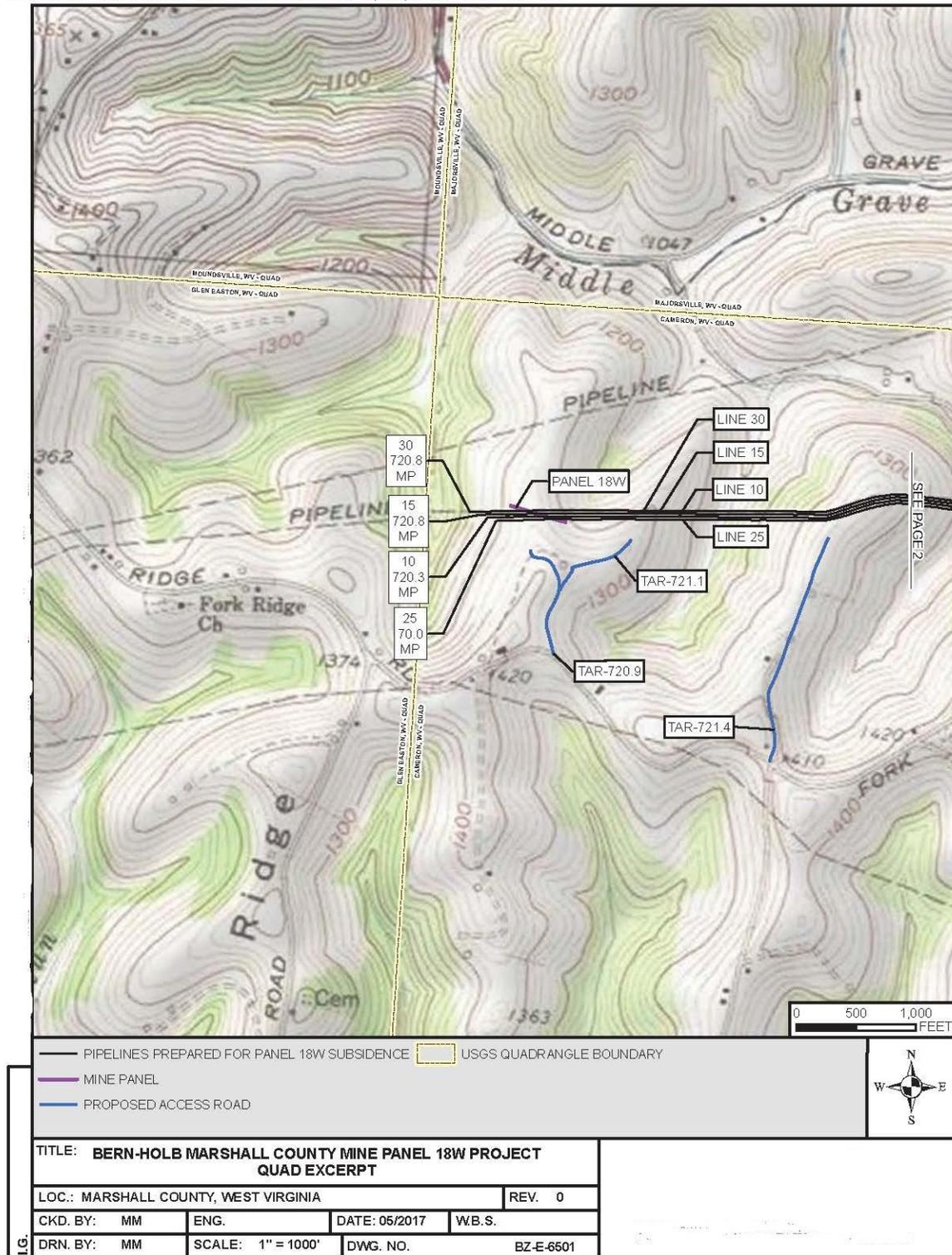
All excavated pipelines would be elevated, offset from the backfill trench, and hydrostatically tested before placing it back into service for the duration of mining activities. They would also be monitored for stress and strain levels from potential ground subsidence during mining activities. Following mining activities and the 2019-

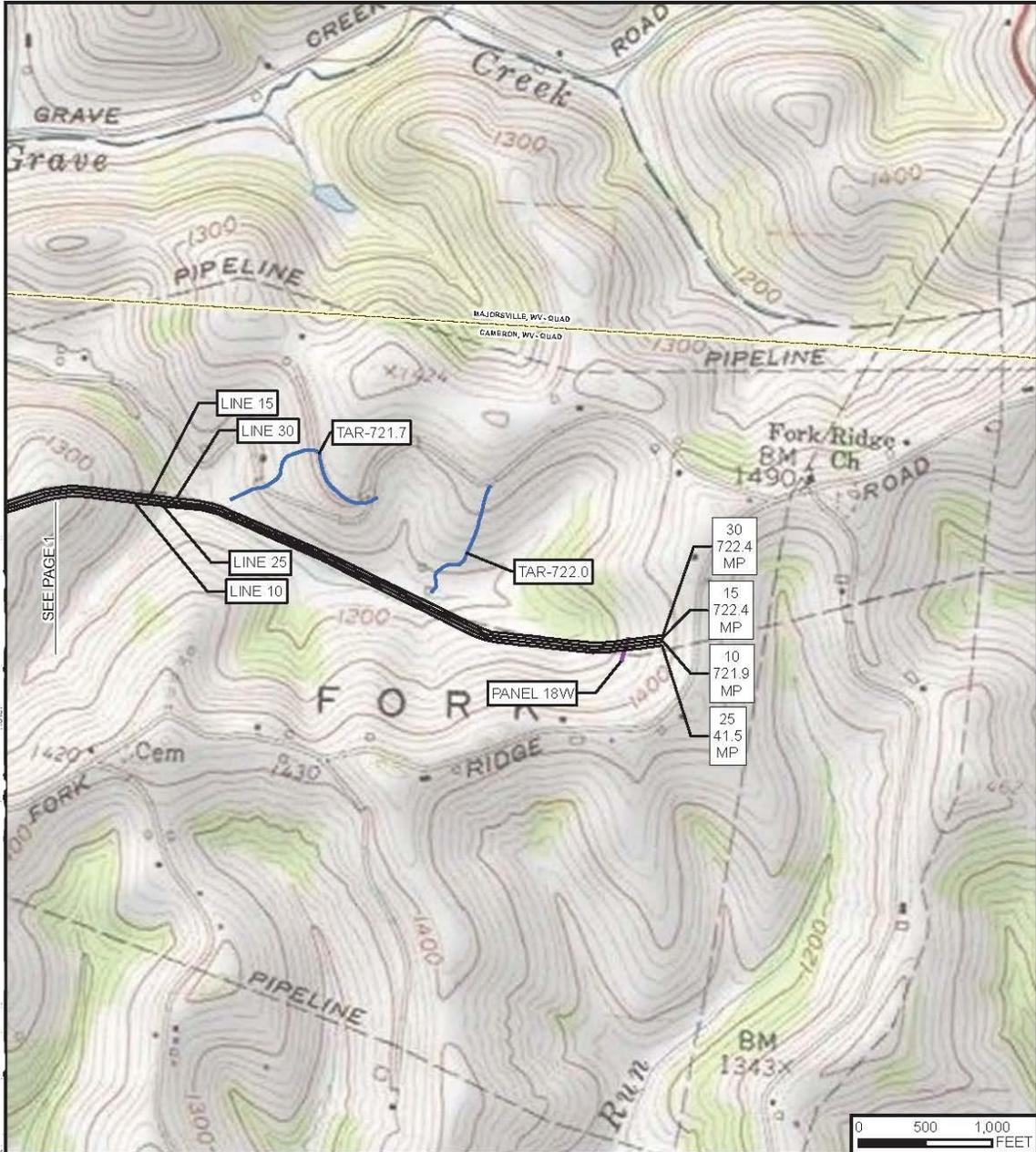
2020 heating season, all pipeline segments would be reinstalled below ground surface, hydrostatically tested, and placed back into service. The certificated design capacities and maximum allowable operating pressures of the pipeline segments would remain unchanged.

A map of the Project is shown in figure 1.

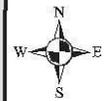
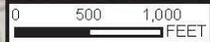
Figure 1

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PIPELINES PREPARED FOR PANEL 18W SUBSIDENCE
 USGS QUADRANGLE BOUNDARY
 MINE PANEL
 PROPOSED ACCESS ROAD



**TITLE: BERN-HOLB MARSHALL COUNTY MINE PANEL 18W PROJECT
QUAD EXCERPT**

LOC.: MARSHALL COUNTY, WEST VIRGINIA		REV. 0	
CKD. BY: MM	ENG.	DATE: 05/2017	WB.S.
DRN. BY: MM	SCALE: 1" = 1000'	DWG. NO.	BZ-E-6502

5. Construction, Operation, and Maintenance Procedures

The Project would follow a general construction sequence of surveying, clearing, grading, trenching for pipe removal, pipe elevation/removal, replacement of pipeline sections, temporary trench backfilling, hydrostatic testing, and temporary restoration. Once the pipelines are elevated to above the ground surface, maintenance and monitoring would be conducted during the period of potential ground subsidence that could occur during mining. Following the mining activities and possible ground subsidence, the sequence would continue with trenching for re-installation of the pipelines, hydrostatic testing, backfilling, final cleanup, and restoration.

