CENTRAL ARKANSAS PIPELINE ENHANCEMENT PROJECT

DRAFT

Applicant-Prepared Environmental Assessment

OCTOBER 2013

ENVIRONMENTAL ASSESSMENT
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TABLE OF CONTENTS

ENVIRONMENTAL ASSESSMENT
CENTRAL ARKANSAS PIPELINE ENHANCEMENT PROJECT

LIST OF APPENDICES

ENVIRONMENTAL ASSESSMENT
CENTRAL ARKANSAS PIPELINE ENHANCEMENT PROJECT

LIST OF TABLES

LIST OF FIGURES

ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
ADEQ	Arkansas Department of Environmental Quality
ADH	Arkansas Department of Health
AGFC	Arkansas Game and Fish Commission
AGS	Arkansas Geological Survey
AHPP	Arkansas Historic Preservation Program
ANHC	Arkansas Natural Heritage Commission
ANRC	Arkansas Natural Resources Commission
AOES	Arkansas Office of Emergency Services
APCEC	Arkansas Pollution Control and Ecology Commission
BMPs	best management practices
CERC	CenterPoint Energy Resources Corporation d/b/a Arkansas Gas
Certificate	Certificate of Public Convenience and Necessity
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_{2e}	carbon dioxide equivalent
COE	U.S. Army Corps of Engineers
Commission	Federal Energy Regulatory Commission
CPC	Center for Plant Conservation
CWA	Clean Water Act
dB	decibels
dBA	decibels on the A-weighted scale
DDCP	Directional Drilling Contingency Plan
DOT	U.S. Department of Transportation
Dth/d	dekatherms per day
EA	Environmental Assessment
EFH	Essential Fish Habitat
EGT	Enable Gas Transmission Company, LLC
EI	Environmental Inspector
EPA	U.S. Environmental Protection Agency
ER	Environmental Report
ESA	Endangered Species Act
ETWS	Extra Temporary Workspace
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FWS	U.S. Fish and Wildlife Service
HCA	High Consequence Area
HDD	horizontal directional drill
HUC	Hydrologic Unit Code
L_{dn}	day-night sound level
L_{eq}	equivalent sound level
MLV	Main Line Valve
MP	milepost
MW	megawatt
N/A	Not applicable

NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NGA	Natural Gas Act
NMSZ	New Madrid Seismic Zone
NHPA	National Historic Preservation Act
NOI	Notice of Intent to Prepare an Environmental Assessment for the Proposed Central Arkansas Pipeline Enhancement Project and Request for Comments on Environmental Issues
NOx	oxides of nitrogen
NRCS	U.S. Department of Agriculture, Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	Noise Sensitive Area
OEP	Office of Energy Projects
PEM	palustrine emergent
PFO	palustrine forested
Plan	FERC's Upland Erosion Control, Revegetation, and Maintenance Plan
$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 microns or less
PM_{10}	particulate matter with an aerodynamic diameter of 10 microns or less
Procedures	FERC's Wetland and Waterbody Construction and Mitigation Procedures
Project	Central Arkansas Pipeline Enhancement Project
PSS	palustrine scrub-shrub
ROW	Right-of-Way
SHPO	State Historic Preservation Office
SO_2	sulphur dioxide
SOC	Species of Concern
SPCC Plan	Spill Prevention Control and Countermeasure Plan
T&E	threatened and endangered
TBS	Town Border Station
THPO	Tribal Historic Preservation Office
TWS	temporary workspace
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
VOC	volatile organic compound

1.0 PROPOSED ACTION

1.1 INTRODUCTION

On March 18, 2013, Enable Gas Transmission, LLC (EGT)[1] submitted a request to use the Federal Energy Regulatory Commission's (FERC or Commission) Pre-Filing Process for its planned Central Arkansas Pipeline Enhancement Project. The filing was submitted under Docket No. PF13-10-000 as prescribed in Section 157.21(d) of the Commission's regulations. EGT intends to file an application for a Certificate of Public Convenience and Necessity (Certificate) pursuant to Sections 7(b) and 7(c) of the Natural Gas Act (NGA, 15 USC 717) and related authorizations to construct, operate, maintain, and retire, as applicable, natural gas pipeline facilities in Pulaski and Faulkner Counties, Arkansas.

EGT is seeking authorization to augment portions of its existing natural gas pipeline system by installing approximately 28.5 miles of 12-inch-diameter and 0.3 mile of 4-inch-diameter natural gas pipeline and appurtenant facilities as described in section 1.3. Additionally, ownership of an approximately 12.4-mile-long segment of the existing Line BT-14 pipeline, as well as the entirety (approximately 1,024 linear feet) of EGT's existing Line BT-19, would be transferred to EGT's affiliated natural gas distribution business, CenterPoint Energy Resources Corporation d/b/a Arkansas Gas (CERC), and an approximately 21.7-mile-long segment of the existing Line B pipeline would be retired from service. One other pipeline, Line BM-1, and a portion of Line BM-21, totaling 2,567 feet would also be retired. These activities are collectively referred to as the Central Arkansas Pipeline Enhancement Project (Project).

We[2] prepared this environmental assessment (EA) in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations for implementing NEPA (Title 40 of the Code of Federal Regulations (CFR), Parts 1500-1508) and the Commission's implementing regulations at 18 CFR 380 to address the potential environmental impacts resulting from the construction and operation of the proposed Project. Specifically, the purpose of this EA is to identify, describe, and assess the environmental impacts resulting from implementation of the proposed action; assess reasonable alternatives to the proposed action that would avoid or minimize adverse environmental impacts; and recommend specific mitigation measures, as necessary, to avoid or minimize potential environmental impacts.

On March 28, 2013, EGT's authorization to use the pre-filing process was granted in Docket No. PF13-10-000. This process was established to allow and encourage early involvement by citizens, governmental entities, non-governmental organizations, and other interested parties. During the pre-filing process we worked with EGT and interested stakeholders to identify and resolve issues where possible, prior to EGT's filing of its formal application with the FERC. Initial contacts were made with federal and state natural and cultural

[1] Effective July 30, 2013, CenterPoint Energy Gas Transmission Company, LLC changed its name to Enable Gas Transmission, LLC.

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

resource agencies and other stakeholders having an interest in the proposed Project. These initial contacts included a brief description of the proposed Project and a request for information regarding the applicable permitting or other regulatory review authority. Follow-up correspondence and pre-filing meetings were conducted as requested by the agency representatives.

1.2 PURPOSE AND NEED

EGT's stated purpose for the Project is to provide continued safe, reliable, and efficient transportation of natural gas to the central Arkansas cities and towns of Conway, Mayflower, Maumelle, North Little Rock, and Little Rock. EGT currently owns and operates multiple, existing pipelines in this region, but the region has experienced substantial residential and commercial development since the original Line B and BT-14 pipeline facilities were constructed. Multiple residences, subdivisions, golf courses, commercial and industrial areas, the University of Central Arkansas campus, and the Conway Airport now encroach on these existing pipelines. The proposed Project provides EGT with the opportunity to install new pipeline facilities to more efficiently operate its pipeline system, better serve its current customers, and remediate the encroachment issues, while also laying the groundwork for additional pipeline capacity to meet future growth in the region, as needed.

As part of the Project, EGT will retire from service some existing pipeline assets, while also transferring ownership of some other existing pipeline infrastructure to its distribution affiliate, CERC. Such realignment and repurposing of existing pipeline infrastructure will provide for cost savings and more efficient delivery of natural gas in the Project area, all of which should benefit end use customers.

1.3 PROPOSED FACILITIES

A summary of the Project pipeline and appurtenant facilities is provided in table 1.3-1. A general location map is provided as figure 1.3-1. More detailed locations of the pipeline and aboveground facilities are shown on the U.S. Geological Survey (USGS) Quadrangle maps provided in Appendix A.

New Natural Gas Pipeline

- Line BT-39: Construction of approximately 28.5 miles of new 12-inch-diameter natural gas pipeline, which will extend from an interconnect with EGT's existing Lines BT-14 and BM-21 pipelines north of State Highway 64 in Faulkner County, Arkansas (milepost [MP] 0.00), to EGT's existing Oak Grove Town Border Station (TBS) (MP 28.5), which serves the cities of North Little Rock and Little Rock.

- Line BT-40: Construction of approximately 230 linear feet of 4-inch-diameter natural gas pipeline lateral, which will extend from a tap on the proposed Line BT-39 to a new meter station along James Road (*i.e.*, the James Road TBS). The BT-40 pipeline will provide continued service to the area that is currently served

from the Crystal Hill TBS, which is located along the segment of Line B to be retired.

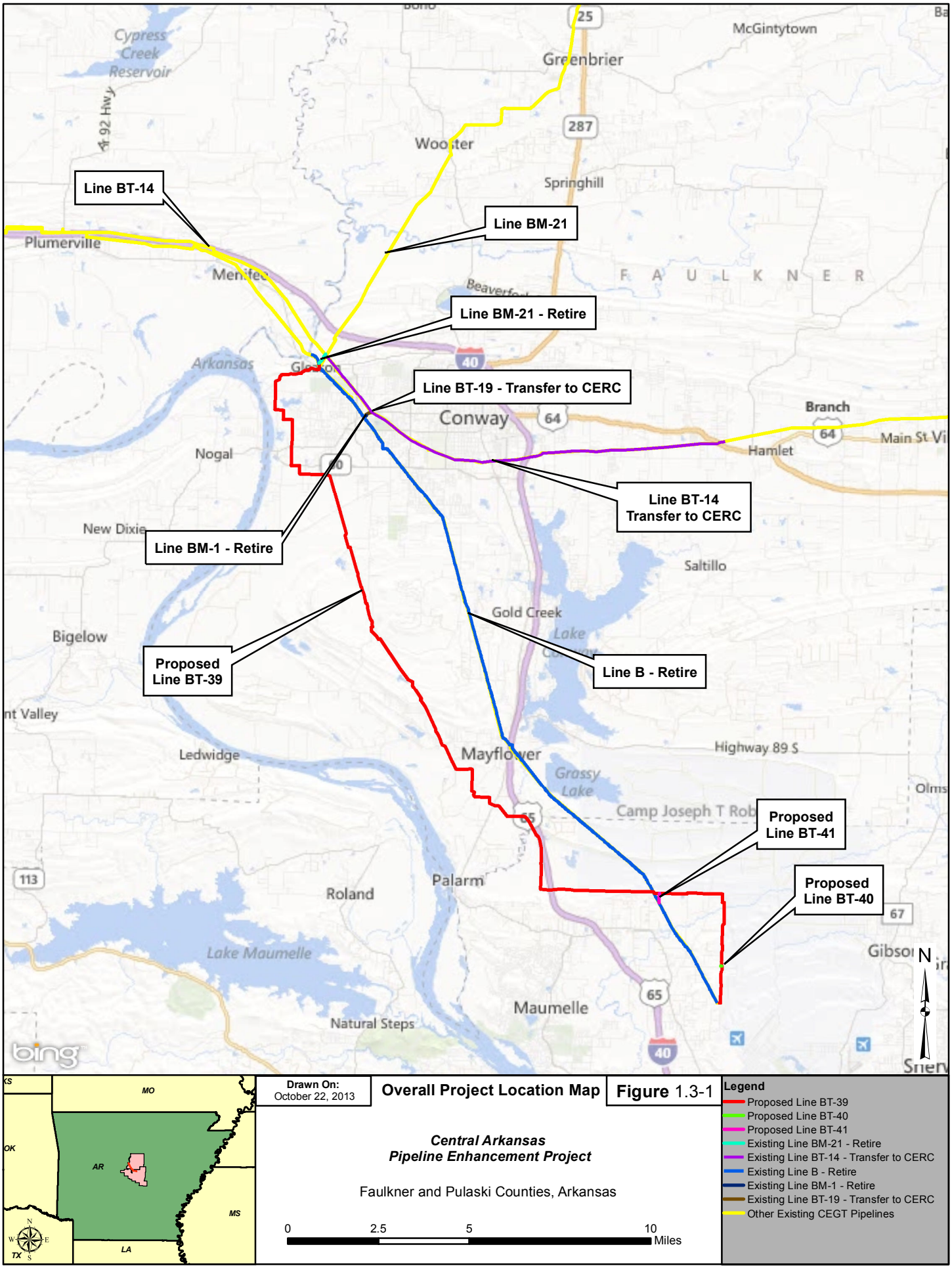
- Line BT-41: Construction of approximately 1,400 feet of 4-inch-diameter natural gas pipeline, which will extend from a tap on the proposed Line BT-39 to the existing Morgan TBS, which is located along the segment of Line B to be retired.

