Federal Energy Regulatory Commission
Office of Energy Projects, Division of Gas-Environment & Engineering

ENVIRONMENTAL ASSESSMENT REPORT

Name of Applicant: ANR Pipeline Company (ANR)

Date Filed: 1/20/16	**Docket No:** CP16-64-000
Type: Section 7(c) – Construction of Facilities	**Cost:** $36.7 million

ANR proposes to modify its existing Collierville Meter Station and construct one new 4,700 horsepower compressor station and appurtenant facilities in Shelby County, Tennessee. The project, known as the Collierville Expansion Project, would expand the delivery capability of the existing Collierville Meter Station by an additional 200,000 dekatherms per day, while maintaining ANR's current certificated capacity levels, and would enable ANR to provide requested service to the Tennessee Valley Authority's pending Allen Combined Cycle Power Plant in Memphis, Tennessee.

ANR requests approval of the project by September 1, 2016. Tree and vegetation clearing would begin in the Fall of 2016 and all remaining construction would begin in Spring 2017 with the facilities placed in service by November 1, 2017.

Environmental Impact -- Conclusions:

___ **Categorical Exclusion**

___ **Environment Not Involved**

_X_ **Environment Complete**

___ **Deficiency Letter Required**

___ **EA/EIS Required**

___ **No NOI Required**

___ **NOI Required**

Environmental Considerations or Comments:

An environmental assessment is attached.

Prepared by:	**Date:**	**Approved by Branch Chief:**	**Date:**
/s/ J. Keith Rodgers, PG	July 29, 2016	*/s/ David C. Swearingen*	July 29, 2016

Federal Energy Regulatory Commission

Office of Energy Projects

July 2016

ANR Pipeline Company **Docket No. CP16-64-000**

Collierville Expansion Project

Environmental Assessment

Washington, DC 20426

A. PROPOSED ACTION

1. Introduction

The staff of the Federal Energy Regulatory Commission (FERC or Commission) prepared this environmental assessment (EA) to address the environmental impacts of the construction and operation of the proposed Collierville Expansion Project (Project). On January 20, 2016, ANR Pipeline Company (ANR) filed an application with the Commission in Docket No. CP16-64-000 under Section 7(c) of the Natural Gas Act (NGA) and Part 157 of the Commission's regulations. ANR seeks to obtain a Certificate of Public Convenience and Necessity (Certificate) to upgrade its existing Collierville Meter Station and to construct and operate a new compressor station and associated facilities in Shelby County, Tennessee.

We[1] prepared this EA in compliance with the requirements of the National Environmental Policy Act (NEPA); the Council on Environmental Quality's regulations for implementing NEPA (Title 40 Code of Federal Regulations, Parts 1500-1508 [40 CFR 1500-1508]); and the Commission's regulations at 18 CFR 380. The EA is an integral part of the Commission's decision-making process whether to issue ANR a Certificate to construct and operate the proposed facilities. Our principal purposes in preparing this EA are to:

- identify and assess potential impacts on the natural and human environment that could result from implementation of the proposed action;
- identify and recommend reasonable alternatives and specific mitigation measures, as necessary, to avoid or minimize Project-related environmental impacts; and
- facilitate public involvement in the environmental review process.

ANR has requested a Certificate by September 1, 2016, in order to begin tree and vegetation clearing in Fall 2016 and begin all remaining construction activities in Spring 2017 to meet an in-service date of November 1, 2017.

2. Project Purpose and Need

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.

ANR indicates that the Project would enable ANR to deliver gas supply from its Southeast Head Station into Memphis Light, Gas and Water's (MLGW) existing high pressure local distribution system to serve the Tennessee Valley Authority's (TVA) pending 1,070 megawatt Allen Combined Cycle Power Plant, located in Memphis, Tennessee. The Project would expand the delivery capability of the existing Collierville Meter Station by an additional 200,000 dekatherms per day while maintaining ANR's current certificated capacity levels. The meter

1 "We," "us," and "our" refer to the environmental staff of the FERC's Office of Energy Projects (OEP).

station modification and new compression would also provide shippers on the ANR system access to additional market opportunity in the greater Memphis market area served by MLGW.

3. Public Review and Comment

On February 26, 2016, we issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Collierville Expansion Project and Request for Comments on Environmental Issues* (NOI). The NOI was published in the Federal Register[2] and was mailed to interested parties including federal, state, and local officials; agency representatives; conservation organization; potentially interested Indian tribes; local libraries; and affected landowners in the vicinity of the Project (within 0.5 mile of the proposed facilities).

This EA addresses the potential environmental impacts of the Project as proposed by ANR and as identified by our own independent review of the environmental issues. We received no comments in response to our NOI.

4. Proposed Facilities

ANR's proposed Collierville Expansion Project would consist of the following:

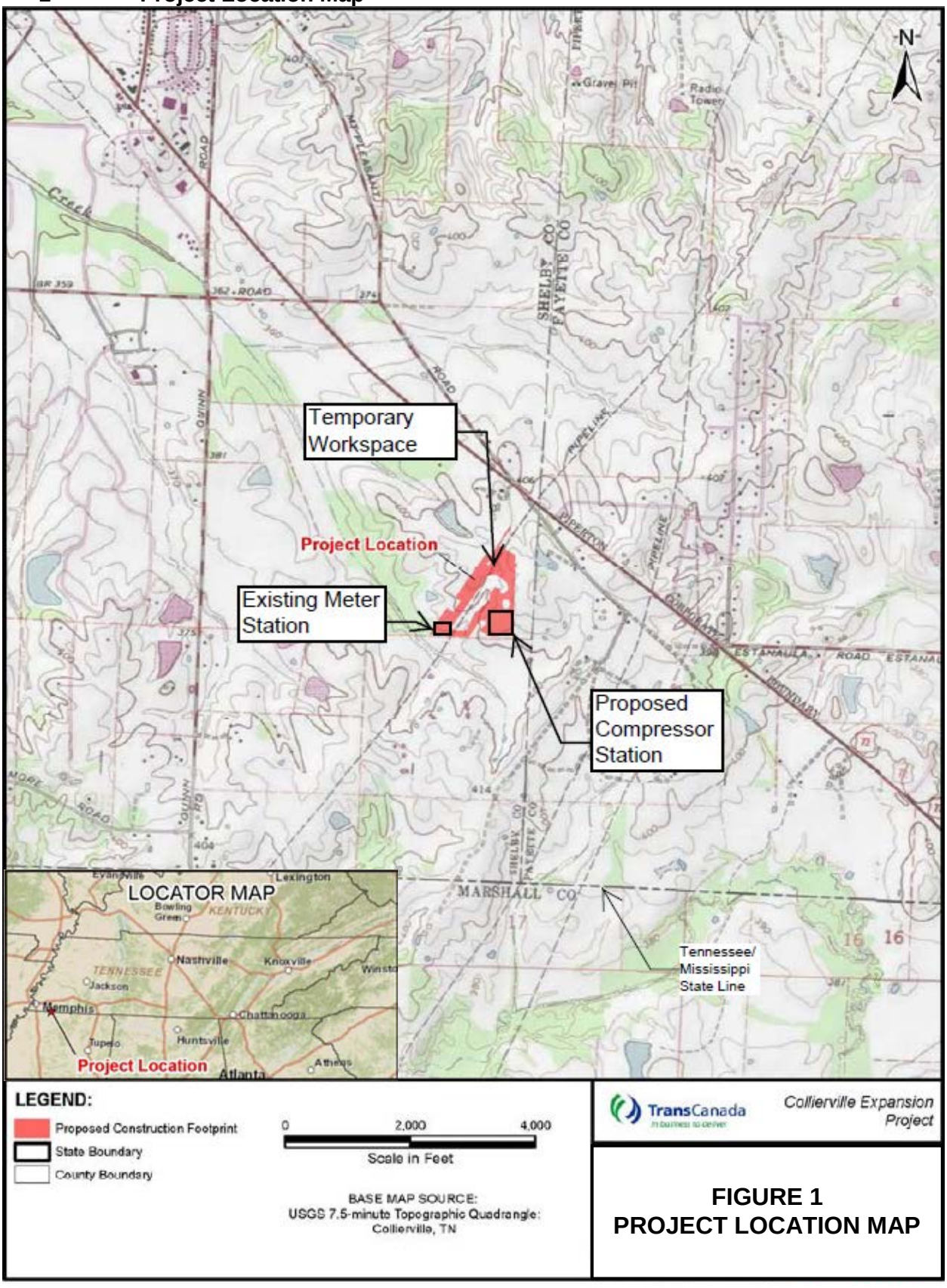
- a new Collierville Compressor Station containing one approximately 4,700 horsepower (hp) gas turbine compressor unit and ancillary equipment, including an emergency generator unit, a condensate tank, new control building, and compressor building;
- suction and discharge interconnect station piping; and
- upgrades to the existing Collierville Meter Station.

A general location map for the Project is shown in figure 1.

2 The NOI was published in the Federal Register March 3, 2016.

A. Proposed Action

1 Project Location Map



5. Non-Jurisdictional Facilities

Under Section 7 of the NGA, the Commission is required to consider, as part of its decision to authorize jurisdictional facilities, all factors bearing on the public convenience and necessity. The primary jurisdictional facility for the Project is the proposed compressor station, including the compressor unit, compressor and auxiliary buildings, inlet and outlet piping, and other supporting facilities necessary to operate the compressor identified above in section A.4.

Occasionally, proposed projects have associated facilities that do not come under the jurisdiction of the Commission. These non-jurisdictional facilities may be integral to the need for the proposed facilities (e.g., a gas-fueled power plant at the end of a jurisdictional pipeline) or they may be minor, non-integral components of the jurisdictional facilities that would be constructed and operated as a result of the proposed facilities.

Non-jurisdictional facilities associated with the Project include the TVA's pending 1,070 megawatt Allen Combined Cycle Power Plant in Memphis, associated on-site and off-site electric transmission facilities and water supply lines, as well as an approximately 13-mile-long 24-inch-diameter natural gas pipeline extension to be constructed, owned, and operated by MLGW. These non-jurisdictional facilities are further addressed in the cumulative impacts section of this EA (see section B.8).

6. Land Requirements

Table 1 summarizes the land acreage requirements for construction and operation of the Project. Construction of the Project would disturb about 19.7 acres of land for the compressor station piping, aboveground facilities, and access road, 1.4 acres of which are existing permanent ANR easements and access roads for its 501 mainline. Following construction, ANR would maintain about 7.5 acres for permanent operation of the Project's facilities, of which 1.4 acres are associated with existing permanent ANR easements. The remaining acreage would be restored and revert to former uses. Modifications to the Collierville Meter Station would occur within the existing station fence line.

One new permanent entrance to the compressor station and one existing public access road would be utilized during construction and operation. An additional construction entrance extending from a public road (Quad County Lane) would also be used to gain access to temporary workspace located north of the proposed compressor station.

A. Proposed Action

Table 1
Land Requirements for Project Facilities

Facility	Temporary Workspace (acres)	Permanent Workspace(acres)		Total Construction Work Area (acres)[d]
		Existing Permanent Easement[b]	New Permanent Easement[c]	
Collierville Compressor Station and Meter Station[a]	12.2	0.7	4.3	17.2
Compressor Station Piping Right-of-Way	0.0	0.0	1.8	1.8
Access Roads	0.0	0.7	0.0	0.7
Total Land Affected	**12.2**	**1.4**	**6.1**	**19.7**

a Impacts associated with the compressor station include the new permanent entrance to the facility and the temporary workspace.
b Includes areas that are currently permanently maintained for Project operation and maintenance.
c Includes those areas that will be converted from their existing use to permanent workspace.
d Includes all areas that will be impacted by construction, including the permanent workspace, temporary workspace, and access roads.

7. Permits Required

A number of federal, state, and local regulatory agencies have permit or approval authority or consultation requirements for the proposed Project. Table 2 provides a list of permits and consultations required for the Project; the applicable local, state, and federal agencies; as well as any responses received to date. ANR would be responsible for obtaining all permits and approvals required for construction and operation of the Project, regardless of whether or not they appear in the table.