Project workspaces are primarily located within the existing rights-of-way. Workspace has been selected to minimize tree clearing to the extent practicable; however, the edge of the construction corridor and some areas of additional temporary workspaces (ATWS) are forested, so tree clearing would be required.

Following initial survey, clearing, and grading, all four pipelines would be excavated and the original belowground pipe segments for Lines 10 and 15 would be removed (with the exception of two sections located within wetlands) and replaced with the new pipe. Lines 10, 15, 25, and 30 would be elevated above ground, on sandbags and skids, at the edge of, or adjacent to, the existing maintained pipeline right-of-way. Then trenches would be backfilled including some soil that was excavated from benching the right-of-way to maintain previous elevation and contours. Once removal of the pipelines is complete, and the disturbed areas would be stabilized. Strain gauges would be attached to the aboveground pipelines during the elevation process, and access between the pipelines would be maintained for monitoring and maintenance during the mining and ground subsidence period. After the aboveground pipe installation is complete, each pipeline segment would be hydrostatically tested before being placed into service, and the construction workspace would be temporarily stabilized for the duration of the ground subsidence period.

Each of the pipelines would be monitored while aboveground and during the period of ground subsidence. The monitoring period would be determined by the timing and duration of Marshall Coal's longwall mining activities in Panel 18W, currently estimated to be October 2018. During this period, Texas Eastern would reposition the aboveground pipelines, as necessary, to minimize stress on the pipelines.

Following completion of Marshall Coal's longwall mining activity and ground subsidence in Panel 18W and after the 2019 heating season, the four pipelines would be re-installed belowground. The general re-installation sequence would continue with trenching to re-install or reconnect the pipelines; backfilling; hydrostatic testing; tie-in; and final cleanup and restoration. During the re-installation, the sections of Lines 10 and 15 that had been replaced before being elevated aboveground would be placed

approximately in the original pipeline alignments, tested and placed into service. The original segments of Lines 25 and 30 would be replaced approximately within their original alignments, tested, and placed into service.

Texas Eastern would construct the Project in accordance with its Erosion and Sedimentation Control Plan (E&SCP) which incorporates our *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures), with alternative measures further discussed in the water resources section of this EA.² Additionally, Texas Eastern has developed a Spill Prevention, Control, and Countermeasure (SPCC) Plan to minimize spills of fuel, oil, lubricants, and other construction materials and provide measures for cleanup in the event a spill occurs.

Texas Eastern proposes a construction schedule that would avoid working on its existing pipelines during the heating season (November 1 through April 1). Texas Eastern is proposing to conduct tree clearing and site preparation activities in March 2018 for the Project followed by the excavation and elevation work. These activities are expected to be completed prior to the start of longwall mining activities in October 2018. Texas Eastern's pipelines would remain in service while aboveground. Reburial of the pipelines below-grade is planned to begin in June 2020, after the cessation of ground subsidence and following the 2019 heating season. The Project is expected to be completed and all pipeline segments returned to service by October 2020, provided there are no significant mining schedule changes.

6. Land Requirements

Land requirements for the Project are provided in table 1. Project activities would occur primarily within and adjacent to Texas Eastern's existing pipeline right-of-way. The construction workspace would include the 125-foot-wide existing pipeline right-of-way as well as a 75-foot-wide temporary construction right-of-way. The temporary alignments for the aboveground pipeline segments would be located within the temporary construction right-of-way adjacent to and offset from each of the original belowground alignments. The existing and temporary construction rights-of-way would also be used for removing the existing pipelines, monitoring the aboveground pipe segments during mining, and re-installing or reconnecting the pipelines belowground in their original alignments following the mining activity and ground subsidence. The construction workspace would also include additional temporary workspace at road crossings and in steeply sloped areas, which would be used for stockpiling trench spoil and for staging equipment.

² Our Plan and Procedures may be found on the FERC website at <http://www.ferc.gov/industries/gas/enviro/plan.pdf> and <http://www.ferc.gov/industries/gas/enviro/procedures.pdf>.

Texas Eastern proposes to use the existing and previously certificated Bristoria Wareyard as the contractor wareyard for the Project in Greene County, Pennsylvania. In addition, Texas Eastern proposes to use the existing and previously certificated Mount Braddock pipeyard in Fayette County, Pennsylvania and the Marshall County Contractor Yard in Marshall County West Virginia to store new pipe and used pipe prior to disposal, to weld and fabricate piping, for contractor office trailers, employee parking, and equipment storage. One existing farm road would provide temporary access during construction of the Project. The access road may require minimal improvements; it would be restored in accordance with landowner agreements following completion of construction activities.

Although Texas Eastern has identified areas where extra workspace would be required, additional or alternative areas could be identified in the future due to changes in site-specific construction requirements. Texas Eastern would be required to file information on each of those areas for our review and approval prior to use.

Table 1 Marshall County Mine Panel 18W Project Summary of Land Requirements for Pipeline Facilities			
Facility	County, State	Total Construction Workspace (acres)	Permanent Easement for Operation (acres)
Pipeline Right-of-Way			
Lines 10, 15, 25, and 30	Marshall County, WV	56.9	38.2
Other Work Areas			
Temporary Access Roads	Marshall County, WV	3.7	0.0
Marshall County Contractor Yard	Marshall County, WV	3.2	0.0
Bristoria Wareyard	Greene County, PA	7.4	0.0
Mount Braddock Pipeyard	Fayette County, PA	28.9	0.0
Total		100.1	38.2
Note: a No new permanent easement will be required as part of the Project, and all permanent impacts are within the existing ROW.			

Following re-installation or reconnection of the pipelines after ground subsidence, the construction workspace would be restored to its original contours to the extent practicable, stabilized, and allowed to return to pre-construction conditions.

7. Permits

Texas Eastern states that it would obtain all necessary permits, licenses, and clearances related to the construction of the Project. All relevant permits and approvals, listed in table 2 below, would be provided to the construction contractor who would be required to be familiar with applicable requirements.

**Table 2
Marshall County Mine Panel 18W Project
Environmental Permits/Approvals**

Agency	Permit/Approval	Submittal Date ^a	Expected Approval Date ^a
Federal			
U.S. Fish and Wildlife Service	Section 7 Threatened and Endangered Species Consultation and Clearance	June 2017	Pending
U.S. Army Corps of Engineers	Section 404 Permit	June 2017	Pending
State			
West Virginia			
West Virginia Division of Culture and History	Section 106 of the National Historic Preservation Act Clearance	June 2017	June 26, 2017
West Virginia Department of Environmental Protection	General Permit WV0116815 (Stormwater Associated within Oil and Gas related Construction Activities)	September 2017	Pending
West Virginia Department of Environmental Protection	General Permit WV0113069 (General Permit Hydrostatic Test Water Discharge)	September 2017	Pending
West Virginia Department of Natural Resources, Public Land Corporation	Stream Activity Application	September 2017	Pending
West Virginia Department of Natural Resources, Wildlife Resources Section	Threatened and Endangered Species Consultation	June 2017	Pending
Pennsylvania			
Pennsylvania Historical and Museum Commission - Bureau for Historic Preservation	Section 106 of the National Historic Preservation Act Clearance	April 2016	April 5, 2016
Pennsylvania Fish and Boat Commission	Threatened and Endangered Species Consultation and Clearance	June 2017	June 29, 2017
Pennsylvania Department of Conservation and Natural Resources	Threatened and Endangered Species Consultation and Clearance	June 2017	June 29, 2017
Pennsylvania Game Commission	Threatened and Endangered Species Consultation and Clearance	June 2017	June 29, 2017

B. ENVIRONMENTAL ANALYSIS

The following sections discuss potential impacts on environmental resources as a result of the Project.

1. Geology

The Project is in Marshall County, West Virginia, and is situated within the Appalachian Plateau Province. The plateau contains an abundance of minable coal. The Project traverses many steep ridges and valleys that are typical of this area of Marshall County. The underlying bedrock within the affected area is from the Permian or Pennsylvania age (230 to 290 million years ago) and made up of cyclic sequences of sandstone, shale, siltstone, limestone, and coal.

The Project is being proposed because the longwall mining of coal at the Marshall County Mine is planned under Panel 18W situated along Texas Eastern's existing pipeline system in Marshall County, West Virginia. The Project would maintain the integrity of Texas Eastern's pipelines while coal is mined.