TABLE 1.3-1

Summary of the Project Pipeline and Appurtenant Facilities

Facility	Length (miles)	Diameter (inches)	Description
NEW PIPELINE			
Line BT-39	28.5	12	New pipeline.
Line BT-40	0.04	4	New pipeline paralleling existing EGT pipeline corridor.
Line BT-41	0.27	4	New pipeline.
Total Length	28.81		
ABOVEGROUND FACILITY			
Highway 64 TBS	N/A	N/A	To be installed at the origin of the Line BT-39 pipeline (milepost [MP] 0.00) in Faulkner County, Arkansas.
Bryant Road TBS	N/A	N/A	To be installed on Line BT-39 (MP 7.75) in Faulkner County, Arkansas.
Highway 365 TBS	N/A	N/A	To be installed on Line BT-39 (MP 17.17) in Faulkner County, Arkansas.
Morgan TBS	N/A	N/A	To be installed at the terminus of the new Line BT-41 pipeline (MP 23.62) in Pulaski County, Arkansas.
James Road TBS	N/A	N/A	To be installed at the terminus of the new Line BT-40 pipeline (MP 27.43) in Pulaski County, Arkansas.
Oak Grove TBS	N/A	N/A	To be installed at the terminus of the new Line BT-39 pipeline (MP 28.50) in Pulaski County, Arkansas.
Shoemaker TBS	N/A	N/A	Modification of an existing block valve site at the terminus of the segment of Line BT-14 to be transferred to CERC in Faulkner County, Arkansas.
RETIRED PIPELINE			
Line BT-14	12.4	12	Transfer ownership.
Line B	21.7	10	Retire pipeline (abandon in place) and remove various meters, regulators, aboveground block valves, and other ancillary facilities at seven existing TBSs and various rural extension, master meter, and domestic tap locations.
Line BT-19	0.19	6	Transfer Ownership.
Line BM-1	0.11	6	Retire pipeline (abandon in place).
Line BM-21	0.38	4	Retire pipeline (abandon in place).
Total Length	34.78		
RETIRED ABOVEGROUND FACILITIES			
Conway TBS No. 6	N/A	N/A	Remove aboveground meter facilities and transfer ownership.
Conway TBS No. 1	N/A	N/A	Retire and remove the aboveground check meter, overpressure protection, regulation, and measurement facilities.
Line BM-21 interconnect with Line B	N/A	N/A	Remove overpressure protection regulation.

N/A – not applicable.



Drawn On:
October 22, 2013

Overall Project Location Map

Figure 1.3-1

Central Arkansas
Pipeline Enhancement Project

Faulkner and Pulaski Counties, Arkansas

0 2.5 5 10 Miles

Legend

- Proposed Line BT-39
- Proposed Line BT-40
- Proposed Line BT-41
- Existing Line BM-21 - Retire
- Existing Line BT-14 - Transfer to CERC
- Existing Line B - Retire
- Existing Line BM-1 - Retire
- Existing Line BT-19 - Transfer to CERC
- Other Existing CEGT Pipelines

Aboveground Facilities

EGT proposes to install or modify six aboveground Town Border Stations (TBS) along the new Line BT-39, BT-40, and BT-41 pipelines, as well as an existing aboveground block valve site along EGT's Line BT-14.

- Highway 64 TBS: Installation of metering facilities and appurtenances (including pig launcher/receiver, pipeline taps, and overpressure protection) at the origin of the Line BT-39 pipeline.

- Bryant Road TBS: Installation of metering facilities and appurtenances, as well as a new MLV setting on Line BT-39.

- Highway 365 TBS: Installation of metering facilities and appurtenances, as well as a MLV setting on Line BT-39.

- Morgan TBS: Expand and modify the existing TBS through installation of metering facilities and appurtenances at the terminus of the new Line BT-41 pipeline.

- James Road TBS: Installation of metering facilities and appurtenances at the terminus of the new Line BT-40 pipeline.

- Oak Grove TBS: Modification of the existing TBS through installation of metering facilities and appurtenances (including pig receiver, yard piping, valving, and a separator) at the terminus of the new Line BT-39 pipeline.

- Shoemaker Road TBS: Modification and expansion of an existing aboveground block valve site, which is located at the terminus of the segment of Line BT-14 that would be transferred to EGT's distribution affiliate, to include pig receiver, tap, metering facilities, and appurtenances.

Retired Facilities

- Transfer ownership of approximately 12.4 miles of EGT's existing 12-inch-diameter Line BT-14 pipeline and appurtenant facilities through the City of Conway to EGT's distribution affiliate, CERC, for continued non-transmission natural gas transportation.

- Transfer ownership of Conway TBS No. 6, which lies along the segment of Line BT-14 that would be transferred to CERC. Aboveground metering facilities will be removed, and the meter lot will be included in the transfer to CERC.

- Transfer ownership of the entirety (approximately 1,024 linear feet) of EGT's existing 6-inch-diameter Line BT-19, which extends between the section of Line BT-14 to be transferred and Conway TBS #1.

- Retire approximately 21.7 miles of EGT's existing 10-inch diameter Line B pipeline, extending from the crossing of Cadron Creek on the north side of Conway, to the southern terminus of the pipeline at EGT's existing Oak Grove TBS, as well as removal of the following aboveground facilities along Line B:

    - meter, regulation, and appurtenances at seven existing TBS's, including Oak Grove TBS, Crystal Hill TBS, Morgan TBS, Mayflower TBS, Conway TBS #7, Conway TBS #2, Conway TBS #3;

    - meters, aboveground block valves, and appurtenances at various rural extension, master meter, and domestic tap locations; and

    - other ancillary facilities, such as rectifiers and pipeline markers.

- Retire the entirety (approximately 567 linear feet) of EGT's existing 6-inch-diameter Line BM-1, which extends between the section of Line B to be retired and Conway TBS #1.

- Retire and remove the aboveground check meter, overpressure protection, regulation, and measurement facilities at Conway TBS #1.

- Retire approximately 2,000 linear feet of EGT's existing 4-inch-diameter Line BM-21 pipeline extending from the new Highway 64 TBS to the Line BM-21 interconnect with EGT's existing Line B. (The segment of Line BM-21 to be retired parallels and lies entirely within the proposed permanent easement for the new Line BT-39 pipeline).

- Remove overpressure protection regulation at the Line BM-21 interconnect with Line B.

1.4 NONJURISDICTIONAL FACILITIES

Under Section 7 of the NGA, the FERC is required to consider, as part of its decision to certificate interstate natural gas facilities, all factors bearing on the public convenience and necessity. Occasionally, proposed projects have associated facilities that do not come under the jurisdiction of the FERC. To ensure that the scope of our NEPA analysis is appropriate we have considered whether our review of the proposed Project should include an analysis of nonjurisdictional facilities and their related environmental impacts.

The proposed Line BT-39 pipeline would provide replacement transmission service for a portion of two existing EGT natural gas pipelines (Lines B and BT-14) and would be constructed primarily on new alignment. Because the Project would effectively result in "re-location" of a portion of EGT's natural gas transmission system in the Project area, EGT's affiliate distribution company, CERC, would also install minor lengths of natural gas distribution pipeline and perform facility additions/modifications necessary to connect to the new Project facilities and maintain or enhance distribution service to locations along the retired Project pipeline facilities. This work would occur in two CERC service areas: Conway and Little Rock. The CERC

facilities are currently in the design and planning stage, but would involve the following based on current project scope.

- Conway Service Area – The work involves the construction of approximately 4.1 miles of 6- to 8-inch-diameter steel pipeline and approximately 10.1 miles of 2-, 4-, and 6-inch-diameter plastic pipeline within existing road ROWs. CERC would also own and operate pressure regulation facilities to be installed at the Highway 64, Bryant Road, Highway 365, and Shoemaker Road TBS sites, as well as a district regulator station to be installed at a separate location. This work would accommodate service from the newly proposed Line BT-39 pipeline, as well as the existing Line BT-14 pipeline to be transferred to CERC,

- Little Rock Service Area - The work involves the construction of approximately 1.1 miles of 2- and 4-inch-diameter plastic distribution pipeline, with all pipeline to be installed within existing road ROWs. CERC would also own and operate pressure regulation facilities to be installed at the Morgan, James Road, and Oak Grove TBS sites. This work would accommodate service from the newly proposed Line BT-39, BT-40 and BT-41 pipelines. In addition, CERC would transfer 13 farm taps from the segment of the Line B pipeline to be retired to the existing distribution system.

When completed, the proposed non-jurisdictional facilities would become part of CERC's existing natural gas pipeline distribution system, which is regulated by the Arkansas Public Service Commission (APSC).

The Commission has adopted a four-factor procedure developed by the U.S. Army Corps of Engineers (USACE) to determine whether there is sufficient federal control and responsibility over a project as a whole to warrant environmental analysis of related nonjurisdictional facilities. These factors are:

- whether the regulated activity comprises "merely a link" in a corridor type project (e.g., a transportation or utility transmission project);

- whether there are aspects of the nonjurisdictional facility in the immediate vicinity of the regulated activity that affect the location and configuration of the regulated activity;

- the extent to which the entire project would be within the Commission's jurisdiction; and

- the extent of cumulative federal control and responsibility.

With regard to the first factor, EGT's proposed transmission line replacement is not merely a link in a corridor type project. Installation of Line BT-39 and replacement of the natural gas transmission service presently provided by EGT's existing Lines B and BT-14 would allow more efficient operation of EGT's existing transmission system, better serve its customers, and remediate encroachment issues along the existing pipeline system. This is not a link in any new corridor type project and weighs against extending the scope of the review.

With regard to the second factor, the nonjurisdictional natural gas distribution system in the immediate vicinity of the Project did not determine the location and configuration of the proposed Line BT-39. Rather, the proposed Line BT-39 route was developed to avoid heavily developed areas and take advantage of existing utility ROWs to the extent practicable. This factor weighs against extending the scope of the review.

With regard to the third factor, the proposed Central Arkansas Pipeline Enhancement Project facilities are clearly within the Commission's jurisdiction. However, the Commission has no authority over the permitting, funding, construction, or operation of the nonjurisdictional natural gas distribution facilities that would be constructed to maintain and enhance the existing distribution system in the Project area. To the extent that the distribution facilities require federal or state permits, the permits would be authorized by the appropriate regulatory agency prior to the construction and operation of such facilities. This factor weighs against extending the scope of the review.

With regard to the fourth factor, federal control is determined by the amount of federal financing, assistance, direction, regulation, or approval inherent in a project. The extent of cumulative federal control and responsibility over the related nonjurisdictional natural gas distribution system is relatively small given that the facilities would be owned by CERC without federal financing, assistance, or direction. No federal lands are involved, and any federal permits required for the nonjurisdictional facilities would be obtained by CERC. This factor also weighs against extending the scope of the review.

Analysis of the above factors suggests that the Commission's jurisdiction and responsibility are limited to the jurisdictional Project facilities proposed by EGT. To the extent that the nonjurisdictional facilities require federal or state permits, they would be issued by other federal or state resource management agencies.