A. Proposed Action

Table 2
Notifications, Permits, and Approvals for the Project

Permit/Approval	Administering Agency	Status
Federal		
Certificate of Public Convenience and Necessity	Federal Energy Regulatory Commission	Application filed January 20, 2016. Certificate pending.
Clean Water Act, Section 404 —Nationwide Permit 12	U.S. Army Corps of Engineers - Memphis District	Permit Application filed February 2016. Addendum anticipated June 21, 2016. Response received July 15, 2016.
Endangered Species Act, Section 7 Consultation	U.S. Fish and Wildlife Service - Tennessee Ecological Services Field Office	Consultation letters sent December 4, 2015 and amended January 12, 2016. Tennessee Ecological Services Field Office concurrence received February 15, 2016 and May 20, 2016.
Migratory Bird Consultation under Migratory Bird Treaty Act 16 U.S.C. 703-711 and Section 3 of Executive Order 13186, Bald & Golden Eagle Protection Act		Tennessee Ecological Services Field Office concurrence received on February 15, 2016.
Tribal		
Tribal Consultation	Eastern Band of Cherokee Indians	Consultation letter sent November 9, 2015.
	United Keetoowah Band of Cherokee Indians in Oklahoma	Consultation letter sent November 9, 2015. Response received December 2, 2015.
State		
Threatened and Endangered Species Natural Heritage Data Request	Tennessee Department of Environment and Conservation, (TDEC) Division of Nature Areas	Letter sent on October 1, 2015. TDEC concurrence received October 6, 2015.
State Threatened and Endangered Species Consultation	Tennessee Wildlife Resource Agency	Letter sent on December 4, 2015. Concurrence received February 19, 2016.
Air Quality Permitting	TDEC - Division of Air Pollution Control	Permit Application filed November 24, 2015. Permit pending; anticipated receipt September 2016.
Clean Water Act, Section 401 Water Quality Certification – General Aquatic Resource Alteration Permit	TDEC – Division of Water Resources	Permit Application filed June 16, 2016. Response received July 5, 2016.
NPDES Hydrostatic Test Water (Tennessee General Permit TNG670000)	TDEC – Division of Water Resources, Water Pollution Control; Memphis Environmental Field Office	Application filing anticipated August 2016. Permit anticipated October 2016.
Section 106 Cultural Resources Consultation	TDEC - Tennessee Historical Commission, State Historic Preservation Office	Survey reports sent October 28, 2015 and January 13, 2016. Concurrence received November 6, 2015 and February 16, 2016.
Local		
Planning Permit/Erosion and Sediment Control Approval	Shelby County Land Use Control Board	Application filing anticipated August 2016. Permit anticipated September 2016.
Planning Permit/Erosion and Sediment Control Approval	Town of Collierville Development Department	Application filing anticipated August 2016. Permit anticipated September 2016.

8. Construction, Operation, and Maintenance Procedures

The Project would be designed, constructed, tested, operated, and maintained in accordance with the U.S. Department of Transportation (DOT) *Minimum Federal Safety Standards* in 49 CFR 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.

ANR has developed a Spill Prevention, Control, and Countermeasure Plan (SPCC), and an Unanticipated Discovery Plan for cultural resources. During the construction of facilities and restoration of Project-related disturbances, ANR would adhere to the FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) without modification, and the FERC's *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures)[3] with a site-specific modification. ANR has requested an exception to Section VI.B.1 of the Procedures to account for site-specific environmental resources and construction requirements of the Project. The modification is identified and discussed in section B.2.3 of this EA. ANR would also develop a Project Storm Water Pollution and Prevention Plan (SWPP) in concurrence with the National Pollutant Discharge Elimination System (NPDES) Stormwater Construction Permit.

ANR states that 30 to 60 workers would be required during the various phases of construction, totaling 150 workers over the length of the Project. ANR would not hire any new permanent employees for day-to-day operation of the facilities.

In order to monitor environmental compliance during construction, ANR would employ an environmental inspector (EI). The EI would be responsible for ensuring that construction activities are in compliance with the environmental requirements from construction through restoration. This includes the requirements of the FERC Plan and Procedures; environmental conditions of any Certificate; mitigation measures proposed by ANR; and the requirements of any other environmental permits and approvals. The EI would be responsible for identifying, documenting, and overseeing any corrective actions to bring an activity back into compliance. The EI would also have authority to stop activities that violate the environmental conditions of any Certificate or other applicable permits.

ANR proposes to begin pre-construction activities in Fall 2016 with construction activities continuing through October 2017 for a projected in-service date of November 1, 2017.

9. Future Plans and Abandonment

ANR has not identified any plans for future expansion or abandonment of the Project. If, in the future, expansions are planned for the compressor station, ANR would be required to file an application with the Commission, as well as the appropriate authorizations/permits from applicable state and federal agencies.

3 The Plan and Procedures may be accessed on the FERC's Website (http://www.ferc.gov/industries/gas/enviro/guidelines.asp), or copies may be obtained through the Commission's Office of External Affairs by calling 866-208-3372.

B. ENVIRONMENTAL ANALYSIS

When considering the environmental consequences of constructing and operating the proposed Project, we describe the duration and significance of any potential impacts according to the following four levels: temporary, short-term, long-term, and permanent. Temporary impacts generally occur during construction, with the resources returning to pre-construction conditions almost immediately. Short-term impacts could continue for approximately three years following construction. Long-term impacts would require more than three years to recover, but eventually would recover to pre-construction conditions. Permanent impacts could occur as a result of activities that modify resources to the extent that they may not return to pre-construction conditions during the life of the Project, such as with the construction of an aboveground facility. An impact would be considered significant if it would result in a substantial adverse change in the physical environment.

1. Geology and Soils

1.1 Geology

The Project is within the East Gulf Coastal Plain section of the Coastal Plain Physiographic Province. The East Gulf Coastal Plain extends over the western part of Tennessee. The topography in the Project area is mostly level and generally drains to the Gulf of Mexico. Elevations range between 384 and 424 feet above sea level. Geologic formations underlying the Project consist mainly of Quaternary-aged loess deposits, but also contain Quaternary to Tertiary fluvial deposits and Tertiary sands and clays of the Claiborne Formation. According to the Natural Resources Conservation Service's (NRCS) soil survey for Shelby County, the depth to a restrictive layer varies from 7 to over 80 inches. ANR anticipates that the restrictive material encountered to level and prepare the Project area for equipment installation would be moveable without the use of blasting. Should the need for blasting arise at a later date, ANR would provide a Project-specific blasting plan for review and written approval by the Director of the OEP, prior to implementing any blasting.

Oil, Gas, and Mineral Resources

According to the Tennessee Division of Geology's *Minerals Resources Summary of the Collierville Quadrangle*, no coal mining operations or industrial sand and gravel pits exist within 0.25 mile of the Project area. According to the Tennessee Department of Environment and Conservation's (TDEC) *Water Resources Permits Dataviewer* for Oil and Gas Wells, no gas or petroleum wells exist within 0.25 mile of the Project area.

Geologic Hazards

The U.S. Geological Survey (USGS) earthquake hazard program mapping shows that seismicity in terms of peak ground acceleration within the Project area is between 30 to 40 percent gravity for the 2-percent probability of return period in 50 years. The strongest earthquake recorded since 1900 within 40 miles of the Project area was magnitude 2.8 (Estimated Richter scale). This indicates that although earthquakes have occurred in the area, they were not of a significant

magnitude to be experienced by populations in the epicentral area, cause death, property damage, or geological impacts.

A series of liquefaction susceptibility studies have been completed in Shelby County due to potential seismic activity from the nearby New Madrid earthquake zone. These studies and associated liquefaction susceptibility maps indicate the Project area lies within an area with low liquefaction susceptibility. As a result, the risk of liquefaction occurring in the Project area is anticipated to be low.

Landslides involve the downslope movement of earth materials under a force of gravity due to natural or man-made causes. The degree of slope, the composition of surface materials, and the amount of rainfall exposure are all factors related to landslide activity. The Project is in an area identified as having a low susceptibility and low incidence of landslides. Because the Project area is of low relief, and the slope of the ground surface is low, we conclude that the Project would not be affected by landslides.

Karst features such as sinkholes, caves, and caverns can form as a result of the long-term action of groundwater on soluble carbonate rocks such as limestone and dolostone. Underground mining also poses risks to engineered structures due to the potential of the overlying strata to collapse into the void formed by the extraction of minerals. None of the Project area is located where geologic conditions required for karst development are present or in areas that have reported subsidence issues due to underground mining activities. Therefore, the Project is not likely to be affected by karst features or other ground subsidence.

1.2 Soils

The Project would affect soils through grading and excavation activities. The Project's construction activities would impact about 19.7 acres, of which about 17 acres consist of agricultural and open land, and about 0.9 acre is forest. About 3.2 acres of prime farmland soils would be permanently affected and removed from potential agricultural use. Temporary workspaces would impact an additional 12.2 acres. The soils within the Project area have high water erosion potential and low wind erosion potential. Soil erosion will be mitigated through temporary erosion and sedimentation control measures and implementation of permanent measures in accordance with the FERC Plan and approved site-specific Erosion and Sediment Control Plan (ESCP). It is anticipated that implementation of ANR's ESCP and the FERC Plan during construction and operation will result in effective re-vegetation of the temporarily affected Project area. ANR would apply soil amendments as identified in the ESCP to create a favorable environment for re-vegetation and ensure the successful re-vegetation of soils disturbed by Project-related activities.

After construction, all but about 6.1 acres representing permanent impacts required for the Project would be restored to pre-construction conditions in accordance with ANR's ESCP and our Plan. Therefore, we conclude that Project impacts on soils would be minor and temporary.

2. Water Resources

2.1 Groundwater

The Project is within the Upper Claiborne Aquifer which is underlain in the Project area by a confining unit followed by the Middle Claiborne Aquifer. These aquifers are part of the Mississippi Embayment Aquifer System which includes parts of Alabama, Arkansas, Florida, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee. Nearly 80 percent of the total groundwater withdrawn in Tennessee comes from Shelby County. Shelby County is second in the United States in regard to sole dependence on groundwater for municipal use. ANR would use a maximum of 35,000 gallons of municipal or privately owned water for hydrostatic testing. Hydrostatic testing is further discussed below in B.2.2.

Sensitive groundwater resources include Sole Source Aquifers; state-designated aquifers; public and private water supply wells, springs, and wellheads; and aquifer protection areas. None of the Project's workspaces are within a Sole Source Aquifer, wellhead protection area, or state-designated aquifer. No public wells, industrial wells, or irrigation wells are within 150 feet of the Project workspaces.

We do not anticipate any significant changes to groundwater quality, quantity, or recharge to result from Project construction. Potential impacts on groundwater resources would be minimized through implementation of ANR's SPCC and the measures included in our Plan.