No geologic resources would be affected as excavation of the existing pipelines would occur on previously disturbed pipeline rights-of-way.

Ten active wells are located within 0.25 mile of the Project. These wells would not be affected because no wells are located directly within the construction workspace of the Project. Texas Eastern is not aware of any existing pipelines that cross its rights-of-way, but if any are discovered during construction Texas Eastern would identify and contact the owner.

The alignments for the reinstallation of the pipelines below ground would be within existing trench lines for the majority of the Project facilities; no blasting is anticipated. If blasting does become necessary, Texas Eastern stated it would adhere to blasting requirements in its E&SCP, and all local, state, and federal regulations applying to controlled blasting and blast vibration limits for structures and underground or aboveground utilities. Texas Eastern would apply to the West Virginia Department of Environmental Protection (WVDEP) for its blasting permits prior to any blasting. Its E&SCP requires the development of specific blasting procedures in coordination with the appropriate agencies that address pre- and post-blast inspections; procedures to notify the public; and the development of mitigation measures for building foundations, groundwater wells, and springs. The E&SCP also requires the use of appropriate methods (e.g., blasting mats) to prevent damage to nearby structures and to prevent debris from entering sensitive environmental resource areas. In addition, the E&SCP addresses blasting in waterbodies.

The Project is designed to minimize risks that could result from coal mining activities and potential ground subsidence under Texas Eastern's existing easements. Other geologic hazards (such as earthquakes, landslides, and soil liquefaction) are not anticipated to be a significant factor for the Project. The Project is not located within a region with a high probability of a serious earthquake, nor does the Project cross faults, and there are no known earthquake epicenters located within Marshall County. The conditions necessary for soil liquefaction are not present in the areas disturbed by the Project.

The Project is within an area that generally is characterized as susceptible to the potential for landslides, but Texas Eastern's proposed use of waterbars to direct excess surface water off the right-of-way on slopes, in accordance with its E&SCP, would minimize the development of landslides.

Because of the mining mitigation proposed by Texas Eastern and use of waterbars to minimize landslide development, we conclude that the impacts on geologic resources would not be significant.

2. Soils

Construction activities have the potential to affect soil characteristics adversely, thereby limiting the restoration potential of areas disturbed by land-clearing activities and the movement of heavy equipment. Potential soil impacts in the Project area include loss of vegetation and subsequent soil erosion, mixing of topsoil and subsoil, and soil compaction. Only a small portion of the disturbed area of the Project has a high compaction potential. The soils in the disturbed areas consist mostly of silt loams and have bedrock within 6 feet of the surface. Soils in the Project area are classified as being mostly highly water erodible and range from somewhat poorly to well drained.

Texas Eastern would backfill pipeline trenches after the pipelines are elevated and would temporarily restore the rights-of-way as part of the mining mitigation procedures. Texas Eastern plans to temporarily stabilize soils by seeding and mulching to reduce potential wind and water erosion. In addition, Texas Eastern would monitor the rights-of-way and the temporary erosion controls during the time the pipelines remain elevated.

Trenches would be backfilled following pipeline elevation, so spoil piles present during the period of potential ground subsidence would be limited to areas where topsoil has been segregated for use during final restoration. Travel lanes would be needed along the rights-of-way for monitoring and maintenance during the period while the pipelines are elevated. Erosion control devices would be installed and maintained as needed until final restoration is completed.

The use of the E&SCP and the temporary restoration measures while the pipelines are excavated and elevated would minimize erosion during both the mining mitigation and final restoration of the Project. Therefore, effects on soils, erosion, and sedimentation would be minor and not significant.

3. Vegetation and Wildlife

Vegetation

The vegetation affected by the Project consists mostly of herbaceous and forested vegetation on Texas Eastern's existing and maintained pipeline easements and ATWS adjacent to these easements. Additional workspace would be cleared adjacent to the existing easements to facilitate work on the pipelines. The construction right-of-way, ATWS, and temporary access roads would impact 50.7 acres of pasture land vegetated mostly in grasses and herbaceous vegetation, 4.7 acre of emergent wetland vegetation, less than 0.1 acre of scrub shrub wetland vegetation, and about 1.6 acres of deciduous wooded/forested areas comprised of maple, hickory, walnut, and locust that would be cleared.

The temporary right-of-way and ATWS would be revegetated and allowed to revert to its pre-existing condition and use upon completion of the project. Ongoing easement and pipeline maintenance operations would not permanently impact those areas currently outside the existing permanent easements.

Clearing woody shrubs and trees for temporary construction workspace would have more significant, long-term impacts on vegetation than temporary use of open areas because of the longer growth period. However, following construction in these areas, establishment of a shrub and tree-dominated community is expected to progress through several successional stages until the original vegetation is re-established. No new areas would be permanently cleared and vegetation impacts associated with the Project would be minimal.

Wildlife

Ground disturbance associated with the Project is relatively small and mostly within existing maintained rights-of-way. Most of the affected workspaces are vegetated with grasses and herbaceous species and 1.6 acres of forest/woodland would be affected. These vegetation types are common in the area and affected wildlife such as deer, mice, raccoons, coyotes, foxes, and skunks could relocate during construction. Therefore, we conclude that the Project would not have a significant impact on wildlife.

Migratory Birds

Migratory birds are generally species that nest in the United States and Canada during the summer and then migrate to and from the tropical regions of Mexico, Central and South America, and the Caribbean for the non-breeding season. Migratory birds are protected under the Migratory Bird Treaty Act of 1918 (MBTA). Destruction or disturbance of a migratory bird nest resulting in the loss of eggs or young is a violation of the MBTA. Executive Order 13186 (EO 13186) was enacted in 2001 to, among other things, ensure that environmental analyses of federal actions evaluate the impacts of actions and agency plans on migratory birds. EO 13186 directs federal agencies to avoid or minimize adverse impacts on migratory birds through enhanced collaboration with the U.S. Fish and Wildlife Service (FWS), and emphasizes species of concern, priority habitats, and key risk factors.

On March 30, 2011, the FWS and the Commission entered into a Memorandum of Understanding (MOU) that focuses on avoiding or minimizing adverse impacts on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the Commission and the FWS by identifying areas of cooperation. This voluntary MOU does not waive legal requirements under any other statutes and does not authorize the take of migratory birds.

Texas Eastern would minimize fragmentation, minimize impacts on breeding habitats, avoid permanent habitat alterations, implement erosion controls, and restore disturbed areas. Texas Eastern anticipates conducting tree clearing activities in March 2018, which is prior to the migratory bird nesting season which begins April 15.

Texas Eastern combined the consultations regarding measures for compliance with the MBTA for this project and the adjacent Marshall County Panel 17W (17W) Project on January 26, 2016. We received a response from the FWS dated March 4, 2016 in which the FWS stated that potential impacts on migratory birds would be minimized through the implementation of Texas Eastern's proposed avoidance and minimization measures.

Texas Eastern would avoid and minimize tree clearing, habitat disturbance, and habitat fragmentation by concentrating construction within and adjacent to the existing right-of-way. Texas Eastern's E&SCP also prohibits routine vegetation mowing or clearing during the migratory bird nesting season (April 15 to August 1 of any year). Because of these combined avoidance and mitigation measures, the Project is not expected to result in adverse impacts on migratory bird populations.

While no bald eagle nests have been identified by the FWS in any of the Project areas, Texas Eastern has committed to implementing the *National Bald Eagle Management Guidelines*, should an eagle be spotted. We have determined that the

Project would not significantly adversely impact bald eagles in the Project areas.

Special Status Species

Special status species are those species for which state or federal agencies afford an additional level of protection by law, regulation, or policy. Special status species can include federally listed species protected under the Endangered Species Act (ESA), as amended, and state sensitive species. Section 7 of the ESA requires the lead federal agency to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of a federally listed endangered or threatened species. The action also cannot destroy or degrade designated critical habitat of a federally listed species.

The Commission is required to consult with the FWS to determine whether any critical habitat, proposed critical habitat, federally listed species, or species candidates for federal listing might occur in the project area. The FWS also analyzes the proposed action's potential impacts on these species or critical habitats.

Texas Eastern, acting as the FERC's non-federal representative for the purpose of complying with section 7(a)(2) of the ESA, identified two federally listed species as potentially occurring in the Project area based on the Information in the Planning and Conservation (IPaC) Trust Resource Report for the Project area and initiated informal consultation with the FWS, as discussed below. Texas Eastern did not identify any state-listed species potentially occurring in the Project area and requested additional information from the West Virginia Department of Natural Resources (WVDNR).

Indiana Bat

The IPaC tool identified that the federally endangered Indiana bat (*Myotis sodalis*) occurs within the Project area. Indiana bats occur in the Midwest and eastern United States from the western edge of the Ozark region in Oklahoma, to southern Wisconsin, east to Vermont, and as far south as northern Florida. The breeding period usually occurs during the first 10 days of October. Females and juveniles forage near the foliage of riparian areas and often roost in exfoliating (peeling) bark of floodplain trees. Creeks are apparently not used if riparian trees have been removed. Males forage over floodplain ridges and hillside forests and usually roost in caves.