1.5 CONSTRUCTION, OPERATION, AND MAINTENANCE PROCEDURES

All facilities proposed by EGT would be designed, constructed, tested, operated, and maintained to conform with, or exceed, the requirements of the U.S. Department of Transportation (DOT) regulations under Title 49 of CFR Part 192 (49 CFR 192), *Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards*; the siting and maintenance requirements in 18 CFR 380.15; and other applicable federal and state regulations. Among other design standards, 49 CFR 192 specifies pipeline material selection; minimum design requirements; protection from internal, external, and atmospheric corrosion; and qualification procedures for welders and operations personnel.

In addition to applicable federal regulations and guidelines, EGT would construct the proposed Project in accordance with our *Upland Erosion Control, Revegetation, and Maintenance Plan* (May 2013) (Plan), and *Wetland and Waterbody Construction and Mitigation Procedures* (May 2013) (Procedures). EGT would also implement its *Spill Prevention Control and Countermeasure Plan* (SPCC Plan) during construction to minimize hazards to the environment from any unplanned release of oils, toxic, hazardous, or other polluting materials to the air, soil, surface water, or groundwater.

Construction and restoration of the proposed Project would be conducted utilizing typical cross-country techniques, which include:

- environmental training for all construction personnel;
- environmental inspection during construction;

- minimizing the amount and duration of disturbed soil areas;
- installing and maintaining erosion control devices;
- use of specialized construction methods in sensitive areas (*e.g.*, wetlands, stream crossings, residential areas);
- establishing vegetation as soon as possible following construction; and
- performing restoration activities and monitoring until the right-of-way is stabilized.

1.5.1 General Pipeline Construction Procedures

EGT proposes to begin Project construction in March of 2014. Construction would take approximately 6 to 7 months to complete. EGT anticipates an in-service date of October 2014.

EGT plans to construct the Project employing standard pipeline construction techniques along the pipeline, which typically involve the following sequential operations: right-of-way survey, clearing and grading, trenching, stringing and welding, lowering and backfilling, hydrostatic testing, dust control, and restoration. The construction techniques described herein would be used unless site-specific conditions warrant special methods.

Right-of-Way Survey

Before the start of construction, land surveys would be finalized, the pipeline centerline and construction work space would be marked, and land or easement acquisitions would be addressed. Feature crossings and extra temporary workspaces (ETWSs) would also be marked. Typically, the construction right-of-way would be a nominal 65 to 75-feet wide for Line BT-39. Lines BT-40 and BT-41 would be constructed with a 50-foot-wide total construction right-of-way. Affected landowners would generally be notified at least 3 to 5 days before the start of construction unless earlier notice is requested in the easement negotiations.

Access to the construction right-of-way would be at designated points from existing public roads or by agreement with private landowners. Minor upgrading of existing, non-paved roads may be required to support construction equipment. This could include road surface grading, gravel installation, and tree trimming. New extensions from existing access roads to the construction right-of-way would require grading and gravel, and tree clearing in forested areas.

Clearing and Grading

Prior to the commencement of ground-disturbing activities, EGT's contractor would coordinate with the Arkansas One-Call system to have existing underground utilities (*i.e.*, cables, conduits, and pipelines) located, identified, and flagged to prevent accidental damage during pipeline construction. Once this process is completed, vegetation would be cut and cleared from the construction work area. Large obstacles, such as trees, rocks, brush, and logs would be removed. Timber would be removed only where necessary for construction purposes. Timber and other vegetative debris would be burned or otherwise disposed of in accordance with

applicable local regulations. Burning, if used, would be conducted in such a manner as to minimize fire hazard and prevent heat damage to surrounding vegetation. Fences would be cut and braced along the right-of-way, and temporary wire gaps or gates would be installed to control livestock and limit public access.

The cleared width within the right-of-way and temporary construction workspace would be limited to the workspace indicated on the alignment sheets or as subsequently approved by FERC to allow for spoil storage, staging, assembly of materials, and all other activities required to safely construct the pipeline. No disturbance would be allowed beyond the construction right-of-way limits, unless previously approved.

The construction workspace would then be rough graded where necessary, to create a reasonably level working surface to allow safe passage of equipment. In accordance with the FERC Plan, temporary erosion and sediment controls would be installed immediately after initial disturbance of the soils, where necessary, and would be maintained throughout construction to minimize erosion.

Trenching

Excavation of the pipeline trench would follow clearing and grading. The majority of the excavation would be accomplished using machinery such as rotary trenching machines, track-mounted backhoe, or similar equipment. The trench would be excavated to a depth sufficient to provide the cover required by DOT specifications. Typically, the trench would be deep enough to provide a minimum of three feet of cover over the pipeline. Additional trench width may be required to maintain stability of trench walls for the safety of pipeline workers and equipment. Where actively cultivated areas are present along the route at the time of construction, depth of cover would be increased, such that the top of the pipe is a minimum of four feet below existing grade. In agricultural and residential areas, subsoil would be stockpiled separately from topsoil. Generally, conserved topsoil and excavated soils would be stockpiled along one side of the right-of-way (the spoil side), allowing the other side (the working side) to be used for access, material transport, and pipe assembly. In limited instances, topsoil may be stockpiled along the edge of both sides of the construction right-of-way. Best management practices (*e.g.*, hay bales, straw waddles, or silt fence) would be used to contain sediment run-off from the soil piles, as necessary.

Although EGT does not expect blasting to be necessary, potential locations are portions of the right-of-way where shallow bedrock (less than 5 feet from the surface) occurs. Approximately 31 percent (9.06 miles) of the Project route has been identified as having shallow depth to bedrock. Depending on relative hardness, fracture susceptibility, and expected volume of the material, the rock would be removed using one of the following techniques:

- conventional excavation with a track hoe;
- ripping with a dozer followed by an excavator;
- hammering with a pointed track hoe attachment followed by an excavator; or

If it is determined during construction that blasting is needed, EGT would prepare a site-specific Blasting Plan, which we would review for approval prior to blasting activities.

Pipeline Stringing, Bending, and Welding

Once the trench is excavated, the pipe would be positioned along the side of the trench. Stringing involves initially hauling the pipe by tractor-trailer, generally in 40- to 60-foot lengths from the pipe storage yard, onto the right-of-way. The pipe would be off-loaded from the trucks and placed along the working side of the excavated trench (opposite the spoil side) in a single, continuous line easily accessible to construction personnel. The pipe joints would be lined up end-to-end to allow for welding into continuous lengths known as strings.

Most of the pipe would be delivered to the Project site in straight sections. Some bending of the pipe would be required to allow the pipeline to follow the natural grade changes and direction changes of the right-of-way. Selected joints may be bent at the factory prior to delivery, in accordance with engineering specifications. Other pipe joints would be field bent by track-mounted hydraulic bending machines, as necessary, prior to line-up and welding.

Following stringing and bending, the joints of pipe would be placed on temporary supports adjacent to the trench. The ends would be aligned carefully and welded together using multiple passes for a full penetration weld. All welds would be x-rayed to ensure structural integrity and compliance with the applicable DOT regulations. All welding would be performed in accordance with American Petroleum Institute Standard No. 1104 and EGT specifications. Welds that do not meet established specifications would be repaired or removed. Once the welds are approved, the welded joints would be coated with a protective coating, and the entire pipeline would be inspected visually and electronically for any faults, scratches, or other damage and inspected for coating defects. Any damage would be repaired before the pipe is lowered into the trench.

Lowering-In and Backfilling

Prior to lowering the pipe, the trench would be inspected to ensure that it is free of rocks and other debris that could damage the pipe or its coating. The pipe and trench would be inspected to ensure that the pipe and trench configurations are compatible, after which the completed section of pipe would be lifted off the temporary supports and lowered into the trench by side-boom tractors. After the pipe is lowered in, the trench would be backfilled with previously excavated materials using bladed equipment or backhoes. Where the previously excavated material contains large rocks or other materials that could damage the pipe or coating, clean fill or protective padding would be placed around the pipe prior to backfilling. Topsoil may not be used for pipeline padding. Following backfill, a small crown of material may be left over the pipeline to compensate for settling except in wetlands, where the crown could introduce hydrology issues, or paved areas, where standard compaction methods would be employed.

Hydrostatic Testing and Final Tie-In

After backfilling, EGT would hydrostatically test all new pipeline sections in accordance with 49 CFR 192 to verify the integrity of the pipeline prior to being placed in to service. Pipeline segments installed by horizontal directional drill (HDD) would be pre-tested prior to

installation. Test segments of the pipeline would be capped, filled with water, and pressurized. Any loss of pressure that cannot be attributed to other factors, such as temperature changes, would be investigated. Any leaks detected would be repaired and the segment retested. Upon completion of the test, the water may be discharged, or it may be pumped to the next segment for testing.

The primary water sources that would be used for hydrostatic testing include nearby private ponds, streams or municipal water. Water would be pumped from one of these surface water sources on or adjacent to the right-of-way, or brought in by truck to fill the pipe section being tested. The water would be sampled prior to discharge and tested in accordance with permit requirements to determine suitability for discharge. If treatment of hydrostatic test water is found to be required, treatment procedures would be implemented prior to discharge. If treatment is not required, test water would be discharged into a filtration structure (*e.g.*, certified weed-free hay/straw bales and silt fence), bag or by other means to reduce the velocity of the discharged water, and thereby reduce the potential for erosion. All water would be discharged in accordance with applicable permits.

Once a segment of pipe is successfully tested and dried, the test cap and manifold would be removed, and the pipe segment would be connected to the remainder of the pipeline. After completion of hydrostatic testing, the new pipeline would be cleaned and dried using pipeline pigs that are propelled through the pipeline with compressed air. Once cleaned and purged of air, the pipeline would be packed with natural gas.

Restoration and Revegetation

After the trench has been backfilled, work areas would be final graded and restored as closely as possible to preconstruction contours, in accordance with our FERC Plan and Procedures. Surplus construction material and debris would be removed and disposed of at appropriate disposal sites. If topsoil was segregated from the ditch soil, it would be replaced last, so that the organic and nutrient content of this soil layer is put back at the surface where it is able to promote rapid growth of vegetation. Re-establishment of vegetation would begin within six days of the completion of final grading, unless otherwise recommended by soil conservation authorities. In the event permanent restoration cannot take place due to wet or frozen soil conditions, EGT would implement a FERC-approved winter stabilization plan. To minimize future settling, the trench would be compacted using tracked construction equipment. Permanent erosion controls would be installed within the right-of-way, as needed, during the restoration phase. Private and public property, such as fences, gates, driveways, and roads, disturbed by the pipeline construction would be restored to original or better condition. Pipeline markers and/or warning signs would be installed along the pipeline centerline at specified intervals to identify the location of the pipe.

1.5.2 Specialized Pipeline Construction Procedures

Wetland Crossings

Construction across wetlands would be in accordance with the FERC Procedures, any modifications requested by EGT and approved by us and other applicable permits. The wetland

crossing methods and mitigation measures identified in the FERC Procedures would be followed to minimize the extent and duration of construction-related disturbance within wetlands.

Wetland boundaries would be clearly marked in the field prior to construction activities. Woody vegetation within the construction right-of-way would be cut off at ground level and removed from the wetlands, leaving the root systems intact. The pulling of tree stumps and grading activities would be limited to the area directly over the trench line, unless it is determined that safety-related construction constraints require grading or the removal of tree stumps from the working side of the construction right-of-way. Temporary erosion control devices would be installed, as necessary, immediately after initial disturbance of wetlands or adjacent upland areas to prevent sediment flow into wetlands and would be maintained until revegetation is complete. Trench plugs would be installed, as necessary, to maintain wetland hydrology. Construction equipment operating in wetland areas would be limited to that needed to clear the construction right-of-way, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction right-of-way.