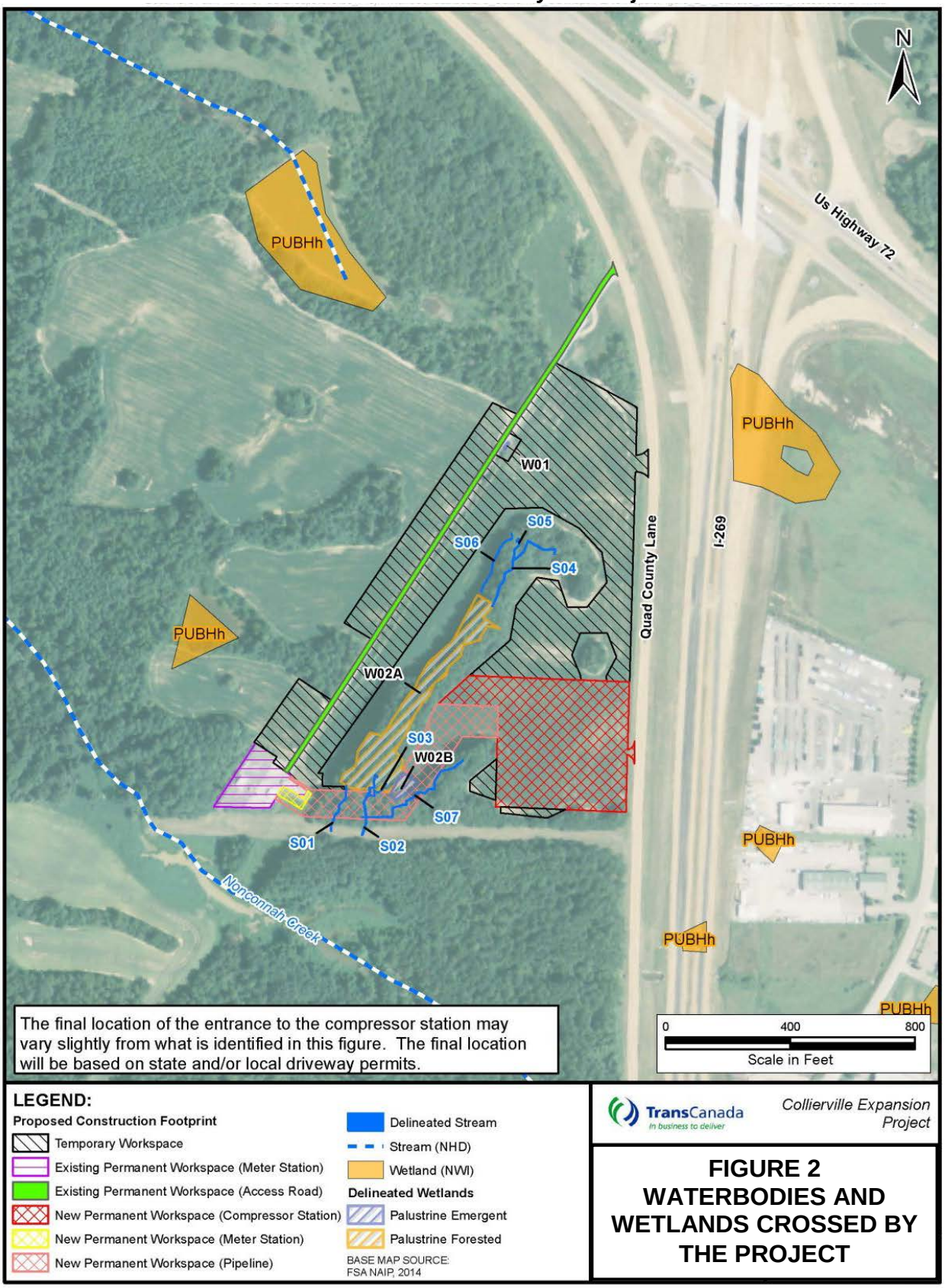
2.2 Surface Water

The Project area is within the Horn Lake – Nonconnah Creek watershed (USGS Hydrologic Unit Code 8 – 08010211). The Project area is not within any 100-year floodplains.

ANR conducted a survey of waterbodies and wetlands within the Project area on August 24 and 25, 2015. As shown in figure 2, the Project, in particular the proposed installation of new piping to connect the new compressor unit to ANR's existing 501 mainline and Collierville Meter Station, would cross four waterbodies (one intermittent stream [S01] and three ephemeral streams [S02, S03, and S07]) at four crossings. All waterbodies crossed are minor waterbodies[4] and are hydrologically connected to Nonconnah Creek outside of the Project area. The Nonconnah Creek is a tributary of the Mississippi River. At the time of ANR's survey, no water was present in the stream channels. ANR would cross the four waterbodies using the dry-ditch method if streams have flow at the time of crossing, utilizing either a flume or dam and pump. Construction of the compressor unit would not require crossing of any waterbodies or wetlands.

[4] FERC defines minor waterbodies as those less than or equal to 10 feet wide at the water's edge at the time of crossing.

2 Waterbodies and Wetlands Crossed by the Project



None of the waterbodies proposed to be crossed by the new piping are listed as impaired. The closest 303(d)-listed[5] impaired stream within the vicinity of the Project is Nonconnah Creek, located approximately 200 feet south of the existing Collierville Meter Station. Nonconnah Creek is listed as impaired from *E. coli*, for which there is a Total Maximum Daily Load (TMDL) established. The creek is also listed as impaired from phosphorous and physical substrate habitat alterations; however, no TMDLs have been established for these impairments.

None of the waterbodies crossed by the Project are designated as exceptional Tennessee waters nor are any designated as trout waters. No National Wild and Scenic Rivers are present in the Project area.

Construction activities such as clearing and grading, trench dewatering, and backfilling have the potential to temporarily impact waterbodies, including a temporary increase in sedimentation and turbidity, particularly within or near flowing surface waters. To minimize these impacts, ANR proposes to use a dry-ditch crossing method at all waterbodies that exhibit flow at the time of crossing. This method would minimize in-stream activity by diverting streamflow around the work areas during excavation, trenching, pipe installation, and restoration activities, minimizing the potential for turbidity and also maintaining adequate flow rates to protect aquatic species.

Clearing and grading of vegetation cover could increase erosion. Compaction of soils by heavy equipment near waterbodies may accelerate erosion and the transportation of sediment carried by stormwater runoff into waterbodies. To minimize erosion, ANR would implement its ESCP, which includes installing and maintaining erosion controls, minimizing vegetation clearing within 50 feet of waterbodies, and stabilizing and restoring the construction work areas in a timely manner.

ANR's SPCC Plan contains measures to prevent and, if necessary, control any inadvertent spill of hazardous materials such as fuels, lubricants, or solvents that could affect water quality, as well as identifies specific actions to be taken should any spills occur, including emergency notification procedures. Fuel and other hazardous materials would be stored in upland areas at least 100 feet from waterbodies. No equipment would be parked and/or refueled within 100 feet of waterbodies without the coordination of the EI and implementation of additional precautions such as the use of secondary containment structures.

ANR's mitigation measures to protect surface waters include:

- constructing the waterbody crossing at right angles and avoiding paralleling the streams to the maximum extent practicable; and
- restoring the streams to pre-existing contours as close as practicable and within 24 hours of backfilling.

[5] Under Section 303(d) of the Clean Water Act, states, territories and authorized tribes are required to develop lists of impaired waters that are too degraded to meet the water quality standards set by states. The law requires that states establish priority rankings for waters on the lists and develop Total Maximum Daily Loads (TMDLs) for the listed impaired waters. A TMDL includes a calculation of the maximum amount of a pollutant that can be present in a waterbody and still meet water quality standards.

While the waterbodies impacted by the Project are hydrologically connected to Nonconnah Creek, we do not expect impacts on the creek from the Project due to its distance from the Project area. Additionally, the Project would be fueled by natural gas and proposes to add compression to natural gas pipelines, and therefore, would not contribute to the established TMDL criteria for *E. coli* for the Nonconnah Creek.

ANR would restore waterbodies and riparian areas in accordance with the FERC Plan and Procedures. Upon completion of construction, stream bed and banks would be restored to pre-construction contours to ensure that no surface flow capacity is lost and the riparian areas would be seeded with a mixture of annual rye and an upland wildlife or pollinator seed mix overlain by an erosion control fabric. The annual rye and erosion control fabric would provide initial protection against erosion while the perennial pollinator seed mix becomes established. Restoration would provide long-term protection against erosion or sedimentation within riparian areas. ANR would also implement its approved site-specific ESCP, SWPP, and SPCC during construction and revegetation of the Project. As a result, we conclude that impacts on surface waters would be short-term and not significant.

Hydrostatic Testing

In accordance with DOT regulations, ANR would conduct hydrostatic testing of the compressor station piping prior to placing it into service to ensure it is capable of operating at the design pressure. Hydrostatic test water for the proposed facilities would be obtained from a municipal or privately-owned source; surface water would not be used. ANR estimates that approximately 35,000 gallons of water would be used for hydrostatic pressure testing. The water in the pipe would be pressurized and held for a minimum of 8 hours (4 hours for testing fabricated units and for short, visible sections). If any leaks are detected ANR would repair the segments and retest. Upon completion of the hydrostatic test, water would be discharged in accordance with the FERC Procedures, to include discharge of test water into a vegetated, upland area using energy dissipation and filtration devices (e.g, hay bales) to reduce the velocity of the discharged water, thereby reducing the potential for erosion where the water is discharged.

Impacts from the withdrawal and discharge of test water would be minimized by implementing measures in the FERC Procedures and following the requirements specified in the NPDES Hydrostatic Test Water Tennessee General Permit (TNG670000). Impacts from the withdrawal and discharge of hydrostatic test water would be short-term and not significant.

2.3 Wetlands

The U.S. Army Corps of Engineers (USACE) defines wetlands as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of wetland vegetation typically adapted for life in saturated soil conditions.” We define wetlands as any area that is not actively cultivated or rotated cropland and that satisfies the requirements of the current federal methodology for identifying and delineating wetlands.

ANR performed delineation of wetlands within the Project area on August 24 and 25, 2015, in accordance with the 1987 *Wetland Delineation Manual* and the USACE *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region*, Version 2.0. During the field surveys, ANR observed three wetlands within the Project area, but only one wetland (a palustrine emergent [PEM] wetland, ID W02B) would be impacted by construction of the Project facilities (figure 2). PEM wetlands are freshwater wetlands characterized by herbaceous hydrophytic vegetation and typically occur along stream banks and in wet meadows. Dominant species found within this PEM wetland include sweet gum, Japanese privet, Japanese stiltgrass, and Pennsylvania smartweed.

Construction of the compressor station piping would impact approximately 0.1 acre of PEM wetland W02B. Operations of the piping would not permanently impact the wetland as the wetland would be allowed to return to its previous conditions. No wetlands would be affected by the construction and operation of the compressor unit nor would any wetlands be affected by the modifications to the existing Collierville Meter Station.

Impacts on wetlands from construction of the compressor station piping would primarily result from the potential alteration of wetland value from vegetation clearing. Construction could result in temporary impacts on wetlands from the loss of herbaceous vegetation, potentially altering wildlife habitat; soil disturbance from excavation, trenching, grading, and compaction; increased sedimentation and turbidity; and hydrologic profile changes. Construction activities could also impact water quality within the affected wetlands as a result of increased sedimentation or inadvertent spills of fuel or chemicals. The use of equipment mats or other temporary surface material to provide a stable work area within wetlands could also result in the compaction of wetland soils.

Following construction of the piping, permanent impacts on emergent wetland vegetation in the maintained pipeline right-of-way are not expected because the area would be allowed to naturally revert to an open and herbaceous community. In emergent wetlands, the herbaceous vegetation would regenerate quickly (typically within 1 to 3 years). Revegetation would be deemed successful if the cover of the herbaceous species is at least 80 percent of the type, density, and distribution of the vegetation in adjacent wetland areas that were not disturbed by construction.

ANR would install and maintain erosion control measures in accordance with its ESCP to avoid or minimize impacts on wetlands. In saturated wetlands where soils are unstable, temporary timber riprap, prefabricated equipment mats, or terra mats would be installed adjacent to the pipeline trench to create a stable travel working surface through the wetland. The FERC Procedures (Section VI.B.1) specify that extra workspace should not be within 50 feet of wetlands and to limit all other construction equipment (other than that needed to install the wetland crossing) to one pass through the wetland using the construction right-of-way. ANR has requested an exception to Section VI.B.1 of the FERC Procedures as a result of temporary workspaces (i.e. construction activities, staging areas, and access) located within 50 feet of a wetland. Impacts to the PEM wetland cannot be avoided during construction of the piping because the PEM wetland would be located within the construction right-of-way. Excavation for the piping was routed through the PEM wetland to avoid impacts to an abutting palustrine

forested wetland (wetland W02A). We have reviewed the exception to Section VI.B.1 of the FERC Procedures and deem it acceptable.

ANR would minimize impacts on wetlands by implementing the construction and mitigation measures outlined in our Plan and Procedures (with the exception noted above and accepted by the FERC) and adhering to other federal, state and local requirements and permits. As a result, impacts on wetlands resulting from construction and operation of the Project would be short-term and not significant.

3. Vegetation and Wildlife

3.1 Vegetation

The Project area lies within the Mississippi Valley Loess Plains ecoregion, which extends from the Ohio River in western Kentucky south to Louisiana. Thick loess is a distinct characteristic of this ecoregion. Historically, the dominant vegetation communities in the area were oak-hickory forest, floodplain forest, and sparse open grasslands. However, most of this ecoregion in Tennessee is currently utilized for agricultural land.

The Project area contains three vegetation communities/cover types – woodland/forest, agriculture, and wetlands. Industrial/commercial land is also present in the Project area but does not represent distinct vegetation communities. In general, industrial/commercial land consists of graveled/paved areas associated within the existing meter station, existing structures, and maintained grass and landscape trees and shrubs. Descriptions of the upland vegetation communities present in the Project area are described below. Wetland vegetation is described above.

Woodland/Forest: Wooded areas generally consist of deciduous upland species, including pecan, red oak, winged elm, and post oak. The understory consists of multiflora rose and Virginia creeper.