During winter, Indiana bats hibernate in caves and abandoned mines. For hibernation, the bats require cool, humid caves with stable temperatures under 50° Fahrenheit, but above freezing. Very few caves within the range of the species have these conditions. Summer habitat requirements for the species are not well defined, but generally consist of dead or live trees with peeling or exfoliating bark, split tree trunk and/or branches, or cavities; live trees (such as shagbark hickory and oaks); and riparian

corridors or upland woodlots that provide forage sites.

The historical decline of the Indiana bat is attributed to commercialization of roosting caves, destruction by vandals, disturbances caused by increased numbers of spelunkers and bat banding programs, use of bats as laboratory experimental animals, and possibly insecticide poisoning. Current threats include loss of hibernating and nesting habitats and white-nose syndrome. The Indiana bat is nearly extinct over most of its former range in northeastern states.

Texas Eastern combined the consultations for ESA with the FWS previously and combined this project with the adjacent Marshall County Panel 17W (17W) Project on January 26, 2016. The FWS stated in a letter dated March 4, 2016 that this Project is not likely to adversely affect the Indiana bat due to the distance from known hibernacula, roosts and minor effect to forested habitat. We agree.

Northern Long-Eared Bat

The IPaC tool also identified that the federally threatened northern long-eared bat (*Myotis septentrionalis*) occurs within the Project area. Northern long-eared bats are found in a wide variety of forested habitats during the summer. They roost in mines, caves, other manmade structures, and both live and dead trees. These bats typically hibernate in the winter months. They can hibernate in caves, railroad tunnels, and mines. The northern long-eared bat and the Indiana bat have similar yearly cycles that include staging, maternity, and swarming seasons.

The FWS also stated in the letter dated March 4, 2016 that while Northern long-eared bats may occur within the Project area, this Project is exempted under the 4(d) rule.

State-protected species

Texas Eastern consulted the WVDNR in a letter dated June 29, 2017, to evaluate the potential presence of state-listed species of concern in the Project area. The WVDNR did not provide a response. In addition, Texas Eastern submitted Pennsylvania Natural Diversity Inventory (PNDI) requests on June 30, 2017, for the Bristoria Wareyard, Marshall County Contractor Yard, and Mount Braddock Pipeyard. Both PNDI requests returned a 'no impact anticipated' response from all four reviewing agencies; the Pennsylvania Game Commission, the Pennsylvania Department of Conservation and Natural Resources, the Pennsylvania Fish and Boat Commission, and the FWS.

Based on the scope and setting of the proposed Project activities, we conclude that impacts on wildlife would be mostly temporary and not significant. Furthermore, MBTA and ESA consultations for the Project are complete.

4. Water Resources

Groundwater

The Project is underlain by the Permian and Pennsylvanian Aquifers of the Appalachian Plateau Province. The groundwater observation well closest to the Project is located approximately 23 miles to the north, in Brook County, West Virginia. The depth to groundwater at the observation well was measured from 39.6 to 40.0 feet below ground surface. Through completion of a field survey and coordination with landowners, Texas Eastern did not identify any water wells or springs within 150 feet of the Project.

The proposed construction activities associated with the Project would involve shallow excavation, typically less than 10 feet and would avoid impact on wells. Proper implementation of the E&SCP would ensure potential effects on groundwater resources would be minimal. However, accidental spills or leaks of hazardous liquids, resulting from refueling of construction vehicles and storage of fuel, oil, and other fluids during construction, could contaminate shallow groundwater and result in impacts on local groundwater. To avoid or minimize potential impacts, Texas Eastern would comply with its SPCC Plan that identifies preventative measures to be used during construction to reduce the potential for a hazardous material spill. We have reviewed the SPCC Plan and find it acceptable.

Surface Water and Fisheries

The Project lies within the Middle Grave Creek watershed (12-digit hydrologic unit code [HUC] 050301060001), which drains to the Ohio River by way of Grave Creek. Field surveys identified 13 waterbodies within the construction work area and access roads (see table 3). Only six of these are perennial streams. The pipeline trench crosses two waterbodies, S-T01-14 and S-T01-15. The waterbody crossings are minor and would be crossed by a dry crossing method (flumed crossing or dam and pump crossing) if there is perceptible or potential flow at the time of crossing. Following pipeline excavation, Texas Eastern would backfill all trenches and remove flume or dam-and-pump crossings, returning watercourses to the original channels. All watercourses are unnamed tributaries to Middle Grave Creek. According to the WVDEP Water Quality Standards, the designated uses of Middle Grave Creek are warm water fishery, water contact recreation, agriculture and wildlife, and industrial water supply. Middle Grave Creek does not qualify for trout water, public water supply, or power supply facility designated uses. Although Middle Grave Creek and its tributaries are designated for use as warm water fisheries, the current water quality would appear to not fully support this designated use. Fish were not observed during field surveys.

Table 3					
Watercourses within the Construction Workspace					
Milepost	Watercourse	Watercourse Name	Affected by	Flow Type	Bank Width (feet)
721.8	S-T01-002	UNT to Middle Grave Creek		I	5
721.8	S-T01-003	UNT to Middle Grave Creek		I	4
721.8	S-T01-004	UNT to Middle Grave Creek		E	5
721.6	S-T01-006	UNT to Middle Grave Creek		P	3
721.5	S-T01-007	UNT to Middle Grave Creek		I	3
721.5	S-T02-001	UNT to Middle Grave Creek		I	3
721.3	S-T01-010	UNT to Middle Grave Creek		P	10
721.2	S-T01-011	UNT to Middle Grave Creek		P	7
721.2	S-T01-014	UNT to Middle Grave Creek	pipeline	P	4
721.2	S-T01-015	UNT to Middle Grave Creek	pipeline	P	5
720.7	S-T01-008	UNT to Middle Grave Creek		P	5
720.0	S-T02-002	UNT to Middle Grave Creek		I	5
720.0	S-T02-002A	UNT to Middle Grave Creek		E	3
Key: E = ephemeral, I = intermittent, OHWM = ordinary high water mark, P = perennial, UNT = unnamed tributary					

Middle Grave Creek is listed in the West Virginia 2014 Integrated Water Quality and Monitoring Report as a Category 4a stream, which is defined as waters that are impaired. Because all of the waterbodies within the construction workspace are unnamed tributaries, their attainment status is not assessed in the Integrated Water Quality and Monitoring Report.

Texas Eastern would restore all workspaces to pre-construction contours and would employ the erosion control measures prescribed in its E&SCP to limit and impacts on waterbodies.

Texas Eastern proposes to use the existing and previously certificated (under Docket No. CP14-9-000) Bristoria Wareyard as a pipeyard/contractor wareyard for vehicle parking, equipment staging, and materials storage located in Greene County, Pennsylvania. Texas Eastern is currently using this 7.4-acre wareyard, which is entirely composed of industrial/commercial land, for the Bailey East Mine Panel 2L Project. The southern portion of the Bristoria Wareyard lies within the floodplain of the North Fork Dunkard Fork. No changes in land use or new structures would occur at this wareyard, and thus the floodplain would not be affected. No waterbodies within the Bristoria Wareyard would be disturbed.

Seven of the streams located within the Project construction workspace are ephemeral or intermittent streams and lack the flow regime to consistently support fish populations. The six perennial streams are shallow headwater streams with limited flow. Impacts on aquatic resources would be minimized by adhering to the protection measures in the E&SCP. Impacts from construction-related sedimentation and turbidity would be limited to short-term, temporary disturbances. No long-term impacts on fisheries are anticipated after restoration of stream bottoms and re-growth of stream bank and aquatic vegetation.

We conclude that the Project would have minimal impacts on surface waters and fisheries because the overall impact on surface water resources would be temporary and minimal. Further, and the use of Texas Eastern's E&SCP would minimize impacts on these resources.

Wetlands

An on-site wetland survey delineated 12 freshwater emergent wetlands and one palustrine scrub shrub wetland within the construction right-of-way, totaling 4.7 acres. Texas Eastern would install timber matting to use as a travel lane across these wetlands to prevent rutting. Texas Eastern has applied for a section 404 permit from the U.S. Army Corps of Engineers for wetland disturbance. Approval is pending.