Topsoil would be stripped from the area directly over the trench line to a maximum depth of 12 inches in unsaturated soils and stockpiled separately from the subsoil. The segregated topsoil will be restored to its original location immediately following installation of the pipe and backfilling of the trench. Materials, such as timber mats, placed in the wetlands during construction would be removed during final clean-up, and the preconstruction contours of the wetland will be restored. Any required permanent erosion control measures then would be installed, and disturbed areas within the wetland will be temporarily stabilized with a cover species, such as annual ryegrass, to protect the wetland soils from erosion. Wetland areas would be allowed to return to preconstruction conditions, using the original seed stock contained the in the conserved topsoil layer.

The specific crossing procedures used to install the pipeline across wetlands would depend on the degree of soil stability and saturation encountered during construction. Construction across unsaturated wetlands (those wetlands without standing water or saturated soils) that can support construction equipment would be conducted in a manner similar to the upland construction procedures described above. In areas that are proposed for conventional open ditch construction, but where site-specific conditions may not support construction equipment, a temporary work surface would be constructed (*e.g.*, timber or travel pads) to minimize disturbance to wetland hydrology and maintain soil structure. The push/pull method of construction may be used in inundated or saturated conditions where the soils and hydrology cannot support conventional pipe laying equipment or in areas that have significant quantities of water that would allow for pipe to be floated through the open ditch. With this method, construction and excavation equipment would work from temporary work surfaces, and a prefabricated pipeline segment would be pulled, pushed, or floated into position.

After the pipeline is weighted and installed, the trench would be backfilled with the spoil excavated from the wetland to provide a minimum cover depth of three feet. Contours would be returned as nearly as practicable to pre-existing conditions, and temporary construction mats would be removed. With the exception of farmed or inundated wetlands, wetland areas with permanent right-of-ways would be seeded with annual rye to minimize erosion as existing native vegetation becomes re-established. No lime or fertilizer would be used in wetlands.

Waterbody Crossings

All streams that would be crossed by the proposed facilities support warmwater fisheries and all but one are considered minor or intermediate waterbodies. EGT would cross perennial and intermittent waterbodies using conventional open-cut (wet) crossing or horizontal directional drill (HDD) techniques, provided there is perceptible flow at the time of crossing. Upland and agricultural swales, ditches, and other such conveyances would be crossed in compliance with our Procedures if water is flowing at the time of crossing, or if there is no flow at the time of crossing, using appropriate best management practices as determined by the Environmental Inspector (EI).

The open-cut crossing method entails trenching directly through the waterbody to sufficient depth to allow for required depth of cover (generally at least 60 inches for waterbody crossings). During these operations, flow will be maintained at waterbody crossings in accordance with the FERC Procedures. At each crossing, trench spoil will be placed on the bank above the high water mark and at least 10 feet from the water's edge for use as backfill. A prefabricated segment of pipeline would then be strung across the waterbody, with any joints welded in extra work spaces prior to stringing. The pipeline would be lowered into place with weights slung over it, if necessary, and the trench backfilled. In-stream construction activities would be limited to 24 to 48 hours depending on stream width, unless site-specific conditions make completion within that time infeasible. Equipment operating in the waterbody would be limited to that needed to complete construction of the pipeline. All other construction equipment would cross on an equipment bridge.

Dry crossing methods may be considered for this Project if warranted by site-specific conditions at the time of construction. The dry-crossing method would involve installation of either flume pipe(s), a dam and pump, or a combination of both prior to trenching (if flow is present) to divert the stream flow over or around the construction area and allow trenching of the stream crossing in drier conditions isolated from the stream flow. Spoil removed during the trenching would be stored away from the water's edge and protected by sediment containment structures. Trench excavation and pipeline installation would take place in the dewatered portion of the waterbody channel. Following completion of pipeline installation, backfill of the trench, and restoration of stream banks, the temporary dams would be removed, and flow through the construction work area would be restored.

To the extent possible, streambeds would be returned to their preconstruction contours, and stream and river banks restored to their preconstruction condition and allowed to re-vegetate in accordance with our Procedures. Periodic aerial and ground inspections of the rights-of-way would be conducted and further restoration measures implemented as necessary.

Alternatively, a horizontal directional drill (HDD) may be used for a dry crossing. EGT proposes to use HDD at eight locations, crossing a total of six waterbodies. HDD is a trenchless crossing method that typically is used to avoid direct impacts to sensitive resources (*e.g.*, waterbodies and wetlands) or infrastructure (*e.g.*, roads and railways) by directionally drilling beneath them. HDD installation would be carried out in three stages: (1) directional drilling of a small-diameter pilot hole; (2) enlarging the pilot hole (reaming) to a sufficient diameter to accommodate the pipeline; and (3) pulling the prefabricated pipeline, or pull string, into the

enlarged bore hole. Drilling fluid, consisting of bentonite clay and water, would be circulated through the bore during pilot hole drilling and the reaming process, then collected at the surface, processed to remove spoils, and reused. Excess spoils and drilling fluid would be disposed of at an approved location in accordance with regulatory requirements, agreements, and permit conditions. EGT would not use any potentially toxic drilling fluid additives. Table 1.5-1 summarizes the locations of the proposed HDDs for this Project.

TABLE 1.5-1

Proposed Horizontal Directional Drill Locations

Drill Location	Milepost		Length (feet)
	Entry	Exit	
HDD No. 1 - Hwy 64 and Railroad	0.29	0.38	475
HDD No. 2 - Tucker Creek	6.13	6.57	2,323
HDD No. 3 - Luker Lane and UNT to Beaverdam Creek	14.97	15.16	1,003
HDD No. 4 - Center Street and Railroad	16.23	16.32	475
HDD No. 5 - Tributary to Palarm Creek	17.31	17.67	1,892
HDD No. 6 - Palarm Creek	17.80	18.10	1,548
HDD No. 7 - Borrow Pit	18.47	18.73	1,373
HDD No. 8 - Interstate-40	20.56	20.87	1,637

For most of the proposed HDD crossings, electric-grid guide wires that are required to guide the drill bit (by way of electromagnetic sensors) would be hand-laid along the pipeline right-of-way to help guide the drill bit along the predetermined HDD route. In thickly vegetated areas, a line approximately 2 to 3 feet wide may be cut using hand tools to lay these electric-grid guide wires, resulting in minimal ground and vegetation disturbance. No large-diameter vegetation would be cut to install the guide wire.

Although the HDD method typically avoids impacts on water quality by precluding disturbance of the waterbody bed and banks, an inadvertent release of drilling fluid (sometimes referred to as a "frac-out") could occur if drilling fluids escape the drill bore hole and are forced through the subsurface substrate to the ground surface. Frac-outs occur most often in highly permeable soils during the entrance and exit phases of the pilot hole drill, because this is when the greatest pressures are exerted on the bore walls in shallow soils. In order to minimize potential impacts of inadvertent releases of drilling fluid, EGT has prepared and filed a Directional Drilling Contingency Plan (DDCP). The DDCP describes the procedures that would be used to monitor, contain, and clean up any potential releases of drilling fluid. Implementation of the procedures described in the DDCP would minimize the impacts of any inadvertent release of drilling fluid.

Agricultural Areas

Where agricultural areas are present at the time of construction, EGT would implement special construction procedures to minimize impacts in agricultural land in accordance with the FERC Plan. EGT would perform topsoil segregation in actively cultivated agricultural lands, which include permanent or rotated croplands, hayfields, or improved pastures, and in other areas at the request of resource agencies or landowners. During construction, the natural flow patterns of fields would be maintained by providing breaks in topsoil and subsoil stockpiles.

During cleanup and restoration, disturbed areas would be finish-graded and restored as closely as possible to preconstruction contours. The topsoil and subsoil in agricultural areas also would be tested for compaction, and any severely compacted areas would be repaired. Prior to construction, landowners would be contacted to locate existing drainage structures and irrigation facilities. Water flow in crop irrigation systems would be maintained, unless shutoff is coordinated with the affected parties.

Residential Areas

Construction near residential areas would be conducted to ensure that construction activities minimize any adverse impacts on residences and that cleanup is quick and thorough. Where there are residences in close proximity to the construction work space, EGT would reduce pipeline offset or construction work space areas, as practicable, to minimize inconvenience to property owners. If construction requires the removal of private property features, such as gates or fences, the landowner or tenant would be notified prior to the action. Following completion of major construction, the property would be restored as requested by the landowner, insofar as the landowner's requirements are compatible with EGT's standards regarding right-of-way restoration and maintenance. Property restoration would be in accordance with any agreements between EGT and the landowner.

Steep or Rugged Terrain

Construction of some portions of the proposed Project may require specialized "two-tone" construction techniques to establish safe working conditions. Under the two-tone construction technique, the uphill side of the construction right-of-way would be cut during grading. The material removed from the cut would be used to fill the downhill side of the construction right-of-way to provide a safe and level surface from which to operate heavy equipment. The pipeline trench then would be excavated along the newly graded right-of-way. For two-toned rights-of-way, the height of the construction (side) tone is usually as close to the height of the ditch as possible and the travel tone would be higher or lower than the height of the construction tone, depending on the area's natural grade. The two-tone approach would be used to reduce the amount of dirt and rock that would be moved and the associated environmental impacts. Following backfill and final grading, the original contours would be restored as near as practicable and stabilized, following the FERC Plan and Procedures.

Road, Railroad, and Utility Crossings

Construction of the Project would temporarily impact existing transportation corridors including public and private roadways, railroads, and utilities. Depending on the feature being crossed, EGT would complete the crossing using a variety of construction methods including the standard open-cut method, conventional bore method, or HDD. Construction of the pipeline across Highway 64/Railroad, Luker Lane, Center Street/Railroad, and Interstate 40 would be conducted by HDD. Construction across other major paved highways, along which traffic cannot be interrupted, would be accomplished by conventional bore under the roadbed. To complete a conventional bore, a pit would be excavated on each side of the road or railroad to provide working areas for the equipment. A boring machine would be lowered into one pit, and a horizontal hole would be bored to a diameter equal to the diameter of the pipe (or casing if

required) at the depth of pipeline installation. The pipeline section and/or casing would then be pushed through the borehole to the opposite pit. If additional pipeline sections are required to span the length of the borehole, they would be welded to the first section of the pipeline in the bore pit before being pushed through the borehole.

Pipeline crossings of lightly traveled paved, unimproved rural roads, and drives typically will be accomplished by conventional, open-cut installation, then restored to preconstruction condition. The pipeline would be buried to a depth of at least five feet below the road surface and would be designed to withstand anticipated external loadings. The open-cut technique would require temporary closure of these roads, and implementation of detours should an open-cut road require extensive construction time. If no reasonable detour is feasible, at least one traffic lane would be maintained, except for brief periods essential to laying the new pipeline. Construction disturbance at each open-cut road crossing typically would be completed in one day, which is not expected to have a significant impact on local traffic patterns. Where Project construction crosses roads that access private residences and no alternative entrances exist, access for landowners would be maintained during construction. Attempts would be made to avoid temporarily closing roads during construction at peak traffic time periods. Existing power line and pipeline rights-of-ways would be crossed by methods acceptable to the facility operator.

Prior to construction, EGT's contractors would contact the "Call Before You Dig" or "One Call" system to verify and mark all utilities along the Project workspaces to minimize the potential for damage to other buried facilities in the area.

Blasting

No blasting is anticipated for this Project. In the unlikely event that blasting would be necessary to excavate the trench, EGT would prepare a site-specific Blasting Plan that addresses blasting activities in accordance with pertinent regulations. Care would be taken to prevent damage to underground structures (*e.g.*, cables, conduits, and pipelines) or to springs, water wells, or other water sources. Blasting mats or soil cover would be used, as necessary, to prevent the scattering of loose rock. Any blasting would be conducted during daylight hours and would not begin until occupants of nearby buildings, stores, residences, or places of business have been notified.