Agricultural Land: Agricultural areas consist of soybean, rough barnyardgrass, and Canadian horseweed.

During ANR's field survey, the following invasive species were observed in the vicinity of the Project area -- Japanese privet, multiflora rose, autumn olive, and Japanese stiltgrass.

Construction of the Project would temporarily impact 19.7 acres; operation of the Project components would permanently impact 6.1 acres. Agricultural land would be most affected by construction and operational activities with 15.8 acres and 5.1 acres impacted, respectively, particularly in association with the new compressor station. Approximately 0.9 acre of wooded areas would be removed for access to the construction workspaces, including the new permanent right-of-way associated with the new suction and discharge piping and compressor station; about 0.8 acre of wooded areas would be permanently affecting during operations of the Project facilities. Construction of the compressor station piping would impact approximately 0.1 acre of the PEM wetland.

Following construction, areas cleared or otherwise disturbed during construction and not needed for operation of the aboveground facilities would be stabilized and restored as close to pre-construction conditions as practicable. As also discussed in section B.2.2, riparian areas would be seeded with a mixture of annual rye and an upland wildlife or pollinator seed mix overlain by an erosion control fabric. The annual rye and erosion control fabric would provide initial protection against erosion while the perennial pollinator seed mix becomes established.

To minimize the potential for invasive species to spread in areas where they are present and construction would occur, ANR would implement Best Management Practices (BMPs) including washing construction equipment to remove seeds, plant parts, and soil prior to moving the equipment into or out of the area. ANR would also use weed-free straw and fast-growing annual rye to provide temporary soil stabilization as well as a NRCS-approved upland pollinator seed mix for a permanent perennial cover to help prevent the establishment of invasive plant species.

Areas that would become part of the permanent right-of-way for the new piping would be maintained as herbaceous cover. During operation, maintenance of the permanent pipeline right-of-way, including tree removal, would be necessary to allow for visibility and access. The permanent right-of-way would be periodically and seasonally mowed, but not more frequently than every three years, in accordance with the vegetative maintenance restrictions outlined in the FERC Plan and Procedures. In areas with herbaceous cover (e.g., emergent wetlands), re-colonization of disturbed ground by annual and perennial species is generally quick and is expected typically within 1 to 3 years.

In conclusion, construction and operation of the compressor station and new piping and modifications to the existing meter station would result in long- and short-term impacts on vegetation. These impacts are expected to be minor because the majority of areas impacted are agricultural lands, and areas of forest impact would be less than one acre. Additionally, with the implementation of restoration methods outlined in the FERC Plan and FERC Procedures, impacts on vegetation would not be significant.

3.2 Wildlife

ANR performed field surveys in August 2015 to document the existing resources present within the Project area. The overall habitat evaluation entailed observation and documentation of vegetation communities and wildlife. Both direct evidence (actual sightings) and indirect evidence (such as, burrows, scats, or footprints) of wildlife were recorded. As noted above (section B.3.1), the vegetation communities identified in the Project area include woodland/forest, agricultural land, and wetlands.

Typical wildlife present in the Project area includes species common to disturbed agricultural areas, including whitetail deer, raccoon, Canada goose, sparrows, and rodents. The area could also potentially be used by nesting or breeding bird species or as stopovers for birds during migration. During the field surveys, ANR observed raccoon tracks near streams as well as whitetail deer tracks and scat throughout the Project area. ANR did not observe any indications of other wildlife. Bees and other native pollinators are likely to inhabit the woodland/forest areas surrounding the agricultural fields that make up the majority of the Project are.

No significant wildlife habitats were identified within the Project area.

Construction and operation of the Project would result in short- and long-term impacts on wildlife. Potential short-term impacts on wildlife include the displacement of individuals from construction areas and adjacent habitats as a result of construction activities and noise. It is expected that most wildlife, such as birds and large mammals, would temporarily relocate to adjacent available habitat during construction activities. Construction could result in the mortality of less mobile animals such as rodents, reptiles, amphibians, and invertebrates, which may be unable to escape the immediate construction area. Long-term impacts would include periodic disturbance of wildlife during operational maintenance, particularly from noise. Some pollinator nesting sites may be disturbed by the impacts to forested and open lands, but these impacts would be minimal and most pollinators would relocate to adjacent habitats that provide suitable nesting sites.

Project construction would require clearing of 0.9 acre of wooded areas for the pipeline right-of-way, decreasing the amount of forested wildlife habitat and reducing protective cover and foraging habitat in the immediate Project vicinity. During operation, 0.8 acre of previously forested habitat would not be allowed to reestablish within the permanent right-of-way. Species favoring forest habitat would shift to using areas that are more open; however, species found within the Project area have already adapted to fragmented wooded areas and disturbed agricultural areas. It is not likely that the relatively small widening for the permanent piping right-of-way would impede the movement of most forest species. Overall, the amount of permanent forest clearing of less than 1 acre would be minor and wildlife is expected to return to the general area once construction is complete.

Habitat impacts resulting from the compressor station construction would be minimized by using agricultural fields as much as feasible. Approximately 6.1 acres of agricultural field would be permanently converted to commercial/industrial or developed land use by the compressor station. This land may provide some habitat for wildlife; however, the disturbed nature of agricultural lands (used for row crops such as soybeans) do not make it high value wildlife habitat.

In conclusion, construction and operation of the compressor station and new piping and modifications to the existing meter station would result in long- and short- term impacts on wildlife and wildlife habitat. These impacts are expected to be minor because the majority of areas impacted are agricultural lands, and areas of forest impact would be minor. We conclude that with the implementation of restoration methods outlined in the FERC Plan and Procedures, and ANR's ESCP, impacts on wildlife and wildlife habitat would not be not significant.

3.3 Aquatic Resources

ANR defines seven surface water designated uses: domestic water supply, industrial water supply, fish and aquatic life, recreation, irrigation, livestock watering and wildlife, and navigation. The four waterbodies (streams) impacted by this Project are classified as fish and aquatic life, livestock watering and wildlife, recreation, and irrigation use. All of the streams within the Project area are ephemeral or intermittent and none are designated trout waters (see

section B.2.2). These streams are hydrologically connected to Nonconnah Creek, which is a tributary of the Mississippi River. Common fish within tributaries to the Mississippi River include trout, pike, North American catfish, sucker, perch, and sunfish; however, fish are not likely to be present in the Project area given the lack of flowing water for much of the year. At the time of ANR's field surveys there was no water present within the stream channels. Wildlife species found in wetlands and intermittent streams include frogs, salamanders, and macroinvertebrates.

Agency consultations with the TDEC did not identify any Fisheries of Special Concern, including critical and/or significant habitats, such as spawning areas or rearing areas, within the Project area.

Construction of the new piping would require four waterbody crossings – one intermittent and three ephemeral. ANR proposes to cross these waterbodies using the dry-ditch method utilizing either a dam and pump or flume, if water is flowing at the time of crossing. Both dry-ditch methods would reduce turbidity and downstream sedimentation during construction; however, some minor alteration to aquatic habitat could occur. Habitat alterations could lead to temporary loss of habitat and changes in behavior in fish, amphibians, and other organisms dependent upon an aquatic environment. Alterations of water quality could also increase stress, injury, and/or mortality among fish and other aquatic species.

ANR would perform hydrostatic testing using water withdrawals from a municipal or privately-owned source, thus avoiding impacts on aquatic species. Upon completion of the hydrostatic test, water would be discharged to a vegetated, upland area and would not impact aquatic habitat and species. Hydrostatic testing is discussed further in section B.2.2.

To minimize impacts on waterbodies and aquatic habitat and species, ANR would adhere to appropriate measures as outlined in the FERC Procedures. ANR has requested an exception to Section VI.B.1 of the FERC Procedures for extra workspace that may be within 50 feet of wetlands and construction access through a PEM wetland that is within the construction right-of-way. We have reviewed the exception and deem it acceptable. ANR would also implement the FERC Plan and its approved site-specific ESCP during all phases of construction to avoid or reduce impacts from erosion and sedimentation.

Impacts on aquatic resources from construction and operation of the piping would be temporary and ANR would limit impacts on aquatic resources by using dry crossing methods and implementing the mitigation measures discussed above. Therefore, we conclude that impacts on aquatic resources would not be significant.

3.4 Threatened and Endangered Species

Federally Listed Species

Federal agencies are required under Section 7 of the Endangered Species Act of 1973, as amended, to ensure that any actions authorized, funded, or carried out by the agency would not jeopardize the continued existence of a federally listed endangered or threatened species, or

result in the destruction or adverse modification of the designated critical habitat of a federally listed species. As the lead federal agency authorizing the Project, the FERC is required to consult with the U.S. Fish and Wildlife Service (FWS) to determine whether federally listed endangered or threatened species or designated critical habitat are found in the vicinity of the Project, and to evaluate the proposed action's potential effects on those species or critical habitats.

ANR, acting as the FERC's non-federal representative for the purpose of complying with Section 7(a)(2) of the ESA, initiated informal consultation with the FWS on December 4, 2015, regarding federally listed threatened or endangered species, or habitat suitable for such species, potentially occurring in or near the Project area. ANR submitted additional information to the FWS on January 12, 2016, regarding minor additions to the proposed workspace.

ANR identified the Indiana bat and the northern long-eared bat as potentially within the Project area. There is no designated critical habitat for these species in Shelby County, where the Collierville Expansion Project area is located.

Northern long-eared bat

The northern long-eared bat is federally listed as threatened. Northern long-eared bats generally hibernate in various sized caves and mines, called hibernacula, which have near constant temperatures, high humidity, and no air currents. During late spring and summer, northern long-eared bats will migrate from their winter hibernacula to roost singly or in colonies in a variety of habitats including exfoliating bark, and cavities in both live trees and dead trees. Northern long-eared bats are considered generalists when it comes to roost habitat and will select a given tree based on the likelihood that it will retain its bark and/or whether there are sufficient cracks and crevices present in the tree structure. Males and nonreproductive females exhibit even further variability in roost selection and may choose to roost in cooler places typically thought of as winter habitat such as caves and mines. Less typically, the northern long-eared bat will also roost structures such as barns and sheds.

The northern long-eared bat is one of the species of bats most impacted by the disease white-nose syndrome. White-nose syndrome is a contagious fungal disease affecting bats and has a potentially high mortality rate. White-nose syndrome has been documented in Tennessee but not in Shelby County. However, Shelby County is within the White-nose Syndrome Zone as defined in the FWS final 4(d) rule for the northern long-eared bat, published in the *Federal Register* on January 14, 2016. .

Much of the Project area surrounding the existing meter station is agricultural row crops bordered by woodlands. The trees that dominate the woodlands in the Project area do not provide maternal roost habitat as they do not exhibit the qualities of suitable roost habitat (e.g., loose or peeling bark). Upland and wetland forested areas exist within the Project area, and forested riparian corridors suitable for northern long-eared bat foraging areas occur approximately 260 feet south of the Project area along Nonconnah Creek. However, the impacts on forest resources from the Project would be minimal with only approximately 0.9 acre of forest impacted. ANR has committed to completing tree clearing required for the Project during the bat

dormant period from October 15 to March 31 to eliminate potential direct impacts on the northern long-eared bat.

Based on the minimal amount of bat foraging habitat present; the lack of bat roosting habitat within or near the Project area; the open nature of the surrounding agricultural lands; and limiting tree clearing (during the winter dormant period), we have determined that the Project *may affect, but is not likely to adversely affect the* northern long-eared bat. In a letter dated February 15, 2016, the Tennessee Ecological Services Field Office of the FWS determined that the Project would have no adverse impacts on federally listed bats. Additionally, in an email dated May 20, 2016, the Tennessee Ecological Services Field Office of the FWS concurred with the determination of *not likely to adversely affect*. Therefore, Section 7 consultation for this species is complete.

Indiana Bat

The Indiana bat was federally listed as endangered by the FWS in 1967. Indiana bats are present within most areas east of the Mississippi River and utilize a range of different habitats depending on the time of year. During the dormant winter season Indiana bats will hibernate in cool, humid caves with stable temperature under 50 °F but above freezing or, occasionally, in abandoned mines. Following hibernation and during the summer roosting season, Indiana bats migrate to their summer habitat in wooded areas where they usually roost under loose tree bark on dead or dying trees in small to medium stream corridors with well-developed and forested riparian habitats. Forested areas within 1-3 miles of small to medium rivers and streams and upland forests also serve as summer foraging habitat. Threats to the species include anthropogenic disturbance and the spread of White-nose syndrome, similar to the northern long-eared bat.