Table 4 Wetland Impacts				
Milepost^a	Wetland ID	Cowardin Classification		
		PEM Temporary Impacts (acre)^b	PSS Temporary Impacts (acre)^b	Total^b
721.6	W-T01-003	0.05	-	0.05
721.5	W-T01-004	2.1	-	2.1
721.9	W-T01-005	0.16	-	0.16
721.8	W-T01-007	0.35	-	0.35
721.8	W-T01-008	0.05	-	0.05
721.7	W-T01-009	0.11	-	0.11
721.2	W-T02-011	0.03	-	0.03
721.2	W-T01-010	1.3	0.04	1.3
720.7	W-T03-002	0.01	-	0.01
720.7	W-T01-013	0.07	0.02	0.09
720.1	W-T02-012	0.12	-	0.12
720.0	W-T02-013	0.02	-	0.02
719.0	W-T02-014	0.02	-	0.12
Total Impacts		4.7	0.06	4.7
Notes:				
^a Mileposts correspond to Line 10 mile-posting.				
^b Construction impacts calculated from field-delineated polygons and rounded to the nearest hundredth of a foot. Totals were generated from unrounded data and may not match the sum of a column.				
Key: PEM = palustrine emergent PSS = palustrine scrub-shrub				

Construction and restoration activities in wetland areas would be conducted in accordance with Texas Eastern’s E&SCP. One watercourse and three wetlands that would be impacted are within 50 feet of construction and require additional temporary workspaces within the 50-foot setback required in our Procedures. Also, due to the construction requirements associated with excavating and monitoring four parallel existing pipelines, additional construction right-of-way is needed in wetland areas of more than 75 feet. Our Procedures limit construction rights-of-way in wetlands to 75-foot-wide; however, a 75-foot-wide workspace is not feasible because of the space requirements for excavation and replacement, the fixed separation of the four existing pipelines, the need for a parallel travel lane, and topographic restraints. Consequently, Texas Eastern is proposing a right-of-way width of 200 feet in areas in which wetlands are present. We find the above alternative measures to our Procedures necessary to allow for the safe construction of multiple pipelines on steep topography and to provide access.

During construction and monitoring, Texas Eastern would install and maintain appropriate erosion and sediment controls and temporary equipment bridges to minimize impacts on waterways, drainages, and wetlands. Following re-burial of the pipelines, the wetland would be restored as closely as possible to its original contours and the segregated topsoil would be replaced to assist in restoration.

In all cases, impacts on wetlands would be temporary. The use of topsoil segregation, reestablishing original contours after pipeline reburial, reapplying topsoil, and proper seeding techniques would minimize impacts and facilitate restoration of the wetlands to pre-construction conditions. We also conclude that the use of Texas Eastern's E&SCP would minimize impacts on wetlands.

Hydrostatic testing

During hydrostatic testing, each pipeline would be filled with water and would typically be pressurized to 1.5 times higher than the maximum pressure under which the pipeline would be operated. The water would be maintained at the prescribed pressure for a minimum of 8 hours to verify the strength and integrity of the new pipelines. Hydrostatic testing would be conducted in a manner that meets or exceeds the U.S. Department of Transportation's (DOT) Regulations at 49 CFR 192, "Transportation of Natural and Other Gas by Pipeline, Minimum Federal Safety Standards." If possible, Texas Eastern plans to reuse the water from hydrostatic testing until testing on each pipeline is completed.

In total, Texas Eastern estimates 510,000 gallons of water would be required for hydrostatic testing of the aboveground pipelines for the Project, and about the same amount for hydrostatic testing after re-installation of the pipelines below ground. Texas Eastern plans to acquire water from a local municipal or commercial water source and discharge at upland locations at either end of the proposed work area. Hydrostatic test water discharges would comply with Texas Eastern's E&SCP, and federal and state requirements. Therefore, impacts from discharge of hydrostatic test water are expected to be temporary and minimal.

5. Land Use, Recreation, and Visual Resources

The Project would affect 54.4 acres of a variety of land types. The majority of lands affected are commercial/industrial and pasture. Additionally, there would be impact to forest and wetlands. Table 5 summarizes the Projects construction and operational impacts by land use category.

Table 5 Construction and Operational Impacts by Land Use Category						
	Pasture	Forest/ Woodland	Open Land	Industrial/ Commercial	Wetlands/ Waterbodies	Total
Maintained ROW	35.6	0.0	0.0	0.0	2.6	38.2
Temporary ROW and ATWS	15.1	1.6	0.0	0.0	2.0	18.7
Marshall County Contractor Yard	0.0	0.0	0.0	3.2	0.0	3.2
Bristoria Wareyard	0.0	0.0	0.0	7.4	0.0	7.4
Mount Braddock Pipeyard	0.0	0.0	0.0	28.9	0.0	28.9
Total^a	50.7	1.6	0.0	39.5	4.7	96.4
Note: ^a The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends. Key: ATWS = additional temporary workspace ROW = right-of-way						

Five temporary access roads measuring a total length of 6,316 feet are proposed for use during construction of the Project. The access roads are existing roads and may require minimal improvements, including tree trimming, gravel placement, or path widening. The access roads used for construction would be restored to previously existing conditions and in accordance with landowner agreements, following completion of construction activities.

No residences are located within 50 feet of the construction right-of-way. Texas Eastern has identified two houses within 50 feet of temporary access roads. Texas Eastern has submitted a plan to ensure access and safe conditions would be maintained for the residences. We have reviewed the plan and find it acceptable.

To minimize fugitive dust emissions during construction, Texas Eastern would use a procedure that requires periodic watering of disturbed areas (via a mobile watering truck) when needed, based on conditions encountered daily. In addition, all construction-related litter and debris would be removed daily from the construction work areas. While the pipelines remain elevated, topsoil would be stockpiled in upland locations with erosion and sediment controls, the trenches would be backfilled, and the disturbed areas would be temporarily seeded.

No new permanent impacts on land use would result from construction and operation of the Project as there are no proposed changes in land use. No new permanent easement would be required. Impacts associated with the operation of the pipeline would

be limited to continued routine vegetation maintenance along the existing pipeline right-of-way and pipeline maintenance activities, as needed.

The Project would not affect any specialty uses such as nurseries, orchards, or any other specialty crop agricultural land.

There are no recreational use areas, public lands, or special-use areas within 0.25 mile of the Project; therefore, construction and operation would not have a significant impact on recreational resources. The Project is not in the coastal zone. No known hazardous waste sites are crossed or within 0.5 mile of the Project.

Visual impacts would occur during construction and for the duration of mining activity. The pipelines would be aboveground and visible for about 2 years to allow mining to occur and to allow time for settlement before the pipelines are reburied. After reburial and restoration occurs, no long-term visual impacts would occur.

We conclude that the Project would not have a significant impact on land use, visual resources, or recreational uses. Those areas temporarily affected would be allowed to revert to prior use once the mining mitigation is concluded.

6. Cultural Resources

Texas Eastern conducted cultural resources surveys of the four parallel pipeline rights-of-way within a 350-foot-wide survey corridor as well as extra workspaces and 5 access roads. One historic domestic archaeological site was identified outside of the survey area for an access road but will not be affected by the project. The West Virginia State Historic Preservation Officer (SHPO) concurred in letters dated February 9, 2016, April 4, 2017 and June 26, 2017. We also concur.

The Bristoria ware yard was previously reviewed and approved by the Commission in Docket No. CP16-501-000. Texas Eastern surveyed additional areas of the Marshall County contractor yard and did not identify any archeological sites.

Texas Eastern previously communicated (July 28, 2015) with 18 federally recognized tribes in Docket No. CP16-501-000. The previous letters included the project area in this docket. On September 30 2016 we sent our NOI to the same tribes for docket CP16-501-000 and on July 24, 2017 we sent our NOI to the same tribes for this docket. No objections were raised to the projects in the prior docket and no comments have been received from any tribes in this docket.

Texas Eastern prepared a plan in the event any unanticipated historic properties or human remains are encountered during construction. It provides for the notification of interested parties, including Indian Tribes in the event of a discovery. We find the plan to be acceptable.

Therefore we have determined, in consultation with the SHPO, that the project as proposed would have no effect on any properties listed in, or eligible for listing in, the National Register of Historic Places.

7. Air Quality and Noise

Air Quality

The Clean Air Act of 1970, as amended (CAA), is the basic federal statute governing air pollution. With authority granted by the CAA, the U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS). The NAAQS were established to protect public health (primary standards) and public welfare (secondary standards). The EPA set NAAQS for the following air contaminants designated as criteria pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM) less than or equal to 10 microns in aerodynamic diameter (PM₁₀), PM less than or equal to 2.5 microns in aerodynamic diameter (PM_{2.5}), and sulfur dioxide (SO₂). The West Virginia Department of Environmental Protection (WVDEP) is the state agency responsible for air quality. West Virginia has adopted the federal NAAQS.

Areas of the country in violation of the NAAQS are designated by EPA as nonattainment areas. Areas formerly designated as nonattainment that have subsequently reached attainment are designated maintenance areas for that pollutant. New sources to be located in or near nonattainment or maintenance areas may be subject to more stringent air permitting requirements. The EPA and state and local agencies have established a network of ambient air quality monitoring stations to measure and track the background concentrations of criteria pollutants across the United States. The Project is located in the Steubenville-Weirton-Wheeling Air Quality Control Region in Marshall County, which is designated attainment for all applicable pollutants and averaging times. Thus a General Conformity Determination under the CAA would not be required.