1.5.3 Requested Deviations from the FERC Plan and FERC Procedures

EGT proposes to incorporate all of the measures of our Plan and Procedures; no deviations are requested.

1.5.4 Environmental Training

Consistent with FERC guidelines, environmental training would be given to EGT's personnel and to contractor personnel whose activities may impact the environment during pipeline construction. The level of training would be commensurate with the type of duties of the personnel. All construction personnel from the chief inspector, EI, craft inspectors, and contractor job superintendent to loggers, welders, equipment operators, and laborers would be given the appropriate level of environmental training. The training would be given prior to the start of construction and throughout the construction process, as needed. The training program

would cover job-specific permit conditions, company policies, and the environmental permit conditions issued for the Project. In addition to the EIs, all other construction personnel are expected to play an important role in maintaining strict compliance with all permit conditions to protect the environment during construction.

1.5.5 Environmental Inspection

EGT would employ at least one EI to monitor environmental compliance during all phases of construction. The EI(s) would be responsible for assuring that the measures contained in the FERC Plan and Procedures and any other environmental permit conditions or agreements are followed during construction. He/she would have peer status with other activity inspectors and would have stop-work authority in the event that violations of environmental conditions of the Certificate, state or Federal environmental permit conditions, or landowner requirements occur, and authority to order appropriate corrective action. Other specific responsibilities of the EI include:

- verifying that the limits of authorized construction work areas, locations of access roads, and boundaries of sensitive resource areas are visibly marked before clearing and maintained throughout construction;
- identifying erosion/sediment control and stabilization needs and ensuring that proper controls are installed and maintained;
- ensuring that topsoil and subsoil are separated in agricultural, residential and wetland areas, and that they are tested for compaction following restoration in agricultural and residential areas;
- verifying that trench dewatering activities are properly monitored and do not result in deposition of sediment into sensitive environmental resource areas, including wetlands, waterbodies, cultural resource sites, and sensitive habitats; and
- advising the Chief Construction Inspector when environmental conditions (such as wet weather or frozen soils) make it advisable to restrict or delay construction activities to avoid topsoil mixing or excessive compaction.

Construction contractors employed by EGT would be required to observe and comply with federal, state, and local laws, ordinances, and regulations that apply to the conduct of their work. Contractors must also comply with Minimum Federal Safety Standards adopted by the DOT under the Natural Gas Pipeline Safety Act of 1968, as well as EGT safety standards. The EGT pipeline system would be owned, operated, and maintained by EGT in accordance with the requirements of the DOT.

1.5.6 Operation and Maintenance

EGT would operate and maintain the proposed Project pipelines in compliance with the DOT regulations provided at 49 CFR 192, the Commission's guidance at 18 CFR 380.15, and

maintenance provisions of the FERC Plan and Procedures. Operational activity on the pipeline would be limited primarily to maintenance of the right-of-way and inspection, repair, and cleaning of the pipeline itself.

Periodic aerial and ground inspections by pipeline personnel would identify soil erosion, which may expose the pipe, conditions of the vegetative cover and erosion control measures, unauthorized encroachment on the right-of-way, such as buildings and other substantial structures, and other conditions that could present a safety hazard or require preventative maintenance or repairs. The pipeline cathodic protection system would be monitored and inspected periodically to ensure adequate corrosion protection. Appropriate responses to conditions observed during inspection would be taken, as necessary.

Vegetation on the permanent right-of-way would be maintained by mowing, cutting, and trimming. The right-of-way would be allowed to revegetate; however, large brush and trees would be removed periodically, because trees or deep-rooted shrubs could damage the pipeline's protective coating, obscure periodic surveillance, or interfere with potential repairs. In wetlands and in the required 25-foot vegetation maintenance buffer adjacent to waterbodies, only a 10-foot strip centered on the pipeline would be mowed. In addition, any trees that are located within 15 feet of the pipeline in wetlands and have roots that could compromise the integrity of the pipeline coating would be cut and removed from the right-of-way. The frequency of vegetation maintenance would depend upon the vegetation growth rate, but vegetation maintenance would not be performed more frequently than allowed by the FERC Plan.

The pipeline facilities would be marked clearly at crossings of roads, railroads, and other key points. The markers would indicate clearly the presence of the pipeline and provide a telephone number and address where a company representative can be reached in the event of an emergency or prior to any excavation in the area of the pipeline by a third party. EGT is a member of the One-Call and related pre-excavation notification organizations in the states in which it operates.

1.6 LAND REQUIREMENTS

Construction of the proposed Project would affect approximately 350.43 acres of land, including the pipeline TWS and ETWS, TWS for aboveground facilities, access roads, and pipeyards/wareyards. Following construction, approximately 251.39 acres (including TWS, ETWS, pipeyards/wareyards, and temporary construction buffers around aboveground facilities) would be allowed to revert to pre-construction condition and use. The remaining approximately 99.04 acres would be maintained as permanent pipeline easement, aboveground facilities, and new permanent access roads required for operation of the aboveground facilities. Table 1.6-1 summarizes the construction and operational land requirements for the proposed Project.

TABLE 1.6-1

Central Arkansas Pipeline Enhancement Project Facilities And Land Requirements

Facility	Approximate Mile Post		Length (miles)	Land Requirements (acres)	
	Begin	End		Construction [1]	Operation [2]
BT-39 Pipeline					
Pipeline ROW	0.00	28.50	28.5	243.84	137.94
ETWS	Various	Various	N/A	29.52	0.00
		Subtotal BT-39 Pipeline		**273.36**	**137.94**
BT-40 Pipeline					
Pipeline ROW	0.00	0.04	0.04	0.21	0.12
ETWS	Various	Various	N/A	N/A	N/A
		Subtotal BT-40 Pipeline		**0.21**	**0.12**
BT-41 Pipeline					
Pipeline ROW	0.00	0.27	0.27	1.55	0.95
ETWS	Various	Various	N/A	0.04	0.00
		Subtotal BT-41 Pipeline		**1.59**	**0.95**
Access Roads					
Line BT-39	Various	N/A	17.68	42.86	0.76
Line B	Various	N/A	4.84	11.70	0.00
		Subtotal Access Roads		**54.56**	**0.76**
Aboveground Facilities					
Hwy 64 TBS	0.0	N/A	N/A	0.29	0.23
Bryant Road TBS	7.75	N/A	N/A	0.33	0.23
Highway 365 TBS	17.17	N/A	N/A	0.40	0.28
Morgan TBS[3]	23.62	N/A	N/A	0.34	0.13
James Road TBS	27.43	N/A	N/A	0.33	0.13
Oak Grove TBS[3]	28.50	N/A	N/A	1.74	1.74
Shoemaker Road TBS (Line BT-14)[3]	122.76	N/A	N/A	0.18	0.18
		Subtotal Aboveground Facilities		**3.61**	**2.96**
Pipe/Contractor Yard					
Pipe/Contractor Yard #1	14.82	14.97	N/A	5.50	0.00
Pipe/Contractor Yard #2	N/A	N/A	N/A	2.07	0.00
Pipe/Contractor Yard #3	N/A	N/A	N/A	2.07	0.00
		Subtotal Pipe/Contractor Yard		**9.64**	**0.00**
Retirement Work Areas					
TBS Sites (7 locations)	N/A	N/A	N/A	0.72	0.00
Road/Railroad Crossing Sites	N/A	N/A	N/A	5.05	0.00
Other Sites[4]	N/A	N/A	N/A	2.30	0.00

TABLE 1.6-1

Central Arkansas Pipeline Enhancement Project Facilities And Land Requirements

Facility	Approximate Mile Post		Length (miles)	Land Requirements (acres)	
	Begin	End		Construction [1]	Operation [2]
Subtotal Retirement Work Areas				**8.07**	**0.00**
Project Totals				**351.04**	**142.73**

[1] Construction acreages reflect a nominal 65- to 75-foot-wide construction ROW for Line BT-39 and a 50-foot-wide construction ROW for Lines BT-40 and BT-41, except in areas encompassed by horizontal directional drill (HDD) crossings, which will not require clearing of a construction ROW between the HDD entrances and exits. Construction impacts include both temporary and permanent (operational) impacts.

[2] Operation acreages reflect a nominal 40-foot-wide permanent easement for Line BT-39 and a 20-foot-wide permanent easement for Lines BT-40 and BT-41. This total includes approximately 8.67 acres of permanent easement that will be retained in areas encompassed by HDD crossings; however, these areas will not require routine maintenance.

[3] Expansion/modification of existing aboveground facility.

[4] Other Sites include minor aboveground facilities to be removed, including rural extensions, domestic taps, master meters, and block valves.

N/A – Not Applicable

1.6.1 Pipeline Facilities

EGT would construct the proposed Line BT-39 pipeline using a nominal 65 to 75-foot-wide construction right-of-way, composed of a 40-foot-wide permanent easement and a 25- to 35-foot-wide temporary construction right-of-way. Lines BT-40 and BT-41 would be constructed with a 50-foot-wide total construction right-of-way, consisting of a 30-foot-wide permanent easement and a 20-foot-wide temporary construction right-of-way.

Following construction, the temporary construction right-of-way would be allowed to revert to preconstruction conditions and uses, and the permanent easement would be maintained as new pipeline right-of-way. In wetlands, a 10-foot strip centered on the pipeline would be maintained as the permanent easement for operation. In addition, trees located within 15 feet of the pipeline with roots that may compromise the integrity of the pipeline coating would be cut and removed from the right-of-way.

EGT anticipates that the construction right-of-way, along with the ETWS and access roads, would provide the workspace needed to construct the proposed pipeline safely and efficiently.

Collocation

Approximately 62 percent (17.5 miles) of the Project would be located adjacent to or overlapping with existing utility easements and/or maintained fire breaks (*i.e.*, along the perimeter of Camp Robinson; see section 2.5.2). Collocation with an existing easement would minimize environmental impacts associated with creation of a new right-of-way compared to a "greenfield" pipeline; however, siting a natural gas pipeline directly within existing pipeline and electric transmission line rights-of-way could pose constructability, safety and operational concerns. For these reasons, EGT proposes to abut, rather than overlap, the existing electric transmission line right-of-way, thereby balancing the need to minimize environmental impacts

with the need to provide for safe and efficient pipeline construction and operation. EGT indicated it would investigate the possibility of using some of the unused portions of the electric transmission line right-of-way as temporary workspace to further minimize impacts on abutting landowners.

1.6.2 Extra Temporary Workspace

In addition to the construction right-of-way, ETWS typically would be required to facilitate construction at public road crossings; at wetland and waterbody crossings; in areas with steep side slopes; for storage of segregated topsoil; at crossovers and tie-ins; and for staging and fabrication of pipeline sections. ETWS also may be required when special construction techniques will be utilized. For the proposed Project, ETWS would be necessary for the proposed HDDs, and to provide additional space for construction in hilly terrain. During construction, approximately 29.56 acres would be impacted temporarily by ETWS associated with pipeline construction. Following construction, ETWS would be restored to preconstruction use, or as negotiated with the landowner.

1.6.3 Pipe Storage and Contractor Yards

Table 1.6-2 presents the land requirements for currently identified pipe/contractor yards proposed for temporary use during construction. Construction of the proposed Project would require the temporary use of existing agricultural land for pipe and contractor yards, totaling approximately 9.60 acres, which are shown on USGS Quadrangle maps located in Appendix A.

The pipe storage/contractor yards would be used for equipment, pipe, and material storage, as well as temporary field offices and pipe preparation/field assembly areas. The sites would require only minor modifications to the existing land use. To support equipment laydown and vehicle traffic, a portion of the yards may be graveled, and a temporary security fence may be installed. Use of these areas would be temporary. Following construction, the graveled area would be restored to preconstruction use, or as negotiated with the landowner. Construction and restoration measures within the temporary pipe storage/contractor yards would be conducted in accordance with the FERC Plan and Procedures.