Much of the Project area surrounding the existing meter station is agricultural row crops bordered by woodlands. The Project area does contain the forested edges and protected flyways that Indiana bats prefer as forage habitat; however, the trees that dominate the woodlands in this area do not provide maternal roost habitat as it does not exhibit the qualities of suitable roost habitat (e.g., loose or peeling bark). ANR has committed to completing tree clearing required for the Project during the bat dormant period from October 15 to March 31 to eliminate potential impacts on the Indiana bat.

Based on the lack of suitable bat roost habitat within or near the Project area, and limiting tree clearing (during the winter dormant period), we have determined that the Project *may affect, but is not likely to adversely effect* the Indiana bat. In a letter dated February 15, 2016, the Tennessee Ecological Services Field Office of the FWS determined that the Project would have no adverse impacts on federally listed bats. Additionally, in an email dated May 20, 2016, the Tennessee Ecological Services Field Office of the FWS concurred with the determination of *not likely to adversely affect*. Therefore, Section 7 consultation for this species is complete.

Migratory Birds

Migratory birds are species that nest in the United States during the summer and make short or long-distance migrations for the non-breeding season. Neotropical migrants migrate south to 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. The Act prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, or nests unless authorized under a FWS permit. Bald and Golden Eagles are additionally protected under the Bald and Golden Eagle Protection Act.

Executive Order 13186 directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations and to avoid or minimize adverse impacts on migratory birds through enhanced collaboration with the FWS. The executive order states that emphasis should be placed on species of concern, priority habitats, and key risk factors, and that particular focus should be given to addressing population-level impacts.

On March 30, 2011, the FWS and the Commission entered into a *Memorandum of Understanding Between the Federal Energy Regulatory Commission and the U.S. Department of the Interior United States Fish and Wildlife Service Regarding Implementation of Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds"* that focuses on avoiding or minimizing adverse impacts on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the two agencies.

ANR's search of the FWS Information, Planning, and Consultation System (IPAC) Tennessee did not identify any federally listed threatened or endangered migratory birds within the Project area. Birds of Conservation Concern are present within the region and include the bald eagle, loggerhead shrike, Kentucky warbler, short-eared owl, sedge wren, wood thrush, and the rusty blackbird.

Consultation with the TDEC Division of Nature Areas (DNA) did not indicate any known occurrences of the bald eagle within a 0.5-mile radius of the Project area. There are no lakes or other large bodies of water (primary bald eagle habitat) within a 1-mile radius of the Project area. While ANR did not complete a specific nest survey, no nests were observed during ANR's August 2015 field surveys. Therefore, we conclude that the Project would not affect bald eagles.

The loss, conversion, modification, and fragmentation of wildlife habitat and vegetation resulting from construction and operation of the Project could impact migratory birds. Birds could experience mortality, injury, or stress due to habitat changes and the removal or disturbance of nests and other foraging and breeding habitat, as well as from avoidance and displacement behaviors caused by construction noise, traffic, and general Project-related disturbances. The greatest potential to impact migratory birds would be the avoidance of the construction area by birds due to the increased activity level and noise generation.

ANR has committed to wintertime clearing of forested areas (between October15 and March 31, outside of the migratory bird breeding season) to minimize impacts on migratory birds. Additionally, the Project primarily impacts agricultural areas. The impacts of the Project on migratory birds would be localized and minor and would preclude any long-term or permanent effects to bird populations as a whole. In a letter dated February 15, 2016, the Tennessee

Ecological Services Field Office of the FWS determined that the Project would not affect bald eagles or migratory birds. We agree.

State Listed Species

ANR requested from the TDEC DNA a review of rare species in the Project area. The TDEC DNA responded on October 6, 2015, that no rare species have been observed previously within 4 miles of the Project area. Based on this information, the TNEC DNA does not anticipate any impacts to rare, threatened, or endangered species. We agree and conclude that the Project would not impact state-listed species.

ANR also submitted a request to the Tennessee Wildlife Resource Agency (TWRA) on December 4, 2015 and January 12, 2016, to provide additional information about state-listed and federally listed occurrences of listed species. A response from the TWRA is pending.

4. Land Use, Recreation, and Visual Resources

The Project is in a rural setting in western Tennessee. Land use in the Project area consists of industrial/commercial land, existing right-of-way and aboveground facilities, roadways, agricultural land, forested upland/woodland, and wetlands. Table 4 summarizes the acreage requirements for construction and operation of the proposed Project facilities.

Table 3
Land Use Acreage Affected by Construction and Operation of the Project Facilities

Facility		Agricultural		Delineated Stream		Delineated Wetland (PEM)		Existing Road		Forest		Industrial		Open Land		Project Total	
		Const.	Op.	Const.	Op.	Const.	Op.	Const.	Op.	Const.	Op.	Const.	Op.	Const.	Op.	Const.	Op.
Compressor Station	Existing Permanent Access Road	-	-	-	-	-	-	0.7	-	-	-	-	-	-	-	**0.7**	**-**
	New Permanent Access Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	New Permanent Compressor Station Workspace	4.3	4.3	-	-	-	-	-	-	<0.1	<0.1	-	-	<0.1	<0.1	**4.3**	**4.3**
	Temporary Workspace	10.7	-	-	-	-	-	0.4	-	0.1	-	0.1	-	1.0	-	**12.2**	**-**
Meter Station	Existing Permanent Workspace	-	-	-	-	-	-	-	-	-	-	0.7	-	-	-	**0.7**	**-**
Suction & Discharge Piping	New Permanent Piping Workspace	0.8	0.8	<0.1	<0.1	0.1	0.1	-	-	0.8	0.8	<0.1	<0.1	0.2	0.2	**1.8**	**1.8**
PROJECT TOTAL		**15.8**	**5.1**	**<0.1**	**<0.1**	**0.1**	**0.1**	**1.1**	-	**0.9**	**0.8**	**0.8**	<0.1	**1.2**	**0.2**	**19.7**	**6.1**

ANR's proposed compressor station site off Quad County Lane would impact about 19.7 acres, of which about 17 acres consist of agricultural and open land, and about 0.9 acre is forest. Following construction, ANR would maintain about 7.5 acres for permanent operation of the Project's facilities, 1.4 acres of which are associated with existing permanent ANR easements. The remaining 12.2 acres of temporary workspaces would be restored and revert to former uses. Modifications to the Collierville Meter Station would take place within the existing station fence line.

The Project would not cross any public lands, including national or state forests; National Park Service-designated natural, recreational, or scenic areas; nor would it be within 0.25 mile of any recreational areas or public lands. ANR consulted with local planning departments and identified that there are no planned or proposed developments within 0.5 mile of the Project.

Construction of the Project would result in short-term and temporary visual impacts due to the introduction of an area of disturbed soil and construction equipment situated around the compressor station. These temporary work areas would be restored after construction. However, the presence of the new compressor station would result in a permanent change in the visual appearance of the Project area and would result in a long-term impact on visual resources. Three sides of the compressor station would remain forested, leaving the only view line of the station from the adjacent interstate highway and industrial facility.

Based on our analysis and ANR's proposed mitigation measures, we conclude that the Collierville Compressor Station would not significantly affect land use, recreation, or visual resources in the Project area.

5. Cultural Resources

ANR completed a cultural resources survey for the Project and provided the resulting report to the FERC and Tennessee State Historic Preservation Office (SHPO). A total of 29 acres were surveyed and no cultural resources were identified. In a letter dated November 6, 2015, the SHPO indicated that "the Project area contains no archaeological resources eligible for listing in the National Register of Historic Places." ANR provided an addendum letter report for two access areas, and recommended no survey was necessary for these areas due to previous surveys and degree of disturbance. In a letter dated February 16, 2016, the SHPO indicated that "the Project area contains no archaeological resources eligible for listing in the National Register of Historic Places." We agree with the SHPO and have determined that the Project would not affect historic properties.

ANR provided a plan to address the unanticipated discovery of cultural resources and human remains during construction. We requested minor revisions to the plan. ANR provided a revised plan which we find acceptable.

ANR contacted the Eastern Band of Cherokee Indians of North Carolina and the United Keetoowah Band of Cherokee Indians in Oklahoma regarding the Project. On December 2, 2015, the United Keetoowah Band of Cherokee Indians in Oklahoma indicated it had no comments or objections to the Project, but requested to be notified if human remains were

inadvertently discovered during construction. The unanticipated discovery plan provides for notification of Native American tribes in the event of such a discovery. No other responses have been received. We sent our NOI to these same tribes. No responses to our NOI have been received to date.

6. Air Quality and Noise

ANR proposes to modify an existing meter station and construct a new 4,700 hp compressor station in Shelby County, Tennessee. Construction and operation of these facilities would have impacts on air quality and noise in the project area.

6.1 Air Quality

The Clean Air Act of 1970, 42 United States Code (USC) 7401 *et seq.*, amended in 1977 and 1990, is the basic federal statute governing air quality. The provisions of the Act that are potentially relevant to construction and operational emission sources include the following:

- National Ambient Air Quality Standards (NAAQS);
- New Source Review (NSR) Standards including non-attainment NSR and the Prevention of the Significant Deterioration of Air Quality (PSD);
- Federal Class I Area Protection;
- New Source Performance Standards (NSPS);
- National Emission Standards for Hazardous Air Pollutants (NESHAP) including Maximum Achievable Control Technology;
- Title V Operating Permits (Title V);
- Chemical Accident Prevention Provisions;
- General Conformity;
- PSD and Title V Greenhouse Gas Tailoring Rule; and
- The Greenhouse Gas Reporting Program.

The Clean Air Act designates six criteria pollutants for which standards are promulgated to protect public health and welfare. They include nitrogen oxides (NO_x, including nitrogen dioxide [NO_2]), carbon monoxide (CO), particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}), particulate matter less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$), sulfur dioxide (SO_2), ozone, and lead. The NAAQS are codified in 40 CFR 50. Areas of the country in violation of the NAAQS are designated as nonattainment areas, and new sources to be located in or near these areas may be subject to more stringent air permitting requirements.

Shelby County is within the Metropolitan Memphis Interstate Air Quality Control Region, classified as in marginal attainment for 8-hour ozone (2008 standard) and attainment for all other criteria pollutants.

Regulatory and Permitting Requirements

The proposed Collierville Compressor Station potential emission rates (see "operation emissions," below) are below the major source NSR thresholds for which a PSD analysis would be required. In November 2015, ANR submitted a minor source air permit application for the Collierville Compressor Station to the Shelby County Department of Health Pollution Control Section.

Two NSPS and one NESHAP standard would apply to the equipment at the Collierville Compressor Station. The standard 40 CFR 60 Subpart KKKK, *NSPS for Stationary Combustion Turbines*, would apply to the turbine at the proposed station. In addition, the standards 40 CFR 60 Subpart JJJJ, *NSPS for Stationary Spark Ignition Internal Combustion Engines* and 40 CFR 63 Subpart ZZZZ, *NESHAP for Stationary Reciprocating Internal Combustion Engines*, would apply to the emergency engine at the station.

The turbine and emergency generator at the Collierville Compressor Station would be subject to the Tennessee Department of Environmental Conservation Division of Air Pollution Control Rules regarding visible emissions, particulate matter emissions, and SO_2 emissions. We expect that the exclusively natural gas-fired equipment (the turbine and emergency generator) at the Collierville Compressor Station would easily comply with these requirements.

Federal Class I Areas

Under the PSD program, Class I areas are designated to protect certain areas (e.g., wilderness areas, national parks, national forests) to ensure that deterioration of existing air quality in those areas is minimized. The nearest Class I area to the Collierville Compressor Station site is the Sipsey Wilderness Area, about 216 kilometers (134 miles) away. The project would not be subject to the Class I Area Federal Land Manager notification and impact assessment requirements found in 40 CFR 51.307. Due to the large distance from the Collierville Compressor Station site to the Sipsey Wilderness Area, we conclude that emissions from the station would result in negligible impacts on the air quality of this Class I area and would not exceed any applicable Class I significance level.