Greenhouse gases (GHG) are also emitted during fossil fuel combustion and natural gas transportation. The primary GHG emitted are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Emissions of GHGs are typically expressed in terms of CO₂ equivalents (CO_{2e}), where the potential of each gas to increase heating in the atmosphere is expressed as a ratio relative to carbon dioxide over a specific timeframe, or its global warming potential (GWP). Thus the GWP of CO₂ is 1, CH₄ is 25 and N₂O is 298. During construction of the Project, these GHGs would be emitted from non-electrical construction equipment.

The Project involves the relocation of existing pipelines. There would be no net increase of fugitive methane leaks from the pipeline nor increases of criteria pollutants from operation.

Construction of the Project would result in short-term increases in emissions of some pollutants from the use of fossil fuel-fired equipment and the generation of fugitive dust due to earthmoving activities. The amount of fugitive dust depends on the type of material being moved, its moisture content, and the wind speed. Some temporary indirect emissions, attributable to construction workers commuting to and from work sites during construction and from on-road and off-road construction vehicle traffic, could also occur. In order to minimize fugitive dust emissions, Texas Eastern would mitigate by utilizing water, calcium chloride, or other commercially available dust control agents to dampen areas during dry conditions, controlling and removing any soil deposited on roads by construction vehicles, covering haul loads and maintaining appropriate low vehicle speeds on unpaved roads. Estimates of construction air emissions are shown in table 6 below.

Construction of the Project would cause a temporary reduction in local ambient air quality due to fugitive dust and emissions generated by construction equipment. This temporary impact would occur only in the immediate vicinity of the construction activity. Once the construction activity in an area is completed, the fugitive dust and emissions would subside and revert to pre-construction conditions. With the mitigation measures proposed by Texas Eastern, air quality impacts from construction equipment would be temporary and should not result in a significant impact on regional air quality.

Construction Emissions								
Table 6								
Construction Emission Source	CO	NOx	PM₁₀	PM_{2.5}	SO₂	VOCs	HAPs	CO_{2e}
Construction activities PM			5.11	1.062				
Off Road construction equipment tailpipe emissions	19.45	6.64	0.46	0.45	0.01	1.11	0.17	2,355.5
On Road Vehicles tailpipe emissions	0.89	0.66	0.019	0.016	0.003	1.772	0.27	395.2
Vehicle travel on unpaved roads			0.17	0.02				
Total for Excavation	20.34	7.30	5.76	1.54	0.02	2.88	0.45	2,750.7
Construction activities PM			5.18	1.077				
Off Road construction equipment tailpipe emissions	21.81	6.05	0.42	0.40	0.01	1.08	0.17	2,174.0
On Road Vehicles tailpipe emissions	0.91	0.67	0.020	0.016	0.003	1.801	0.28	401.7
Vehicle travel on unpaved roads			0.17	0.02				
Total for Reinstallation Work	22.72	6.72	5.79	1.51	0.02	2.88	0.45	2,575.7
Project Totals	86.12	28.04	23.10	6.11	0.07	11.52	1.79	10,652.8

Noise

The EPA has indicated that a day-night level of 55 decibels on the A-weighted scale protects the public from indoor and outdoor activity interference. Construction equipment would contribute to the noise environment during construction in the Project area. However, once construction is complete, noise would return to pre-construction levels.

There are no state or local noise ordinances applicable to the Project. Construction would require use of heavy equipment, such as excavators, bulldozers, dump trucks, and side-boom tractors. However, not all of the equipment would be used during each phase of construction. Construction is currently planned to occur Monday through Saturday for ten hours a day during daytime hours. The construction activities would cause a temporary increase in the ambient noise in the immediate vicinity of the construction site. However, because of the temporary nature of the construction activities, there would be no significant noise impact from construction.

There are no noise-emitting facilities that would increase the ambient noise environment during operation of the project. Therefore, we conclude that the Project would not cause a significant impact on noise in the Project area.

8. Reliability and Safety

The transportation of natural gas by pipeline involves some risk to the public in the event of an accident and subsequent release of gas. The greatest hazard is a fire or explosion following a major pipeline rupture. Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death.

The pipelines associated with the project must 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.

The DOT pipeline standards are published in Parts 190-199 of Title 49 of the CFR. For example, Part 192 of 49 CFR specifically addresses natural gas pipeline safety issues, prescribes the minimum standards for operating and maintaining pipeline facilities, including emergency shutdowns and safety equipment. Part 192 also requires a pipeline operator to establish a written emergency plan that includes procedures to minimize the hazards in a natural gas pipeline emergency.

The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials. Facilities associated with Texas Eastern's project must be designed, constructed, operated, and maintained in accordance with the DOT standards, including the provisions for written emergency plans and emergency shutdowns. Texas Eastern would continue to provide the appropriate training to local emergency service personnel.

The Project is developed to decrease the risk of damage from subsidence. The pipeline would be monitored for damage when placed on the surface and would be tested to ensure compliance with US DOT pipeline standards. We conclude that the Project would not represent an increase in risk to the nearby public.

9. Polychlorinated Biphenyls and Asbestos

Existing pipeline facilities (e.g., pipe, valves, fittings) used in gas service, which have the potential for Polychlorinated Biphenyls (PCB) contamination, would be managed in accordance with EPA regulations found in 40 CFR 761, which specifically address requirements for removal and abandonment.

Lines 10, 15, 25, and 30 are PCB-regulated because of the historical detection of PCBs at concentrations greater than 50 parts per million (ppm) in pipeline liquids. For the abandoned or replaced segments of pipeline regulated under the Toxic Substances Control Act for PCBs, the pipeline segments would be disposed of in compliance with this act after removing free flowing liquids (if present). The removed pipe would be wipe-sampled in accordance with 40 CFR Subpart M procedures to determine removed pipe disposal or resale options. Removed pipe with wipe sampling results ≤ 10 micrograms per 100 square centimeters ($10\mu\text{g}/100\text{ cm}^2$ or 50 ppm) PCB would be managed as scrap material. Pipe with wipe sampling results $> 10\ \mu\text{g}/100\text{ cm}^2$ PCB would be managed by:

- disposal at a TSCA permitted landfill; or
- decontaminated and wipe sampled until PCB results are $\leq 10\ \mu\text{g}/100\text{ cm}^2$ and coal tar coating would be removed.

Texas Eastern has developed procedures to ensure worker health and safety that includes the use of personal protective equipment (PPE) to prevent exposure to PCBs in a Project-specific safety plan and Texas Eastern's standard operating procedures. These procedures provide for dermal and respiratory protection and methods for preventing PCB releases to the environment. Specific procedures include:

- inspecting and removing pipeline liquids;
- cutting pipe;

- management and storage of PCB impacted material (recovered pipeline liquids and pipe); and
- procedures for transporting removed PCB material to the disposal facility.

Lines 10, 15 and 25 have coal tar coating. Because of the potential that coal tar coating contains asbestos, pipe with coal tar pipe coating would be sampled. Removed non-PCB pipe (wipe sample results $\leq 10 \mu\text{g}/100 \text{ cm}^2$) with pipe coating containing asbestos would be managed by one of the following options:

- disposal at a subtitle D landfill that is permitted to accept asbestos containing material (ACM); or
- a Texas Eastern approved vender would remove the pipe coating and the pipe would be managed as scrap material and the removed coating would be disposed at a subtitle D landfill that is permitted to accept ACM.

PPE would be used by workers to prevent exposure to asbestos along with the measures in the project-specific safety plan and Texas Eastern's standard operating procedures. These procedures include respiratory protection and methods for preventing asbestos releases to the environment. Specific requirements include:

- contractor personnel must have asbestos removal certification; and
- specific containment procedures to be followed when coating is removed from the pipe, when pipe with asbestos containing coating is removed from the pipe trench, and during pipe transportation and storage.

The use of PPE by workers during pipe removal containing PCBs and/or asbestos and the implementation of Texas Eastern's project-specific safety plan, site-specific residential construction plan, and standard operating procedures would minimize risk to workers and adjacent residents to ensure proper disposal of contaminated pipe or coating.

10. Cumulative Impacts

The Project lies in the Western Allegheny Plateau ecoregion. The ecoregion covers approximately 32,630 square miles and is about 72 percent forest and 23 percent agriculture. The forest area is mostly mixed oak and mixed temperate forests that still exist today on most of the remaining rounded hills. Dairy, livestock, and general farming, as well as residential developments, are concentrated in the valleys. Settlement initially consisted of farming communities; later, emphasis shifted to extractive industries such as coal, iron ore, clay, oil and gas, and, sandstone. The climate of this subregion can be characterized as continental, with cool summers and cold winters.