TABLE 1.6-2

Pipe/Contractor Ware Yards Associated with the Project

Yard Name	County	Nearest Milepost	Existing Land Use	Acreage
Pipe/Contractor Yard #1	Faulkner	14.82	Agricultural	5.50
Pipe/Contractor Yard #2	Faulkner	5.75	Agricultural	2.07
Pipe/Contractor Yard #3	Faulkner	16.40	Agricultural	2.07

1.6.4 Aboveground Facilities

In addition to the proposed pipelines, EGT would install or modify six aboveground facility sites along the new Line BT-39, BT-40, and BT-41 pipelines, as well as modify an existing aboveground facility site along EGT's existing Line BT-14. These aboveground facilities are all Town Border Stations (TBS), as described in section 1.3 above. Construction

and operation of the aboveground facilities would impact approximately 3.61 acres, of which approximately 2.96 acres would be permanently impacted during operation. Plot plans depicting the layout of these TBS sites are provided in Volume III of EGT's application.

1.6.5 Access Roads

To the extent feasible, existing public and private road crossings along the proposed Project would be used as the primary means of accessing the right-of-way. In addition to the existing access available by the use of public roads, EGT proposes to use 67 access roads, totaling 43.01 acres, to provide access to the proposed pipeline rights-of-way and aboveground facilities during construction. Of these, 65 roads are temporary access roads to obtain access to the construction rights-of-way; one (1) is a new, permanent road constructed to provide permanent access to the Bryant Road TBS; and one (1) is an existing, permanent road that provides access to the existing Oak Grove TBS. Associated with the Line B retirement activities, EGT proposes to use 37 access roads, encompassing approximately 11.68 acres, to provide temporary access to the proposed retirement work areas during construction. Minor upgrading of existing, non-paved roads may be required to support construction equipment. This may include blading or grading the road surface, installation of gravel or rock, culvert replacement, and/or tree trimming.

Appendix B-2 provides a list of access roads to be used during construction of the Project and identifies those access roads that would require improvements. During construction, approximately 54.56 acres would be impacted temporarily by the use of access roads. Following construction, use of the permanent access road would impact approximately 0.76 acre.

1.6.6 Retirement Work Areas

As part of the Project, EGT would retire some existing pipeline assets (Line BM-1 and portions of Line B and BM-21), and EGT would transfer ownership of a segment of Line BT-14 and the entirety of Line BT-19 to its distribution affiliate, as outlined in sections 1.1 and 1.3 above. In general, abandonment of the existing pipeline facilities would require minimal ground disturbance at each of the locations where the pipeline would be cut, capped, and grouted (estimated at an approximately 50-foot by 50-foot work area), and all such ground disturbing activities would be confined to EGT's existing and maintained right-of-way. Approximately 8.07 acres would be used temporarily during construction; there would be no permanent impact.

1.7 PERMITS, APPROVALS AND CLEARANCES

EGT would obtain applicable permits and approvals relating to the placement of the pipeline across or under roads, drainage facilities, waterbodies, wetlands and through other sites or places for which a governmental license or permit may be required. Table 1.7-1 lists the permits and consultations that are applicable to the proposed Project.

TABLE 1.7-1

Permits/Approvals/Consultations Required for the Project

Agency	Permit/Approval/Consultation	Consultation Date (Anticipated Filing)	Authorization Date (Anticipated Approval)
FEDERAL			
Federal Energy Regulatory Commission (FERC)	Certificate of Public Convenience and Necessity under Section 7(c) of the Natural Gas Act; 60-day Prior Notice	(October 2013)	(February 2014)
U.S. Army Corps of Engineers (USACE) – Little Rock District	Clean Water Act (CWA) Section 404 Permit	(October 2013)	(December 2013)
U.S. Fish and Wildlife Service (USFWS) – Conway Ecological Services Field Office	Consultations under Section 7 of the Endangered Species Act (ESA); the Migratory Bird Treaty Act, Bald and Gold Eagle Protection Act, and the Fish and Wildlife Coordination Act	April 2013 – information request June 2013 – informal consultation	June 2013 – Not likely to adversely affect any federally listed species, nor have significant impacts on any non-listed species
U.S. Environmental Protection Agency (USEPA) – Region 6	Compliance with Sections 401, 402, and 404 of the CWA. Water quality certification authority has been delegated to the state.	N/A	N/A
ARKANSAS			
Arkansas Department of Environmental Quality (ADEQ)	CWA Section 401 Water Quality Certification	(October 2013)	(December 2013)
	Hydrostatic Test Water Discharge General Permit (NPDES General Permit ARG670000)	(February 2014)	(April 2014)
	Short Term Activity Authorizations for in-stream construction activities	(February 2014)	(March 2014)
Arkansas Natural Resources Commission (ANRC)	Notifications regarding surface water withdrawals	(Not anticipated)	(Not anticipated)
Arkansas Natural Heritage Commission (ANHP)	Consultations regarding special status species and habitats, and referral to Camp Robinson	October 2012 – ANHC consult August 2013 – Camp Robinson consult	October 2012 – ANHC August 2013 – Camp Robinson
Arkansas Historic Preservation Program (AHPP)	Consultations under Section 106 of the NHPA	February 2013 – initial consult August 2013 – survey report submittal	(September 2013)
Native American Tribes	Tribal Consultation	December 2012	N/A

1.8 PUBLIC INVOLVEMENT

As part of its public outreach efforts, EGT mailed notification letters to landowners and to government and agency officials, and notified the general public of the Project, inviting them to attend an open house. Notifications of the open house were also published in the local newspapers. The open house provided attendees the opportunity to learn about the Project, ask questions, and express concerns. This process also allowed EGT to work with stakeholders to address concerns prior to filing its Certificate application with FERC and other federal and state applications. EGT held the Open House meeting during the evening hours to accommodate working landowners on May 21, 2013 at Brewer-Hegeman Conference Center, University of Central Arkansas, in Conway, AR.

Affected landowners were notified as required by the FERC regulations at 18 CFR 157.6 (8)(d). During the development of this Project, EGT has worked with affected landowners to answer their questions and has evaluated, and in some instances adopted, route modifications based on landowner requests. On May 29, 2013, the FERC issued a "Notice of Intent to Prepare an Environmental Assessment for the proposed Project and Request for Comments on

Environmental Issues" (NOI). The NOI was published in the Federal Register and was also mailed to XXX interested parties including federal, state, and local officials; agency representatives; conservation organizations; Native American groups; local libraries and newspapers; and property owners affected by the proposed Project. The NOI provided a summary of the Project, outlined our NEPA-required environmental review process, and provided a list of the then currently identified environmental issues. This document also requested written comments from the public on specific concerns about the proposed Project or issues that should be considered during preparation of the EA. In addition, we attended the Open House meeting held by EGT. As a result of this meeting and in response to the NOI, we received five written comment letters; two from federal and state agencies and three from individuals (see table 1.8-1). These scoping comments are addressed in this EA.

Comments received from open house attendees generally included such items as requests for clarification of the proposed pipeline alignment/workspace locations, evaluation of site specific route modifications, and reductions in construction or permanent right-of-way widths. Most open house attendees requested to see the location of the proposed Project pipeline in relation to their property.

TABLE 1.8-1

Summary of the Scoping Comments Associated with the Project

Comment Number	Submitted By	Comment Filing Date	Subject
1	Arkansas Department of Health	6/21/2013	Staff review resulted in no comment.
2	Homeowner	6/25/2013	Concerned for trees and water well on property. Requested consideration of other alternatives.
3	Homeowner	6/26/2013	Concerned for loss of income and erosion from tree removal, and impact of rocks in garden, placement of meter station. Concerned with actions of land agents and that open house did not offer list of affected landowners or time for landowners to congregate and discuss the project.
4	Homeowner	7/1/2013	Disagrees with eminent domain. Requested consideration of other alternative and co-location with electric transmission lines.
5	Osage National Historic Preservation Office	7/3/2013	Would like to review and comment on the Draft Environmental Assessment and cultural reconnaissance survey report.

This EA addresses the concerns raised by stakeholders since the commencement of the NEPA process. Stakeholders will have 30 days to comment on the EA, which will be considered in the Commission's decision. We believe a 30-day comment period provides ample opportunity for stakeholders to comment on the EA.

1.9 FUTURE EXPANSION AND ABANDONMENT PLANS

Portions of EGT's existing Line B and BM-21 pipelines, as well as the entirety of EGT's existing Line BM-1, would be retired in association with the Project, and ownership of a segment of Line BT-14, as well as the entirety of EGT's Line BT-19, would be transferred to EGT's distribution affiliate, CERC. With these exceptions, EGT has no foreseeable plans for future expansion or abandonment of the proposed Project facilities described in these Resource Reports. At the end of the useful life of the proposed facilities, EGT would obtain the necessary

permission to retire them. If future expansion of the proposed Project would be required, EGT would seek the appropriate authorizations from FERC. Abandonment of the pipeline facilities would be subject to the approval of FERC under Section 7(b) of the NGA and must comply with DOT regulations and specific agreements or stipulations made for the pipeline right-of-way. An environmental review of any proposed abandonment would be conducted when the application is filed with FERC.

2.0 ENVIRONMENTAL ANALYSIS

2.1 GEOLOGY AND SOILS

2.1.1 Geology

Geologic Setting

The proposed Project is located in the Arkansas Valley section of the Ouachita Physiographic Province of the Interior Highlands Physiographic Region (USGS, 2011a). The Ouachita Physiographic Province is characterized by long collinear ridges and intervening valleys (USACE, 2001). The Arkansas Valley section ranges from 30 to 50 miles in width and consists of a synclinorium of open-folded, sedimentary rocks. Total relief is about 2,400 feet, encompassing low-lying areas along the floodplain of the Arkansas River to the highest points in the Arkansas Valley approximately 2,800 feet above mean sea level (USACE, 2001).

The Arkansas Valley is dominated by slightly reworked Pennsylvanian (318 to 299 million years ago) clastic sediments deposited on the margin of a continental shelf (Arkansas Geological Survey (AGS), 2011a). Structurally, the area is made up of broad synclines with relatively narrow intervening anticlines. The axes of these folds generally trend east-west. Most of the observed faulting is normal, but some thrust faults are noted, associated with the anticlines in the southern part of the Ouachita Physiographic Province. The synclines are often the most conspicuously present positive topographic features, formed from more rapid erosion of underlying shales once capping sandstones were breached on the crests and flanks of the surrounding anticlines (AGS, 2011a). The area is cut off to the east by the Gulf Coastal Plain and Mississippi Embayment (AGS, 2011b).

The predominant unconsolidated surficial geologic units in the Project area consist of alluvial deposits derived from sandstones and shales found near streams and the Arkansas River. The deposits consist of gravels, sands, silts, clay, and mixtures of these materials. Deposits identified as Quaternary alluvium are associated with present waterbodies. Quaternary terrace deposits are found on one or more terrace levels.

Blasting

Approximately 16.88 miles (58 percent) of the soils to be crossed by the proposed Project are underlain by soils with bedrock at depths of less than 60 inches. EGT does not expect that blasting would be required. Approximately 8.34 miles of this bedrock is considered soft and can be excavated mechanically. There is hard (lithic) bedrock under approximately 8.54 miles of the pipeline at depths of 60 in. or less that can likely be handled through mechanical excavation. The remainder of the pipeline route does not cross areas of shallow bedrock. Should blasting be required, EGT would prepare a Blasting Plan that outlines the blasting procedures and safety measures that would be implemented during construction of the proposed Project.

Mineral Resources

Mineral resources in Arkansas consist predominantly of industrial minerals, including crushed stone, bromine, portland cement, sand and gravel (construction), and lime (USGS, 2010a; AGS, 2011c). Natural gemstones (mostly diamonds) constitute a very minor component of Arkansas' mineral output (USGS, 2010a). No active gravel pits, quarries, mines, or oil and gas wells were identified within 0.25 mile of the proposed Project route (Arkansas Oil and Gas Commission, 2013; Arkansas Department of Environmental Quality, 2013).