General Conformity

The General Conformity Rule is codified in Title 40 CFR 51, Subpart W and Part 93, Subpart B, *Determining Conformity of General Federal Actions to State and Federal Implementation Plans*. A conformity determination must be conducted by the lead federal agency if a federal action's construction and operation activities are estimated to (1) result in generating direct and indirect emissions that would exceed the conformity threshold levels (*de minimis*) of the pollutant(s) for which an air basin is in nonattainment or maintenance; or (2) result in generating direct and indirect emissions that would exceed 10 percent of the total emissions budget for the entire nonattainment or maintenance area.

The proposed project site is within an area currently classified by the EPA as marginal nonattainment for 8-hour ozone (2008 standard) and attainment for all other criteria pollutants.

As shown in table 4 the predicted potential emissions of NO_x and volatile organic compounds (VOCs, a precursor of ozone formation) from the Collierville Compressor Station fall under the respective general conformity applicability thresholds of 100 and 50 tons per year, respectively. Therefore, the project is not subject to a general conformity determination.

Table 4
Summary of Potential Emissions from the Proposed Collierville Compressor Station (tons per year)

Source	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	HAP	CO_{2e} [a]
Collierville Compressor Station (all sources) [b]	7.91	19.09	21.27	0.55	1.07	1.07	0.28	19,354

a Includes combustion-related emissions as well as fugitive methane releases from the compressor station and fugitive methane releases from the meter station.
b Emission estimates based on information contained within ANR's minor source air permit application filed with the Shelby County Department of Health Pollution Control Section (combustion emissions) and EPA emission factors (fugitive methane releases).

Greenhouse Gas Reporting

The EPA's Greenhouse Gas Reporting Program, codified in 40 CFR 98, requires large direct emitters of greenhouse gases (GHGs), and certain suppliers (e.g., of fossil fuels, petroleum products, industrial gases, and carbon dioxide [CO_2]) to report GHG information annually.

GHGs occur in the atmosphere both naturally and as a result of human activities, such as the burning of fossil fuels. These gases are the integral components of the atmosphere's greenhouse effect that warms the earth's surface and moderates day/night temperature variation. The most abundant GHGs are water vapor, CO_2, methane, nitrous oxide, and ozone. The primary GHGs produced by fossil fuel combustion are CO_2, methane, and nitrous oxide. During construction and operation of the project, these GHGs would be emitted from non-electrical construction equipment and any compressors, line heaters, and generators. Emissions of GHGs are typically expressed in terms of carbon dioxide equivalent emissions (CO_{2e}), where the potential of each gas to increase heating in the atmosphere is expressed as a multiple of the heating potential of CO_2, or its global warming potential.

Operation of the Collierville Compressor Station would have the potential to emit GHGs of approximately 17,175 metric tons CO_{2e} per year.[6] The potential CO_{2e} emissions from the Collierville Compressor Station fall below 25,000 metric tons CO_{2e} per year, the threshold above which 40 CFR 98 requires annual reporting.

[6] A metric ton is 2,205 pounds, or approximately 1.1 tons.

Construction Emissions

Construction of the Collierville Compressor Station and modifications to the existing meter station would result in combustion and fugitive dust emissions from the operation of fossil fuel-fired construction equipment and commuter and delivery vehicles. Such air quality impacts would be temporary and localized. Construction would utilize large earth-moving equipment, cranes, trucks, and other mobile sources. Such sources would be powered by diesel or gasoline and would be sources of combustion emissions, including NO_x, CO, VOC, SO_2, PM_{10}, $PM_{2.5}$, and HAP. Combustion emissions would also include CO_2 and other GHG measured according to their global warming potential in terms of CO_{2e} emissions. Construction of the facilities would result in sustained emissions within and around the construction sites beginning in winter 2016 and ending around the time the facilities are placed in service by November 1, 2017. The construction emissions would be generated primarily within the immediate Collierville Compressor Station site and existing Collierville Meter Station. Estimated construction emissions of criteria pollutants and GHGs associated with the Project are summarized in table 5.

Table 5
Summary of Estimated Construction Emissions for the Collierville Expansion Project (tons)

Source[a]	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	HAP[b]
Combustion exhaust and fugitive dust emissions (compressor station and meter station)	0.96	7.69	5.74	0.01	59.93	6.99	0.96
Combustion exhaust and fugitive dust emissions (non-jurisdictional facilities)	1.55	13.65	7.44	0.02	72.45	8.39	1.55
Total:	**2.51**	**21.34**	**13.18**	**0.03**	**132.38**	**15.38**	**2.51**
Total CO_2e:	**2,569**						

a Nonroad and onroad commuter emissions estimated using South Coast Air Quality Management District emission factors. Fugitive dust emissions conservatively estimated using EPA AP-42 emission factors.
b VOC emissions are assumed to be VOC HAPs.

ANR would implement dust control measures as necessary, such as application of water or a calcium chloride/water mixture on unpaved areas subject to frequent vehicle traffic, and sweeping paved areas as needed, to reduce emissions of fugitive dust.

Operation Emissions

Operation of the Collierville Compressor Station would result in sustained and continuous emissions of criteria pollutants, HAP, and GHGs depending on actual operating conditions. Table 5 summarizes the estimated potential emissions of criteria pollutants, HAPs, and GHGs from the proposed Collierville Compressor Station.

ANR would mitigate air emissions impacts from the Collierville Compressor Station by meeting or exceeding minimum emissions standards specified in the applicable NSPS and NESHAP requirements outlined above.

To assess potential air quality impacts from operation of the Collierville Compressor Station, ANR performed a screening-level air modeling analysis using the EPA-developed AERSCREEN dispersion modeling program. The model indicated that no criteria pollutant exceeded its respective EPA-designated significant impact level for which further modeling is required. Results of the modeling for 1-hour NO_2, 24-hour NO_2, and 24-hour $PM_{2.5}$ with comparison to the NAAQS are presented in table 6.

Table 6
AERSCREEN Maximum Modeled Impacts for the Proposed Collierville Compressor Station

Pollutant	Averaging Period	Maximum ($\mu g/m^3$)[a]	Background[b] ($\mu g/m^3$)	Maximum + Background ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	1-hour	5.93	44	49.93	188
NO_2	Annual	0.59	12	12.59	188
$PM_{2.5}$	24-hour	0.24	20	20.24	35

a Maximum modeled concentration based on 5-year average of the 98th percentile of the annual distribution of the maximum daily 1-hour predicted concentrations. EPA-recommended NO_x to NO_2 ratio of 0.80 is used per EPA's March 11, 2011 guidance document memorandum "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-Hour NO_2 NAAQS."
b Background concentrations obtained from monitoring sites in Pascagoula, Jackson County, MS.
$\mu g/m^3$ = micrograms per cubic meter

The results of the AERSCREEN analysis in table 6 indicate that the maximum modeled concentration of 1-hour NO_2 from the proposed Collierville Compressor Station, combined with existing NO_2 background concentrations, would fall below the 1-hour NO_2, annual NO_2, and 24-hour $PM_{2.5}$ NAAQS. Therefore, we conclude that impacts on air quality from operation of the Collierville Compressor Station would not be significant.

Operation of the Collierville Compressor Station and modified Collierville Meter Station would also require the use of an emergency generator and mobile sources (e.g., trucks, passenger vehicles, and non-road diesel equipment), resulting in combustion-related emissions, including an estimated 1.42 tons per year of NO_x, 9.43 tons per year of CO, 0.95 ton per year of VOCs, 0.21 ton per year of $PM_{10}/PM_{2.5}$, and 1,790 tons per year of CO_{2e}.

Through implementation of construction best management work practices, the short duration of construction activities, a review of the estimated emissions from construction and operation, and an analysis of the modeled air quality impacts from operation of the Collierville Compressor Station, we find that the project would not result in any significant impacts on regional air quality.

6.2 Noise

Two measurements used by federal agencies to relate the time-varying quality of environmental noise to its known effects on people are the equivalent sound level (L_{eq}) and the day-night sound

level (L_{dn}). The L_{eq} is an A-weighted sound level in decibels containing the same sound energy as the instantaneous sound levels measured over a specific time period. Noise levels are perceived differently, depending on length of exposure and time of day. The L_{dn} takes into account the duration and time the noise is encountered. Late night and early morning (10:00 pm to 7:00 am) noise exposures are penalized +10 decibels (dB) to account for people's greater sensitivity to sound during the nighttime hours.

In 1974, the EPA published its *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* This document provides information for state and local governments to use in developing their own ambient noise standards. The EPA has indicated that an L_{dn} of 55 decibels on the A-weighted scale (dBA) protects the public from indoor and outdoor activity interference. We have adopted this criterion and use it to evaluate the potential noise impact from the operation of facilities.

Construction Noise Impacts and Mitigation

Construction of the project would require operation of various kinds of construction equipment (e.g., large earth-moving equipment, cranes, trucks, and other mobile sources). Operation of this equipment would generate intermittent and varying levels of noise throughout the anticipated winter 2016 through November 1, 2017 construction timeframe. Typically, construction activities take place primarily during daytime hours. Therefore, due to the temporary and intermittent nature of the construction activities, we conclude that noise from construction to result in minor and insignificant impacts on nearby noise-sensitive areas (NSAs).

Operation Noise Impacts and Mitigation

ANR performed a preconstruction sound survey at the proposed Collierville Compressor Station site as well as an acoustic assessment to predict noise impacts at nearby NSAs. Predicted noise impacts over existing ambient noise levels at nearby NSAs are summarized in table 7.

Table 7
Noise Impact Analysis for the Proposed Collierville Compressor Station and Modified Collierville Meter Station

NSAs	Distance and direction from station center to NSA	Existing ambient noise level at NSA (dBA)	Estimated L_{dn} of meter station at full load at NSA (dBA)	Estimated L_{dn} of compressor station at full load (dBA)	Total noise at NSA (dBA)	Potential noise increase at NSA (dB)
NSA #1 (residence)	2,400 ft NNE	52.6	33.2	42.7	53.1	+0.5
NSA #2 (residence)	2,750 ft SW	49.6	38.2	41.3	50.5	+0.9
NSA #3 (residence)	3,000 ft ENE	50.8	29.6	40.4	51.2	+0.4

The human ear's threshold of perception for noise change is considered to be 3 dBA; 6 dBA is clearly noticeable to the human ear, and 9 dBA is perceived as a doubling of noise. The potential noise increase would not be noticeable at all NSAs.

ANR would implement all noise control measures at the Collierville Compressor Station as outlined in its sound survey and acoustic assessment report filed on July 22, 2016, which may be

further refined during the detailed design phase. Noise control would emphasize specifications on construction materials and other design factors for the proposed building that would house the turbine ("compressor building"), having minimum performance specifications as further detailed in ANR's application:

- the walls/roof of the compressor building would be constructed with an exterior skin of 24-gauge metal and building interior surfaces would be covered at a minimum with 6-inch-thick mineral wool;
- no windows, louvers or skylights would be installed in the compressor building walls;
- voids and openings in the building walls would be patched and sealed, and in general building construction would be consistent with a high performance acoustical compressor building;
- the equipment overhead sectional roll-up door would be a 20-gauge insulated type design and completely weather-stripped;
- the building ventilation system would be designed to properly ventilate and cool the building and equipment with all personnel and equipment doors closed, and doors would only be opened during maintenance activities;
- the ventilation exhaust outlet, turbine exhaust, turbine air inlet, turbine unit lube oil cooler, gas aftercooler, station recycle valve, and other miscellaneous equipment would meet minimum noise specifications listed in section 7.0 of ANR's acoustic assessment report; and
- the station's gas piping would be buried to the greatest extent possible and the portions that remain aboveground would be acoustically lagged with a minimum 3-inch-thick fiberglass or mineral wool covered with a mass-filled vinyl jacket, if needed, aboveground valves would be covered with removable and/or reusable acoustic materials and/or blankets, and aboveground gas piping would be separated from other metal structures such as metal gratings, walkways, and stairs around the piping to the greatest extent possible.

ANR would implement all measures specified in its acoustic assessment report filed on July 22, 2016, to mitigate noise attributable to the meter station modifications:

- construct a new regulator building to house the control valve and upstream and downstream piping;
- design the upstream and downstream piping to exit the regulator building below grade;
- locate the new regulator building off of the existing regulator skid (i.e., not attached to the regulator skid structure);
- construct the regulator building roof and walls with exterior steel of 24 gauge and interior layer of 6-inch-thick (e.g., 6.0 – 8.0 pounds per cubic foot uniform density) unfaced mineral wool covered with a 24 gauge perforated liner;
- install self-closing and well-sealed personnel entry doors with a minimum STC-38 sound rating;
- patch and seal all voids and openings in the building walls due to penetrations;
- install any overhead sectional roll-up doors with a minimum STC-22 sound rating and a 20 gauge insulated design (e.g., 20 gauge exterior with a 22 gauge backskin with insulation core);

- design the ventilation system to properly ventilate the building and equipment with all personnel and equipment doors closed, limiting the need to open doors during maintenance activities; and
- install ventilation inlet and exhaust outlets having noise specifications detailed in section 7.0 of ANR's acoustic assessment report.