In accordance with NEPA, we identified other actions located in the vicinity of the Project facilities and evaluated the potential for a cumulative impact on the environment.

As defined by the Council on Environmental Quality (CEQ), a cumulative effect is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. CEQ guidance states that an adequate cumulative effects analysis may be conducted by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions. In this analysis, we consider the impacts of past projects within the geographic scope as part of the affected environment (environmental baseline) which was described and evaluated in the preceding environmental analysis. However, present effects of past actions that are relevant and useful are also considered.

Consistent with CEQ guidance and to determine cumulative impacts, we expanded the geographic boundaries of our review into geographic scopes, as described in table 7. Actions located outside the geographic scope are generally not evaluated because their potential to contribute to a cumulative impact diminishes with increasing distance from the Project.

As described in the environmental analysis section of this EA, constructing and operating the Project would temporarily and permanently impact the environment. The Project would affect geology, soils, water resources, vegetation, wetlands, wildlife, cultural resources, visual resources, air quality, noise, and some land uses. However, we conclude that these impacts would not be significant. We also conclude that many of the Project-related impacts would be contained within or adjacent to the temporary construction right-of-way and ATWS. For example, erosion control measures included in the Texas Eastern's construction and restoration plans, would keep disturbed soils within work areas. For other resources, the contribution to regional cumulative impacts is lessened by the expected recovery of ecosystem function. This is in contrast with other large-scale development projects in which wetlands are permanently converted to uplands. Similarly, vegetative communities would be cleared, but revegetation would proceed immediately following construction in all temporary work areas. Additionally, we determined that visual impacts would be minimal at any discrete location along the proposed pipeline route.

Table 7	
Geographic Scope for Cumulative Impact Analysis	
Environmental Resource	Area of Impact
Soils and Geology	Construction workspaces
Groundwater, Wetlands, Vegetation, Wildlife	Hydrologic Unit Code (HUC) 12 Watershed
Surface Water Resources	HUC 12 Watershed.
Cultural Resources	Overlapping impacts within the Area of Potential Effects
Land Use	1 mile from the centerline
Visual	0.25 mile and existing visual access points (e.g., road crossings)
Noise - Construction	0.25 mile from pipeline
Air Quality – Construction	0.25 mile from pipeline

Table 8 identifies the present and reasonably foreseeable projects or actions that occur within the geographic scopes defined above. These projects were identified by a review of publicly available information; aerial and satellite imagery; consultations with federal, state, and local agencies/officials and development authorities; and information provided by Texas Eastern.

<p align="center">Table 8 Marshall County Mine Panel 18W Project Past, Present, and Reasonably Foreseeable Future Projects in the Cumulative Impact Area</p>					
Project name, sponsor/proponent, and location (county)	Approximate distance and direction from the Project	Type and description	Footprint/layout and anticipated impacts	Permits or authorizations required for the Project	Current status
Leach Xpress, Columbia Gas Transmission, LLC, Various counties in Ohio and West Virginia (including Marshall County, West Virginia)	0.1 miles east of the Project	Approximately 160 miles of natural gas pipeline and compression facilities in southeastern Ohio and West Virginia's northern panhandle	Project would impact approximately 3,000 acres during construction, including 16.1 acres of wetlands and 1,204.5 acres of forest	FERC Docket CP15-514	Construction began February 2017 and be completed within a year
Marshall County Panel 17W Project, Texas Eastern, Marshall County, West Virginia	0.1 mile west of the Project	Approximately 0.5 miles of natural gas pipeline elevation and replacement	Project would impact approximately 40 acres during construction, including 0.41 acres of wetlands and 1.3 acres of forest	FERC Docket CP16-501	Construction began March 2017 and is expected to be completed in 2018
Panels 17W and 18W, Marshall County Coal Company Mining, Marshall County, West Virginia	Directly beneath the Project	Longwall coal mining	Limited surface impacts	West Virginia state permitting	Panel 17W expected to be mined in 2017, and Panel 18W expected to be mined in 2018
Gas Wells, Multiple Companies, Marshall County, West Virginia	Various. Closest well is approximately 0.1 mile south of the Project	Natural gas production wells	Each well pad impacts approximately 0.1 acre with an associated access road	West Virginia state permitting	Ongoing
Williams Ohio Valley Midstream, Panel 17 Longwall Mitigation Ethane Line Excavation	0.5 mile west	0.5 mile of pipeline elevation	Project would impact approximately 2 acres during construction	West Virginia state permitting	Construction anticipated to be completed in 2017

In addition to the geographic relationship between the Project and other projects in the area, we also consider the temporal relationship between the Project and other projects in the area. As discussed throughout the EA, the majority of impacts associated with the Project would occur during construction and most resources (with exceptions) would return to preconstruction conditions shortly after or within 3 years of construction. Thus, construction related cumulative impacts could occur if other projects in the defined geographic scope would affect the same resources within these timeframes.

The cumulative impacts for all resource areas, except air quality, would be limited to the vicinity of the Project. Our review of the estimated Project impacts concludes that most construction impacts would be contained within the right-of-way and extra workspaces. Most of the construction impacts would be temporary and localized and are not expected to contribute to regional cumulative impacts. For this reason, we conclude that there would be no cumulative impacts on soils, cultural resources, visual resources, noise, and land uses. In this analysis, we discuss further cumulative impacts on air quality, water resources, geology, vegetation, and wildlife. Our determination to include these resources is based on:

- cumulative impacts on air quality may occur across a wider area than impacts on other resources;
- impacts to water resources and geology may affect similar resources within their geographic scope during the same timeframe;
- impacts on vegetation, such as forest lands, may persist over a longer period; and
- many species of wildlife are dependent on vegetation for food and/or shelter.

Columbia's Leach Express Project (Leach) is about 0.1 mile east of the Project. Construction of Leach began in February 2017 and the project is proposed to be placed in service in February 2018. The Leach Project would contribute cumulative effects to many of the same resources affected by the Project. Because the project is under FERC jurisdiction, Columbia would employ similar restoration and impact avoidance measures resulting in minimal cumulative impacts on these resource areas.

Texas Eastern filed separately for the Marshall County Mine Panel 17W (Panel 17W) Project to replace and temporarily elevate sections of Lines 10 and 15, and to temporarily elevate and perform maintenance on Line 25 and 30, during the longwall mining activities for Panel 17W. Depending on the timing of Marshall Coal's mining activities, Texas Eastern may begin construction on the Marshall County Mine Panel 18W Project concurrently with the reburial of the pipelines above Panel 17W. In addition, the Williams Ohio Valley (Williams) midstream longwall mitigations may be occurring concurrently. Assuming concurrent activities, the Panel 17W and Williams longwall mitigation projects would result in cumulative impacts on water use and quality due to the fact that all the waterbodies crossed are unnamed tributaries to Middle Grave Creek. However, all of the waterbodies affected are small and none of the individual waterbodies in this Project are crossed by the Panel 17W or Williams projects. The impacts would also be temporary, minor, and would be mitigated by adherence to erosion and sediment control plans.

The longwall mining activities would affect geology by the removal of coal followed by the collapse of the bedrock above the coal seam after mining which could affect water resources, vegetation, and wildlife temporarily. The Project would have

minimal impact on geology due to mitigation of the surface settling performed by Texas Eastern. Likewise, water resources, vegetation, and wildlife habitat would be restored after the temporary impact. Therefore, we have not identified a discernable cumulative impact on geology, water resources, vegetation, or wildlife.

Our review of potential cumulative impacts also included the gas production wells in the geographic scope. Natural gas production from shale resources in the area involves the drilling and completion of wells and construction of gathering systems and consequent rights-of-way. Production and gathering activities, and the pipelines and facilities used for these activities, are not regulated by FERC but are overseen by the affected region's state and local agencies with jurisdiction over the management and extraction of the shale gas resources.

A well site is specifically designed for the function and the existing physical conditions present at the well location. Consequently, the footprint of construction is variable. If an average footprint is assumed, then some imprecision is introduced. However, the resources that lie within the footprint are not readily available for inclusion in a cumulative impacts analysis. Thus, gas production in the region could potentially add to a cumulative effect. We do not know how many acres of that land consisted, or currently consist, of industrial, forest, agriculture, or wetland. We also don't know how much water would be used for well completion or if there would be impacts to waterbodies that might be crossed. As a result, it is only possible to speak in general terms about the cumulative effects on specific resources.

Natural gas production from shale resources involves improvement or construction of roads, preparation of a well pad, drilling and completion of wells, using water to treat the wells, and construction of gathering systems and consequent rights-of-way. It is likely that development activities would continue through the construction of the proposed Project, but the exact extent of such drilling is unknown. Whether or not these facilities contribute cumulative impacts to those of the Project depends on proximity and the level of stabilization of the impact area. The latter characteristic is likely a function of time and the level of stabilization administered following construction. This impact information is not readily available for consideration here. However, if it were available, there would still not be specific resource impact information to consider cumulatively with the resource impacts of the Project. We assume that resource impacts caused by these facilities are similar to those described for the Project and therefore are also largely temporary and localized. Consequently, they would contribute minor cumulative impacts.