The State of Arkansas has a history of metals mining; however, no metal has been made from any ore mined in Arkansas since 1990. No ore mines were identified near the Project area.

Coal is a significant fuel mineral resource in Arkansas but has not been mined commercially in Faulkner or Pulaski Counties. Similarly, oil and natural gas are fuel minerals found in Arkansas. The Project is located to the south of the nearest natural gas field, the Fayetteville Shale.

No active mining or mineral resource areas were identified within 2,500 feet of the aboveground facilities.

Based on review of available data, there are no active gravel pits, quarries, mines, or oil and gas wells located within 0.25 mile of the proposed Project route (Arkansas Oil and Gas Commission, 2013; Arkansas Department of Environmental Quality, 2013). Therefore, we conclude that construction and operation of the Project would not restrict or significantly impact current or future mining operations in the area.

Geologic Hazards

Geologic hazards are naturally occurring or man-made geologic conditions or phenomena that present a risk or are potentially dangerous to life and/or property. Such hazards typically include seismicity (*e.g.*, earthquakes, surface faults, and soil liquefaction), landslides, flash flooding, karst topography, and ground subsidence. Conditions necessary for the development of other geologic hazards, including regional subsidence, avalanches, and volcanism, are not present in the Project area.

The aboveground facilities, pipe storage and contractor yards, and access roads would be located in the same general vicinity of the pipeline segments. Construction activities at the majority of these facilities would be largely confined to previously disturbed areas and would not create an increased threat from geologic hazards.

Earthquakes and Seismicity - Earthquakes are measured by both their magnitude and intensity. Magnitude measures the energy released at the source of the earthquake and is determined from measurements on seismographs. The magnitude of a seismic event is most commonly measured by the Richter Magnitude Scale, where the magnitude of the event is expressed in whole numbers and decimals. The scale runs from 1.0 to 8.0+, with 5.0 being considered a moderate event, 6.0 a strong event, 7.0 a major earthquake, and 8.0 or greater a devastating earthquake. Events with a magnitude less than 3.0 generally are considered imperceptible to most persons in most situations (USGS, 2010b). Intensity measures the strength

of shaking produced by the earthquake at a certain location and is determined from effects on people, human structures, and the natural environment. For example, an intensity of VI on the Modified Mercalli Intensity Scale is felt by all, with some heavy furniture moved and slight damage, while an intensity of VII results in negligible damage to buildings of good design and construction, slight to moderate damage in well-built ordinary structures, and considerable damage in poorly built or badly designed structures. Earthquakes of a magnitude of 5.0 to 5.9 typically result in a Mercalli intensity of VI to VII (USGS, 2010b).

Most earthquakes that occur in the U.S. are located in the tectonically active western portion of the U.S., primarily in California and Alaska. Areas of the eastern U.S. also experience significant seismic activity, although at lower rates. Earthquake activity in the eastern U.S. has included large earthquakes, such as the 1811-1812 New Madrid earthquakes that occurred in Missouri and Arkansas, and the 1886 Charleston, South Carolina, earthquake. The New Madrid series of earthquakes resulted in the creation of Lake Saint Francis, a 40-mile-long, half-mile-wide lake in northeast Arkansas. Since the New Madrid series of earthquakes, Arkansas has experienced a significant number of low-intensity shocks, including the New Year's Day tremor of 1969, which was centered about 19 miles northwest of Little Rock, very near Conway. Since 1973, more than 100 earthquakes of magnitude 5.0 or larger have been recorded within 200 miles of Conway (USGS, 2011c).

The Enola Swarm Area, a seismically active area, is located approximately 17 miles east-northeast of the Project area. This area has experienced more than 40,000 seismic events since the first was recorded in 1982. The largest event was a magnitude 4.5 earthquake in January 1982, which produced an event with a Modified Mercalli Intensity of IV in Conway (Ausbrooks and Doerr, 2009). This seismically active area appears to be unrelated to the New Madrid seismic zone (Ausbrooks and Doerr, 2007a). All reported seismic events in Faulkner and Pulaski Counties have been located at least 12 miles from the Project Area, and most were recorded in the Enola Area (Ausbrooks and Doerr, 2007b).

Faulkner and Pulaski Counties are located in the New Madrid Seismic Zone Catastrophic Planning area, as designated by the Federal Emergency Management Agency (FEMA) and Arkansas Department of Emergency Management. The goal of the New Madrid Seismic Zone Catastrophic Planning Project is to increase national readiness for a catastrophic earthquake in the New Madrid Seismic Zone (NMSZ). Catastrophic Response and Recovery Plans produced by the NMSZ Catastrophic Planning Project provide emergency response procedures and integrated recovery mechanisms (Central United States Earthquake Consortium, 2013).

The Project area is located in UBC Seismic Zone 1, where earthquake activity is considered to be minor (Disaster Center, 2013). However, the New Madrid Seismic Zone covers the northeastern portion of Arkansas and is associated with high seismic activity and risk. A recently discovered fault located in Marianna, Arkansas, is also associated with high seismic risk (National Geographic, 2009). Modeling by the Arkansas Office of Emergency Services (AOES) suggests that a large magnitude (7.0 – 7.9 on the Richter Scale) earthquake in the New Madrid seismic zone would be felt by all inhabitants of Faulkner and Pulaski Counties and could result in minor structural damage to a small number of structures. A larger earthquake (8.0 – 8.9 on the Richter Scale) in the New Madrid seismic zone could result in moderate structural damage to a small number of structures (AOES, 1992).

Based on the linear distance of the proposed Project from active fault zones (>100 miles), seismically active areas, and the overall geologic setting of the Project area, the geologic hazard associated with seismicity and faulting is considered to be of relatively low risk to the Project.

Soil Liquefaction - Soil liquefaction is a phenomenon often associated with seismic activity in which saturated, non-cohesive soils temporarily lose their strength and liquefy (*i.e.*, behave like viscous liquid) when subjected to forces such as intense and prolonged ground shaking. In the event that an earthquake were to occur in the vicinity of the proposed Project, unconsolidated, saturated, sandy sediment would be most prone to soil liquefaction. Areas within the Project footprint that are underlain by competent rock would be expected to be much less susceptible to soil liquefaction than the unconsolidated Quaternary age alluvium and terrace deposits. These areas are classified by the Arkansas Geological Survey as having a very low susceptibility to soil liquefaction. The Quaternary age alluvium and terrace deposits associated with the Arkansas River and its tributaries are classified by the Arkansas Geological Survey as having a high susceptibility to soil liquefaction (Ausbrooks and Doerr, 2010). However, only small portions of the project will traverse the Quaternary age alluvium and terrace deposits associated with the floodplain of the Arkansas River.

Soil conditions necessary for soil liquefaction to occur would likely be present in the Project area. However, due to the low potential for strong and prolonged ground shaking associated with a seismic event to occur, the potential for soil liquefaction to occur is also low.

Landslide Susceptibility - Landslides involve the down-slope movement of earth materials under a force of gravity due to natural or man-made causes. Clay deposits and deeply fractured shallow or outcropping bedrock on steep slopes generally are the conditions that are most susceptible to landslide occurrence. Landslides typically are caused by or associated with earthquakes, heavy precipitation, or floods (AGS, 2011d). The area underlying Faulkner and Pulaski Counties has a low incidence (less than 1.5% of the area involved) and moderate susceptibility (1.5%-15% of the area involved) to landslide events (Godt, 1997). Steep areas would be expected to be more susceptible to landslides.

No specific landslide hazards have been identified or are anticipated that require special design. However, EGT indicates that if during construction a significant landslide hazard is identified, methods such as burying the pipeline below the potential landslide depth, installing slope gauges to monitor slope movement, and installing drainage systems to divert stormwater from the right-of-way would be implemented to minimize the potential for landslides to occur. Additionally, to minimize or avoid potential impacts from landslides or slope failure in areas of potential susceptibility, construction would be completed following best management practices to ensure appropriate grading, limited undercutting or overloading slopes, and appropriate erosion control methods and revegetation in accordance with our Plan. Therefore, we believe that if these measures are used, landslide risk would be minimized to the greatest extent practicable.

Karst Topography and Land Subsidence - Karst topography is a landscape that develops in regions underlain by limestone, dolomite, gypsum, or, rarely, bedded salt. Karst is characterized by closed depressions, termed sinkholes, and by caves, cave systems, and underground drainage. The agent of erosion that creates these cavernous features is a solution of

soluble minerals from one or all of the rock types mentioned above, in combination with slightly acidic groundwater. Certain areas in northern Arkansas that are underlain by limestone contain significant karst features (AGS, 2011e), but no known karst features exist in the Project area (USGS, 1984).

The Project would not be constructed or operated in areas where there is known karst features or subsidence. Therefore, we conclude that construction and operation of the Project would not impact or be impacted by subsidence.

Paleontological Resources

The Boston Mountains and Arkansas River Valley contain discontinuous bands of coal and coaly shale known as the Atoka Formation (AGS, 2011a). Trace fossils are the most common fossils found throughout this formation. Poorly preserved plant fossils are also commonly found in this section. Less commonly found are poorly preserved invertebrate fossils, which have been reported from several horizons. This formation conforms with the Bloyd Shale in the Boston Mountains and the Johns Valley Shale in the Ouachita Mountains (AGS, 2011a).

After review of the University of California Museum of Paleontology (UCMP) online database and the Paleobiology Database, EGT determined there were no collection localities within Faulkner County, Arkansas. One collection locality was discovered in Pulaski County, however it is 5.6 miles away and would not be impacted by the proposed project (UCMP, 2011; Paleobiology Database, 2011).

2.1.2 Soils

Existing Soil Resources

Project construction would affect several different soil series in Arkansas. These soils exhibit a wide range of characteristics that define the soil types including drainage, slope, erosion potential, compaction potential, revegetation potential, and depth to bedrock. The majority of the proposed pipeline segments are underlain by loamy textured soils that are moderately drained to poorly drained. Table 2.1.2-1 provides a summary of the significant soil characteristics that would be crossed by the proposed pipeline segments.

Prime Farmland - The Natural Resources Conservation Service (NRCS) defines prime farmland as "land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, and oilseed crops" (Soil Survey Division Staff, 1993). This designation includes cultivated land, pasture, woodland, or other lands that are either used for food or fiber crops, or are available for these uses. Approximately 52 percent (14.99 miles) of the soils that would be crossed by the proposed pipeline segments are considered prime farmland. An additional 6 percent (1.67 miles) of soils that are considered to be of statewide importance also will be crossed. The proposed new permanent access road would cross approximately 0.02 mile of prime farmland soils, impacting approximately 0.07 acre.

TABLE 2.1.2-1

Summary of Soil Characteristics Crossed by the Proposed Pipelines

Facility	Total Miles Crossed [a]	Compaction Prone [b]	Highly Erodible		Stony – Rocky [e]	Shallow-to-Bedrock [f]	Reveg Concerns [g]
			Water [c]	Wind [d]			
Line BT-39	28.5	5.5	8.12	0.0	4.62	16.57	10.70
Line BT-40	0.04	0.0	0.02	0.0	0.02	0.04	0.02
Line BT-41	0.27	0.0	0.26	0.0	0	0.27	0
Total Miles Crossed by Pipeline [a]	**28.8**	**5.5**	**8.40**	**0.0**	**4.64**	**16.88**	**10.72**

[a] Miles crossed are based on centerline of pipeline. The area affected does not include access roads and additional temporary work space. Values within a row do not add up to the total listed in the total column because soils may occur in more than one characteristic class or may not occur in any class listed in the table.

[b] Includes soils that have clay loam or finer textures in somewhat poor, poor, and very poor drainage classes. Fine-textured soils with poor internal drainage that are moist or saturated during construction are the most susceptible to compaction and rutting.