The acoustic assessment report also indicates that low-frequency noise from the Collierville Compressor Station would not result in a perceptible increase in vibration at nearby NSAs as required by 18 CFR 380.12(k)(4)(v)(B).

To ensure that the combined noise from operation of the modified Collierville Meter Station and Collierville Compressor Station would not exceed the L_{dn} noise criterion of 55 dBA, **we recommend that**:

- **ANR should file a noise survey with the Secretary no later than 60 days after placing the Collierville Compressor Station and modified Collierville Meter Station in service. If a full load condition noise survey is not possible, ANR should provide an interim survey at the maximum possible horsepower load and provide the full load survey within 6 months. If the noise attributable to the operation of all of the equipment at the Collierville Compressor Station and Collierville Meter Station under interim or full horsepower load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, ANR should file a report on what changes are needed and should install the additional noise controls to meet the level within 1 year of the in-service date. ANR should confirm compliance with the above requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.**

With implementation of the measures proposed by ANR and our recommendation, impacts related to noise during construction and operation would be minor. In addition, ANR would comply with our requirement to ensure that there would be no perceptible vibration at NSAs from operation of the compressor station. During operation, noise from the Collierville Compressor Station and modified Collierville Meter Station, while perceptible and permanent, would not constitute a significant impact.

6.3 Non-Jurisdictional Facilities

Table 8 summarizes the estimated net change in emissions that would result after three existing coal-fired boilers at the Allen Fossil Plant are shut down and the proposed Allen Combined Cycle Power Plant begins operation.[7]

[7] Emission estimates are provided within the Tennessee Valley Authority's Allen Fossil Plant Emission Control Project Final Environmental Assessment.

Table 8
Estimated Net Change in Emissions for the Collierville Expansion Project (tons per year)

Pollutant	Existing Allen Fossil Plant	Proposed Allen Combined Cycle Power Plant	Net change in emissions	Operating Scenario
NO_x	2,600.40	610.2	**-1,990.2**	Combustion turbine only
SO_2	11,461	114.84	**-11,346.20**	Base load
CO	693	760.7	**67.7**	Combustion turbine only
Lead	0.13	0.044	**-0.082**	Base load
PM	892.5	193.8	**-698.7**	Base load
PM_{10}	606.8	193.8	**-413**	Base load
$PM_{2.5}$	321.3	193.8	**-127.5**	Base load
VOC	152.46	134.1	**-18.4**	Cycling mode
Sulfuric acid	7.126	2.84	**-4.28**	Combustion turbine only

7. Reliability and Safety

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 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. The pressurization of natural gas at a compressor station also 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 leak, or rupture at the facility.

The Collierville Compressor Station and modified Collierville Meter Station must be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR 192, including provisions for written emergency plans and emergency shutdowns. 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 49 CFR. For example, Part 192 specifically addresses natural gas pipeline safety issues, prescribes the minimum standards for operating and maintaining pipeline facilities, and incorporates compressor station design, 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. Part 192.163 – 192.173 specifically addresses design criteria for compressor stations.

Additionally, the operator must establish a continuing education program to enable the public, government officials, and others to recognize an emergency at the compressor station or pipeline facilities and report it to appropriate public officials. SESH would provide the appropriate training to local emergency service personnel before the facilities are placed in service.

ANR's construction and operation of the Collierville Compressor Station and associated connecting pipeline would represent a minimum increase in risk to the nearby public and we are confident that with implementation of the required design criteria for the Collierville Compressor Station and modified Collierville Meter Station, that each would be constructed and operated safely.

8. Cumulative Impacts

Cumulative impacts may result when the environmental effects associated with a proposed project are added to construction-related (temporary) or operations-related (permanent) impacts associated with other past, present, or reasonably foreseeable future projects in the Project area.

The purpose of this analysis is to identify and describe cumulative impacts that would potentially result from implementation of the project. We based our cumulative impacts analysis on the guidance set forth by the Council on Environmental Quality and the EPA. Under these guidelines, a cumulative impacts analysis is based on identifying commonalities between the potential impacts that would result from a proposed project and the impacts likely to be associated with other past, present, or potential future projects. We undertook this assessment for the Collierville Expansion Project considering the following factors:

- A past, present, or future project must impact a resource potentially affected by the proposed action (i.e., within a defined Region of Influence [ROI]). Distant projects were not considered because their impacts would not likely overlap or otherwise be cumulative.
- The time in the past or future of other projects was considered, since the potential for cumulative effects is dependent on the duration of the impact, and whether it would be short-term, long-term, or permanent. Present projects are considered to overlap in time of occurrence.

The cumulative impacts discussed herein have been based on information found in other FERC filings as well as from other publicly accessible information.

We evaluated a number of past, present, and reasonably foreseeable future projects within the resource-specific regions of influence. The ROI varies for each resource and is identified in table 9. A summary of the identified projects and affected resources is shown in table 10. Cumulative impacts associated with the Project could occur for the following resources: groundwater, wetlands and surface waters, wildlife and vegetation, traffic impacts, air quality, and noise.

B. Environmental Analysis

Table 9
Regions of Influence for Cumulative Impact Analysis

Environmental Resource	Area of Impact
Geology	Construction workspaces.
Soils	
Groundwater	Hydrologic Unit Code (HUC) 12-digit Watersheds.
Wetlands and Surface Water	
Vegetation and Wildlife (including threatened and endangered species and migratory birds)	
Cultural Resources	Overlapping impacts on historic properties.
Land Use	1 mile from construction activity.
Traffic Impacts	Town of Collierville (5 miles from construction activity); concurrent projects only.
Visual	0.5 mile from construction activity.
Noise - Construction	0.25 mile from construction activity.
Noise - Operations	NSAs within 1 mile of new compressor stations; 0.5 mile of new regulator stations.
Air Quality - Construction	0.25 mile from construction activity.
Air Quality - Operations	If a regional modeling analysis is not required per air permitting requirements, air emission sources within a 50-kilometer radius, documenting their location, distance from the proposed Project, estimated or permitted emissions for each criteria pollutant in tons per year, and identify the potential incremental cumulative impacts of the project. This does not include greenhouse gas emissions.

B. Environmental Analysis

Table 10
Summary of Recently Constructed and Proposed Projects that could Result in Cumulative Impacts

Project Name; Sponsor/Proponent, and Location (City/County)	Description	Within ROI for Resource[a]	Project Status
Trunkline Mainline Abandonment Project; Trunkline Gas Company, LLC (TX, LA, AR, MS, TN, KY, IL)	Abandonment in-place and conversion of pipelines to oil service. Includes the abandonment of 12 compression units, the nearest of which are in Tate County, Mississippi approximately 23 miles southwest of the Project.	12	Past
Allen Combined Cycle Power Plant; Tennessee Valley Authority (Shelby County, TN)	Construction and Operation of new 1,070 megawatt natural gas power plant and associated electrical and water pipelines. This project also includes the construction and operation of a new, approximately 13-mile-long 24-inch-diameter natural gas supply line to be owned by MLGW.	12	Future
I-269 Project; Tennessee Department of Transportation (TDOT) and Mississippi Department of Transportation (MDOT) (Shelby and Fayette County, TN; Desoto and Marshall County, MS)	Construction of an approximately 15-mile-long 4-lane divided section of interstate from US 51 north of Memphis to SR 385 in Millington; and a 30-mile- long 4-lane divided section of interstate from SR 385 south of Collierville to connect with the I-55/MS 304 Interchange in Hernando, Mississippi. These segments of the project are known as the A-1 and B-1 Preferred Alternatives.	3, 4, and 6	Past
US 72 From SR 302 to TN State Line; MDOT (Marshall County, MS)	Highway and bridge construction approximately 3.8 miles in length.	3 and 4	Ongoing
Byhalia Road – Partial State Route 175	Proposed widening of Byhalia Road from Holmes Road to SR-385.	3	Future
Wright Construction Final Site Plan; Wright Construction Company (Collierville, TN)	Request approval of a Final Site Plan for a 7,549 square foot building for Wright Construction, and a related Final Subdivision Plat (2-Lot), located on the southwest corner of South Rowlett Street and Cowan Road.	7	Ongoing
Chadwick Subdivision (Bailey Station PD, Phase 10); Halle Investment Company (Collierville, TN)	Request approval of Preliminary Subdivision Plat and Construction Drawings for 33 single family dwellings located at Northeast corner of Bailey Station Road and Winchester Road.	7	Ongoing
Carrington II Apartments Final Site Plan; Schilling Apartment Investors II, LLC (Collierville, TN)	Site Plan for a 125-unit apartment complex on Lot 1 of the Carrington Center Subdivision.	7	Ongoing
Carrington Center Commercial Subdivision Infrastructure; Schilling Farms, LLC (Collierville, TN)	Subdivision located at the northwest corner of Schilling and Winchester Boulevards into two commercial lots. Infrastructure improvements include signalizing the intersection, adding the 3rd lane to Winchester Boulevard, and an access road serving both lots that runs from Winchester to Schilling.	7	Ongoing
Stratton Heights Final Plat; Hampton Parr (Collierville, TN)	Subdivision into 12 single family residential lots ranging in size from 11,569 to 51,352 square-foot. 4 of the 12 lots have existing homes.	7	Ongoing
Natchez Place Subdivision Infrastructure; Natchez Place Joint Venture (Collierville, TN)	Subdivision located on the west side of Mt. Pleasant Road (between Natchez and Washington Streets) into 9 single-family lots. Project infrastructure includes rear alley (for access to all future homes) and on-site and off-site drainage upgrades.	7	Ongoing

B. Environmental Analysis

Table 10
Summary of Recently Constructed and Proposed Projects that could Result in Cumulative Impacts

Project Name; Sponsor/Proponent, and Location (City/County)	Description	Within ROI for Resource[a]	Project Status
South Street Station Final Plat; S&W Capital (Collierville, TN)	Subdivision into 5 residential lots (for 5 duplexes, 10 dwelling units). Property located on north side of South Street at its intersection with Quinn Road.	7	Ongoing
Collierville Farms Subdivision (Phase 5) Infrastructure; East Shelby Partners, LLC (Collierville, TN)	Request an approval for the Preliminary Plat and Subdivision Infrastructure Construction Plans for 38 lots located in Area 4 of Collierville Farms PD on the south side of Shelby Drive.	7	Ongoing
Hearthstone Subdivision (Sections C and D) Infrastructure; Wilsons Crossing Partners, LLC (Collierville, TN)	Subdivision located south of East Shelby Drive and west of Sycamore Road into 70 single-family lots. Phase 1 of the project (Section C) includes installation of on-site infrastructure (roads and utilities) to serve 40 lots and the 2nd Phase (Section D) includes on-site infrastructure for 30 single-family lots.	7	Ongoing
New CHS Campus; Town of Collierville Board of Education (Collierville, TN)	Preliminary Site Plan for the new Collierville High School Campus located at the southeast quadrant of Sycamore Road and East Shelby Drive.	7	Ongoing
Rolling Meadows (Phase 3B) Infrastructure; Regency Homebuilders (Collierville, TN)	Infrastructure (roads and utilities) for 19 single family lots located along the extension of Pilgrim Ridge Road, north of Majestic Trail and east of Sycamore Road.	7	Ongoing
South Piperton Hills Commercial Retail Center; WCA Land Development, LLC; (Marshall County, MS)	Commercial retail center, South Piperton Hills; seven buildings, parking areas and an access road located Northwest of Mt. Pleasant, North of Hwy 72.	3 and 4	Future
North Marshall Substation; NorthCentral EPA; (Marshall County, MS)	North Marshall Substation located Northwest of Cayce, North of Wingo Road to provide additional electrical service in North, MS.	3	Future
Porter Distribution Center; Porter Development Company (Marshall County, MS)	Distribution center complex; four buildings with the potential to expand an additional two buildings; also access roads and parking areas. Located between Hwys 302 and 72 Northeast of Cayce.	3 and 4	Future
Glenn Farms Corporate Park; Whitten Bend Investors, LP (Fayette County, TN)	Distribution center; 490,000 square-foot warehouse, 35,000 square-foot of office annex, parking spaces and a post-construction storm water detention basin. Located East of Fayette/Shelby Co. Line and South of (new) East Shelby Drive.	3	Future
Industrial Access Road; Tennessee Department of Transportation (Fayette County, TN)	State industrial access road located South of Hwy 72, East of Fayette/Shelby Line, North of Fayette/Marshall (MS) Line.	3	Future
Distribution Center (MCR Safety Phase 2); Crews Realty LLC (Fayette County, TN)	Expand an existing distribution center located near Piperton; South of Hwy 72, East of Fayette/Shelby Line, North of Fayette/Marshall (MS) Line.	3	Future
Hinton Park Recreational Facility; Town of Collierville (Collierville, TN)	New recreational facility, Hinton Park; athletic fields, playground and treehouse, amphitheater, pedestrian trails, climbing hill, pond and other amenities located North of Holmes Road and W of Fleming Road.	3 and 4	Future