The other projects considered would impact air quality within the same timeframe of those of Texas Eastern proposed mine mitigation projects. Consequently, the combined projects would have a cumulative impact on air quality. The proposed Project would only involve construction emissions that generally include fugitive dust and emissions from construction equipment. These emissions would be temporary in nature

and, once construction is complete, would subside and return to pre-construction conditions. Because the proposed Project is limited in scope and would only involve a temporary, minor increase in air emissions, we conclude that the proposed Project would not result in a significant cumulative impact on air quality.

All of the projects considered would result in cumulative impacts on water resources, vegetation, and wildlife. The proposed Project's contributions to impacts on these resources would be mostly temporary and minor and would be minimized by adherence to Texas Eastern's E&SCP. As noted previously, the Project would impact about 1.6 acres of forest. All of the other projects in the geographic scope would also impact forest. Given the wide distribution of forested lands within the region, we expect the cumulative impact on forests to be long-term, but not significant. Overall, we conclude that the cumulative impacts on water resources, vegetation, and wildlife would not be significant.

No new permanent easement and no new permanent structures are required for the Project. We find that cumulative impacts attributable to the Project would not be significant.

C. ALTERNATIVES

As required by NEPA and the Commission's implementing regulations, we considered alternatives to the proposed action. Specifically, we considered the no-action alternative and alternative pipeline routes. The following evaluation criteria were used to determine whether an alternative would be environmentally preferable:

- ability to meet the project's stated objective;
- technical feasibility and practicality; and
- significant environmental advantage over the proposed action

Through environmental comparison and application of our professional judgment, each alternative is considered to a point where it becomes clear if the alternative could or could not meet the three evaluation criteria. To ensure a consistent environmental comparison and to normalize the comparison factors, we generally use desktop sources of information (e.g., publicly available data, geographic information system data, aerial imagery) and assume the same right-of-way widths and general workspace requirements. Where appropriate, we also use site-specific information (e.g., field surveys or detailed designs). Our environmental analysis and this evaluation consider quantitative data (e.g., acreage or mileage) and uses common comparative factors such as total length, amount of collocation, and land requirements. Our evaluation also considers impacts on both the natural and human environments. The impacts associated with the Project were described in detail in section B of this EA.

The alternatives were reviewed against the evaluation criteria in the sequence presented above. The first consideration for including an alternative in our analysis is whether or not it could satisfy the stated purpose of the Project. An alternative that cannot achieve the purpose for the project cannot be considered as an acceptable replacement for the project. All of the alternatives considered here are able to meet the Project purpose stated in section A.2 of this EA.

Many alternatives are technically and economically feasible. Technically practical alternatives, with exceptions, would generally require the use of common construction methods. An alternative that would require the use of a new, unique or experimental construction method may not be technically practical because the required technology is not available or is unproven. Economically practical alternatives would result in an action that generally maintains the price competitive nature of the proposed action. Generally, we do not consider the cost of an alternative as a critical factor unless the added cost to design, permit, and construct the alternative would render the project economically impractical.

Alternatives that would not meet the Project's objective or were not feasible were not brought forward to the next level of review (i.e., the third evaluation criterion).

Determining if an alternative provides a significant environmental advantage requires a comparison of the impacts on each resource as well as an analysis of impacts on resources that are not common to the alternatives being considered. The determination must then balance the overall impacts and all other relevant considerations. In comparing the impact between resources, we also considered the degree of impact anticipated on each resource. Ultimately, an alternative that results in equal or minor advantages in terms of environmental impact would not compel us to shift the impacts from the current set of landowners to a new set of landowners.

One of the goals of an alternatives analysis is to identify alternatives that avoid significant impacts. In section B, we evaluated each environmental resource potentially affected by the Project and concluded that constructing and operating the Project would not significantly impact these resources. Consistent with our conclusions, the value gained by further reducing the (not significant) impacts of the Project when considered against the cost of relocating the route/facility to a new set of landowners was also factored into our evaluation.

Under the no-action alternative, the proposed Project would not be constructed and the associated impacts of the Project would be avoided. However, public safety and operational integrity could be affected if mining were to occur under the pipelines without the proposed mitigation. Mining could be curtailed if the pipeline mitigation is not implemented, and the coal underneath the pipelines may not be mined. As a result, this alternative would disrupt the coal mining operations and would deny Marshall Coal its rights to coal reserves below the pipelines. The no-action alternative is not a viable alternative as the objectives of the Project are not met and mining could not safely occur under the pipelines.

The pipelines could be rerouted to other areas to avoid coal reserves or rerouted over previously mined areas. Under this option the pipelines would be longer in length, impact new landowners, require new easements, delay the mining mitigation, and have greater impact on each resource area discussed in this EA. Consequently, alternative routing would not provide a significant environmental advantage over the proposed action.

We were not able to identify any alternatives to the Project that could reduce impacts. Further, we received no requests to consider other alternatives. We did not identify any alternatives that would meet all three evaluation criteria to be considered a preferred alternative to the proposed Project. In summary, we have determined that the proposed action, as modified by our recommended mitigation measures, is the preferred alternative that can meet the Project's objectives.

D. CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis in this EA, we have determined that if Texas Eastern constructs, and operates the proposed facilities in accordance with its application and supplements, and the staff's recommended mitigation measures, approval of the proposal would not constitute a major federal action significantly affecting the quality of the human environment. We recommend that the Commission's Order contain a finding of no significant impact and include the mitigation measures listed below as conditions to any Certificate the Commission may issue.

1. Texas Eastern shall follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the Order. Texas Eastern must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (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 the Office of Energy Projects (OEP) **before using that modification.**

2. The Director of the OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and 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;
 - b. stop-work authority; and
 - c. the imposition of any additional measures deemed to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from Project construction and operation.

3. **Prior to any construction**, Texas Eastern shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, environmental inspectors (EI), 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 EA. **As soon as they are available, and before the start of construction**, Texas Eastern 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 the facility 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.

Texas Eastern'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 Eastern's right of eminent domain granted under NGA 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 Eastern 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 workspaces allowed by the Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan*, and/or minor field realignments per landowner needs and requirements which 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 the acceptance of the Certificate and before construction begins**, Texas Eastern shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. Texas Eastern must file revisions to the plan as schedules change. The plan shall identify:
- a. how Texas Eastern will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;
 - b. how Texas Eastern 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;
 - c. the number of EIs assigned, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
 - d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
 - e. the location and dates of the environmental compliance training and instructions Texas Eastern will give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel change);
 - f. the company personnel (if known) and specific portion of Texas Eastern's organization having responsibility for compliance;
 - g. the procedures (including use of contract penalties) Texas Eastern will follow if noncompliance occurs; and
 - h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
 - (1) the completion of all required surveys and reports;
 - (2) the environmental compliance training of onsite personnel;
 - (3) the start of construction; and
 - (4) the start and completion of restoration.
7. Texas Eastern shall employ at least one EI per construction spread. The EI 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 (see condition 6 above) and any other authorizing document;

- c. empowered to order the correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
 - d. responsible for documenting compliance with the environmental conditions of that Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
 - e. responsible for maintaining status reports.
8. Beginning with the filing of its Implementation Plan, Texas Eastern shall file updated status reports with the Secretary **on a bi-weekly basis during active construction and monthly during the elevation period until all construction and restoration activities are complete**. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:
- a. an update on Texas Eastern's efforts to obtain the necessary federal authorizations;
 - b. the construction status of the Project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally-sensitive areas;
 - c. a listing of all problems encountered and each instance of noncompliance observed by the EIs 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);
 - d. a description of the corrective actions implemented in response to all instances of noncompliance, and their cost;
 - e. the effectiveness of all corrective actions implemented;
 - f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
 - g. copies of any correspondence received by Texas Eastern from other federal, state, or local permitting agencies concerning instances of noncompliance, and Texas Eastern's response.
9. Texas Eastern must receive written authorization from the Director of OEP **before commencing construction of any Project facilities**. To obtain such authorization, Texas Eastern must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).
10. **Within 30 days of completing the mining mitigation and final hydrotest**, Texas Eastern 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 Eastern has complied with or will comply with. This statement shall also 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.

E. LIST OF PREPARERS

Jernigan, Anthony – Project Manager, Project Description, Geology, Soils, Cumulative Impacts, Others

B.A., Geophysical Sciences, 1995, The University of Chicago

Armbruster, Ellen – Cultural Resources

M.A., Anthropology, 1986, University of Pennsylvania

B.A., Anthropology, 1979, Bryn Mawr College

McDaniel, Nina- Air Quality, Noise, Safety

M.S., Engineering Management, University of New Orleans

B.S., Civil Engineering, University of New Orleans