Table 10
Summary of Recently Constructed and Proposed Projects that could Result in Cumulative Impacts

Project Name; Sponsor/Proponent, and Location (City/County)	Description	Within ROI for Resource[a]	Project Status
Carrier Air Conditioning Company; EPA Superfund Program (Collierville, TN)	The Carrier Corporation has operated a manufacturing plant at this location since the 1960s. The site was placed on the EPA Superfund program's NPL in 1989 due to contaminated groundwater, sludge and soil due to plant operations. The site has ongoing groundwater and soil treatment and groundwater monitoring.	2	Ongoing
Smalley-Piper; EPA Superfund Program (Collierville, TN)	This former manufacturing site has been in use from the 1960s to approximately 2007 and had at least two different business operations including battery casings and farm equipment. The site was placed on the EPA Superfund program's NPL list in 2005 due to contaminated groundwater, surface water and soil resulting from facility operations. The soil cleanup was completed in 2012. The groundwater treatment system was constructed in 2015.	2	Ongoing

a
1. Geology and Soils
2. Groundwater
3. Wetlands and Surface Water
4. Vegetation and Wildlife
5. Cultural
6. Land Use
7. Traffic Impacts
8. Visual
9. Noise Construction
10. Noise Operations
11. Air Construction
12. Air Operations

Groundwater

The two National Priority List sites identified in table 10 have ongoing groundwater treatment activities and are over 3 miles from the Project area. Project impacts on groundwater would be short-term and not significant. Due to the relatively small Project footprint, shallow excavation depths, and distance to the identified sites, the Project would not have significant cumulative impacts on groundwater resources in the ROI.

Wetlands and Surface Water Resources

Construction of the Collierville Expansion Project would temporarily impact approximately 0.1 acre of PEM wetland. One completed project (I-269 Project) and one ongoing project (US 72 from SR 302 to TN State Line) were identified within the ROI. The eight future commercial or infrastructure projects listed in table 10 could impact forested wetlands or require permanent fill of wetlands. These projects could be required to purchase wetland credits or conduct wetland restoration projects. The minor short-term impacts from the Collierville Expansion Project would not have a noticeable contribution to overall cumulative impacts on wetlands.

Project impacts on the surface waterbody would be short-term and not significant. Construction activities could temporarily increase sedimentation and turbidity in waterbodies, particularly within or near flowing surface waters. Clearing and grading of vegetation cover could increase erosion. Compaction of soils by heavy equipment near waterbodies may accelerate erosion and the transportation of sediment carried by stormwater runoff into waterbodies.

All projects listed in table 10, as well as the Collierville Expansion Project, would be required to obtain all necessary federal and state water quality permits for stream crossing, including Section 404 of the Clean Water Act and NPDES permits. The minor, short-term impacts from the Collierville Expansion Project would not have a noticeable contribution to overall cumulative impacts on surface water resources.

Vegetation, Wildlife, and Threatened and Endangered Species

Construction of the Collierville Expansion Project would impact mostly agricultural lands. Less than 1 acre of wooded areas would be permanently affected and approximately 0.1 acre of emergent wetland vegetation would be temporarily affected. Construction activities would involve clearing, grading, removal of vegetation that provide for wildlife habitat, and have the potential to spread invasive plant species. Removal of vegetation not only alters wildlife habitat, it can also cause temporary and permanent displacement of wildlife. The minor impacts on vegetation would be both short- and long-term. Construction activities could also cause short-term impacts on waterbodies, affecting aquatic species. Use of BMPs and adherence to the FERC Plan and Procedures would further ensure that impacts on vegetation and wildlife habitat would not be significant.

The minor long- and short-term impacts from the Collierville Expansion Project would not have a noticeable contribution to overall cumulative impacts on vegetation or wildlife. Additionally, the Collierville Expansion Project would have a negligible contribution to any cumulative impacts on threatened or endangered species as a result of the Project's determination of *may affect, not likely to adversely affect* listed species potentially present in the area.

Traffic Impacts

Traffic would be temporarily impacted during construction of the Project. Several commercial, industrial, or infrastructure projects listed in table 10 could also impact local traffic during the same general time as construction activities for the Project. Incoming and outgoing traffic from the Project would mainly utilize the recently constructed Interstate 269. Cumulative traffic impacts on local roads would be limited to the rural area in the direct vicinity of the Project construction area, and would be minor and short-term. Therefore, any traffic impacts from the Collierville Expansion Project would not have a significant contribution to overall cumulative impacts on local traffic in Collierville.

Air Quality-Operations

Air quality cumulative impacts resulting from the Project are limited to the change in operational emissions that would occur after the Allen Fossil Plant is modified (i.e., three existing coal-fired boilers are shut down) and the proposed new Allen Combined Cycle Power Plant begins operation. As summarized in B.6.1, these cumulative impacts would substantially improve local and regional air quality surrounding the Allen Fossil Plant, primarily through large potential reductions in emissions of several criteria pollutants including SO_2. Potential NOx emissions, however, would increase by approximately 67 tons per year, adding cumulatively to existing ambient background concentrations.

An existing major PSD source, Roxul USA, Inc., is approximately 2.8 miles away from the proposed Collierville Compressor Station. It is possible that, due to the presence of this nearby source, background concentrations of pollutants in the vicinity of the Collierville Compressor Station site are greater than assumed for the AERSCREEN analysis summarized in table 6; however, the Collierville Compressor Station's predicted contribution to these pollutant concentrations is very small, and would not cause any exceedance of the NAAQS even if higher localized background concentrations due to the Roxul source are assumed.

Climate Change

Emissions of CO_{2e} would decrease from the Allen Fossil Plant modification / Allen Combined Cycle Power Plant operation by approximately 1,564,000 tons per year, far greater than the combined construction emissions for the Project and non-jurisdictional facilities and the potential yearly operating emissions from the new Collierville Compressor Station summarized in B.6.3. Therefore, the Project and non-jurisdictional facility modifications would result in an overall substantial net decrease in emissions of CO_{2e} for the first year of Project operation, and for every year thereafter, that are largely responsible for human-caused climate change. However, currently there is no standard methodology to determine how the incremental contribution of (or reduction in) GHGs from any project or other activity would translate into physical effects on the global environment.[8]

8.2 Conclusions on Cumulative Impacts

As previously concluded in this EA, impacts associated with the Project would be minor and mostly temporary and therefore, when considered with past, present, and reasonably foreseeable projects within the ROI, we conclude that cumulative impacts on resources in the ROI would be minor and temporary.

[8] In May 2014, the U.S. Global Change Research Program issued its Third National Climate Assessment Report, Climate Change Impacts in the United States, summarizing the impacts that climate change has already had on the United States and what projected impacts by source may have in the future. This report can be accessed at http://nca2014.globalchange.gov/

C. ALTERNATIVES

In accordance with NEPA and Commission policy, we considered alternatives to the proposed action, including the no-action alternative and system alternatives. These alternatives were evaluated to determine whether they would be reasonable and environmentally preferable to the proposed action. The evaluation criteria for selecting alternatives are: technical and economic feasibility and practicality; significant environmental advantages over the proposed Project; and meeting the objectives of the proposed Project.

Based on our analysis in this EA, we have determined that the proposed site for the Collierville Compressor Station is an acceptable location and that construction would not result in significant environmental impacts. We did not receive any comments on or objections to the proposed site, nor did we receive any suggested alternative locations. ANR's preliminary site investigations determined that the proposed site was well-suited with regards to engineering and hydraulic constraints, and posed minimal environmental impact. We agree, and as such did not evaluate site alternatives for the compressor station.

1. No-Action Alternative

As indicated in section A.2, ANR states that the proposed Collierville Compressor Station is necessary to deliver gas supply from its Southeast Head Station into MLGW's existing high pressure local distribution system to serve the TVA's pending 1,070 megawatt Allen Combined Cycle Power Plant. Under the no-action alternative, ANR would not implement the proposed action, thus avoiding the potential environmental impacts associated with the Project as described in this EA; however, the Project objectives would not be met.

The Allen Power Plant will require a fuel source. If the contracted delivery of natural gas by ANR is not realized (i.e., the no-action alternative), other natural gas transmission companies would most likely be required to increase their capacity and construct new facilities to meet the demand for the additional capacity. Such actions would likely result in the transfer of impacts from one location to another but would not eliminate or reduce impacts altogether.

For the above reasons, we do not recommend the no-action alternative.

2. System Alternatives

As stated in section A.2, the Collierville Compressor Station would be a new booster station that would enable ANR to provide firm capacity delivery into MGLW's local distribution system to subsequently supply TVA's pending power plant. Adding compression represents the most cost efficient means of serving the purpose and need of the Project. ANR's existing compressor stations are located too distant from the Project area and consequently, adding compression at them would not meet the needs of the Project. Therefore, we determined that there are no viable system alternatives for the Project.

D. CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis contained in this EA, we have determined that if ANR constructs the proposed facilities in accordance with its application, filed supplements, and our recommended mitigation measures listed below, approval of the Project would not constitute a major federal action significantly affecting the quality of the human environment.

We recommend that the Commission Order contain a finding of no significant impact. If the Commission certificates the proposed Project, we recommend that the Commission Order include the following specific conditions:

1. ANR 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. ANR 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 of the Order; and
    b. the design and implementation of any additional measures deemed necessary (including stop-work authority) to assure continued compliance with the intent of the environmental conditions as well as the avoidance or mitigation of adverse environmental impact resulting from Project construction and operation.

3. **Prior to any construction**, ANR 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 location shall be as shown in the EA, as supplemented by filed alignment sheets. **As soon as they are available, and before the start of construction**, ANR 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 the Order or site-specific clearances must be written and must reference locations designated on these

alignment maps/sheets.

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

   This requirement does not apply to extra workspace allowed by our 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 authorization and before construction begins,** ANR shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. ANR must file revisions to the plan as schedules change. The plan shall identify:

   a. how ANR 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 ANR 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 ANR will give to all personnel involved with construction and restoration (initial and the refresher training as the Project progresses and personnel change);
f. the company personnel (if known) and specific portion of ANR's organization having responsibility for compliance;
g. the procedures (including use of contract penalties) ANR 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. ANR shall employ at least one EI for the Project. 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 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 the 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. Beginning with the filing of its Implementation Plan, ANR shall file updated status reports with the Secretary on a **biweekly basis 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 ANR'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 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);
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 ANR from other federal, state, or local permitting agencies concerning instances of noncompliance, and ANR's response.

9. **Prior to receiving written authorization from the Director of OEP to commence construction of any Project facilities,** ANR shall file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).

10. ANR must receive written authorization from the Director of OEP **before placing the Project into service**. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the Project are proceeding satisfactorily.

11. **Within 30 days of placing the authorized facilities in service**, ANR 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 conditions in the Order ANR 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.

12. ANR should file a noise survey with the Secretary **no later than 60 days** after placing the Collierville Compressor Station and modified Collierville Meter Station in service. If a full load condition noise survey is not possible, ANR should provide an interim survey at the maximum possible horsepower load and provide the full load survey **within 6 months**. If the noise attributable to the operation of all of the equipment at the Collierville Compressor Station and Collierville Meter Station under interim or full horsepower load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, ANR should file a report on what changes are needed and should install the additional noise controls to meet the level **within 1 year** of the in-service date. ANR should confirm compliance with the above requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls.

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