[c] Includes soils with a Natural Resources Conservation Service land capability classification of 4E through 8E, which have severe to extreme erosion limitations for agricultural use, and soils with an average slope greater than or equal to 9 percent.

[d] Includes soils in wind erodibility groups 1 and 2, which includes soils with poor aggregation that are particularly susceptible to wind erosion.

[e] Includes soils that have either: 1) a very gravelly, extremely gravelly, cobbley, stony, bouldery, flaggy, or channery modifier to the textural class, or 2) have >5 percent (weight basis) of rock fragments larger than 3 inches in the surface layer.

[f] Includes soils that have bedrock within 60 inches of the soil surface.

[g] Includes coarse-textured soils (sandy loams and coarser) that are moderately well to excessively drained and soils with an average slope greater than or equal to 9 percent.

Note: The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the exact sum of the addends in all cases.

Hydric Soils - Hydric soils are defined as "soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (Federal Register, 1994). Approximately 47 percent (13.61 miles) of the soils crossed by the proposed pipeline facilities are considered hydric. The proposed new permanent access road would cross approximately 0.01 mile of hydric soils, impacting approximately 0.03 acre. Individual wetlands containing hydric soils may not have been identified by the soil mapping due to the minimum delineation size of the soil map units. Information regarding wetlands within the Project area is provided in section 2.2.3 below.

Impacts and Mitigation

Construction activities such as clearing, grading, trench excavation, backfilling, and the movement of construction equipment along the right-of-way impact soil resources. Clearing removes protective vegetative cover and exposes the soil to the effects of wind, rain, and runoff, which increases the potential for soil erosion and sedimentation in sensitive areas. Removal of vegetation can also lead to drying of the soils due to lack of shading or oversaturation of the soils due to the lack of water uptake by the removed vegetation. Grading, spoil storage, and equipment traffic can compact soil, reducing porosity and increasing runoff potential. Trenching of stony/rocky or shallow-to-bedrock soils can bring stones or rock fragments to the surface that could interfere with agricultural practices and hinder restoration of the right-of-way. Construction activities can also affect soil fertility and revegetation potential, and facilitate the dispersal and establishment of weeds. In addition, contamination from spills or leaks of fuels, lubricants, and coolant from construction equipment could adversely affect soils.

To minimize or avoid impacts on soils, EGT would implement soil mitigation procedures as outlined in the FERC Plan and Procedures. In accordance with our Plan and Procedures, the following mitigation measures would be used to minimize impacts.

Compaction Potential - Soil compaction modifies the structure and reduces the porosity and moisture-holding capacity of soils. Construction equipment traveling over wet soils could disrupt the soil structure, reduce pore space, increase runoff potential, and cause rutting. The degree of compaction depends on moisture content and soil texture. Approximately 19 percent (5.5 miles) of the soils that would be affected by pipeline construction are considered prone to compaction. EGT would minimize compaction and rutting impacts during construction in soft or saturated soils through the use of timber mats installed across minor tributaries, adjacent wetlands, and as deemed necessary during construction. Other methods may be used as conditions dictate. Since many of the soils vulnerable to compaction occur in wetlands, the proposed wetland construction crossing techniques and mitigation measures identified in the FERC Procedures would be followed to minimize impacts. Agricultural areas disturbed by construction activities would be tested by EGT for compaction, and compacted areas would be restored in accordance with the FERC Plan.

Erosion by Wind or Water - Erosion is a continuous natural process that can be accelerated by human disturbance. Factors that influence the degree of erosion include soil texture, structure, length and percent of slope, vegetative cover, and rainfall or wind intensity. Clearing, grading, and equipment movement could accelerate the erosion process and, without adequate protection, result in discharge of sediment to waterbodies and wetlands. Soil loss due to erosion could also reduce soil fertility and impair revegetation. Due to normal precipitation in the area and soil conditions at the surface, the soils in the Project area are not considered to be highly susceptible to erosion by wind. However, approximately 29 percent (8.40 miles) of the soils along the proposed pipeline segments are considered highly water erodible.

To minimize or avoid potential impacts due to soil erosion and sedimentation, EGT would utilize erosion and sedimentation control methods described in our Plan and Procedures. Temporary erosion controls, including slope breakers and sediment barriers (*e.g.*, hay bales and silt fences), would be installed following initial ground disturbance to control runoff and prevent sediment transport off the construction right-of-way. As required, temporary trench plugs would be installed following ditch excavation to prevent channeling of water along the trench. Temporary erosion control devices would be inspected on a routine basis in accordance with the FERC Plan and Procedures. Permanent erosion controls would be installed, as necessary, to ensure the successful restoration of the Project area.

Stony/Rocky and Shallow-to-Bedrock Soils - Introducing stones and other rock fragments to surface soil layers may reduce soil moisture-holding capacity, resulting in a reduction of soil productivity. Additionally, some agricultural and/or residential equipment may be damaged by contact with large rocks and stones. Rock fragments at the surface and in the surface layer may be encountered during grading, trenching, and backfilling. As shown in table 2.1.2-1, approximately 16 percent (4.64 miles) of the soils affected by construction are considered stony/rocky soils. Construction through soils with shallow bedrock could also result in the incorporation of rock fragments into surface soils. Based on county soils data,

approximately 58 percent (16.88 miles) of the soils that would be affected by construction contain bedrock within 60 inches of the surface (see section 2.1.1).

The introduction of subsoil rocks into agricultural topsoil would be minimized by segregating topsoil from trench spoil and replacing topsoil in agricultural areas after cleanup. EGT would make diligent efforts to remove excess rock from surficial soils to the extent practicable in cultivated and rotated croplands, hayfields, pastures, residential areas, and at landowner's request in other areas. EGT would remove excess rock from surface soils disturbed by construction such that the size, density, and distribution of rock on the construction right-of-way would be similar to adjacent non-right-of-way areas. If bedrock is encountered, EGT would take precautions to minimize the mixing of excavated bedrock with backfill and would replace rock in the trench to a level that is not higher than the original bedrock profile. Where necessary, excess rock would be hauled off the right-of-way or, subject to landowner approval and applicable permit conditions, disposed of on the right-of-way.

Prime Farmland - With the exception of 0.07 acre of prime farmland soils that would be impacted by the proposed new permanent access road, impacts on prime farmland would be limited to the construction phase of the proposed Project. During construction, EGT would perform topsoil segregation in agricultural lands, which include cultivated or rotated croplands, hayfields, or managed pastures, and in other areas at the request of resource agencies or landowners. EGT would stockpile topsoil separately from subsoil and would replace these soil horizons in the proper order during backfill and final grading. Implementation of the mitigation measures discussed above including topsoil segregation, compaction testing and mitigation, erosion control, and removal of excess rock would minimize or avoid any long-term impacts on agricultural activities.

Hydric Soils - Due to extended periods of saturation, hydric soils can be prone to compaction and rutting as discussed above. In addition, high groundwater levels associated with hydric soils could create a buoyancy hazard for the pipeline. Special construction methods such as concrete coating of pipe and other weighting methods would be used as necessary to overcome potential buoyancy hazards during operation of the pipeline. Impacts and mitigation associated with wetlands in the Project area are discussed in section 2.2.3.

Soil Contamination - No historic landfills or contaminated sites are located within the Project area. The northern end of Line BT-39 and Highway 64 TBS are within 0.25 mile the City of Conway landfill, and one temporary access road utilizes a portion of the driveway to the landfill. In March of 2013, ExxonMobil's Pegasus pipeline ruptured in the vicinity of the Northwoods subdivision in Mayflower, AR, approximately 200 feet west of the existing Line B proposed for retirement (MP 14.75). The initial cleanup was completed and ExxonMobil has entered into site remediation. If a hazardous waste site is encountered during construction of the Project or retirement activities along Line B, EGT would stop work activities in the immediate vicinity of the site, notify the appropriate state and federal agencies, and proceed in accordance with local, state, and federal regulations.

Contamination from spills or leaks of fuels, lubricants, and coolant from construction equipment could adversely impact soils. However, the impacts of such contamination are typically minor because of the low frequency and volumes of spills and leaks. Measures outlined

in EGT's SPCC Plan would be implemented to reduce potential impacts on soils from spills of the hazardous materials used during construction. These measures include regularly inspecting equipment to ensure it is in good working order, properly training employees regarding the handling of fuels and other hazardous materials, and promptly reporting any spills to the appropriate agencies.

Revegetation Potential - The potential for re-establishing grasses and legumes and upland herbaceous plants is based on several factors, including water availability, root zone depth, and soil texture. Revegetation potential of soils is rated as well-suited or good, suited or fair, and poorly-suited or poor. EGT would make every effort to ensure the rapid, successful establishment of vegetation on areas requiring revegetation as described in the FERC Plan and Procedures. As shown in table 2.1.2-1, approximately 37 percent (10.72 miles) of the soils that would be crossed by the Project have a poor potential for revegetation. Following final grading and cleanup, EGT would condition the construction right-of-way for planting including the preparation of a seedbed and application and incorporation of soil amendments at rates agreed to by the landowner or land management agency, or specified in writing by an appropriate soil conservation authority. EGT would seed areas to be revegetated in accordance with seed mixes, rates, and dates approved by the appropriate soil conservation authorities or land management agencies. Unless requested by a landowner, seeding would not be conducted in actively cultivated croplands. EGT would conduct post-construction monitoring to verify that revegetation is successful. Revegetation would be considered successful when plant density and cover within the proposed Project construction area is similar to adjacent undisturbed areas.

Implementation of the measures discussed above would minimize soil impacts and ensure effective revegetation of disturbed areas. Further, EGT would implement its SPCC Plan to reduce the potential impacts on soils from spills of hazardous materials used during construction and manage contaminated soils should they be encountered. Given the impact minimization and mitigation measures described above, we believe that soils would not be significantly affected by construction and operation of the proposed Project.

2.2 WATER RESOURCES AND WETLANDS

2.2.1 Groundwater

Groundwater Resources - The Project area is positioned along the border of two minor aquifers, the southern edge of the Western Interior Plains confining system and the eastern edge of the Ouachita Mountains aquifer (Renken, 1998). The average depth to the top of these aquifers is 300 feet below ground surface (Renken, 1998). Regional groundwater flow is southward toward the Arkansas River (Renken, 1998).

Due to well yield and water quality, water from the Western Interior Plains confining system is used mostly for domestic purposes. The quality of groundwater in the Western Interior Plains confining system is highly variable, but meets most secondary drinking-water standards and is considered to be suitable for livestock uses. However, the quality of the water generally is not considered to be adequate for municipal supply (Renken, 1998).

Only limited quantities of water for domestic and nonirrigation farm uses are reported from wells completed in the Ouachita Mountains aquifer.

There are no U.S. Environmental Protection Agency (EPA) designated sole source aquifers in Arkansas (EPA, 2013). Further, EGT did not identify any springs or seeps within 150 feet of its proposed work areas.

Public Water Supply - EGT consulted with the Arkansas Department of Health (ADH) concerning the proximity of any source water protection areas, surface water intakes, wellhead protection areas, or public water supply wells to the proposed Project. The ADH identified that the northernmost portion of the Line BT-39 pipeline route, the Highway 64 TBS, and two access roads would be within the Conway Water System - Cadron Creek public water supply watershed and wellhead protection area (ADH, 2013). Cadron Creek is an Extraordinary Resource Water and the public drinking water source for the Conway Water System, which serves the City of Conway. The ADH identified one surface water intake for this system near the Project, located approximately 1,175 feet northwest of the Project at MP 0.71. This intake is on Cadron Creek, which is not crossed by the Project. No other surface water intakes were identified within three miles downstream of any proposed crossing, and no public water supply wells were identified within 0.25 mile of the Project. Subsequently, ADH filed a letter with the FERC dated June 12, 2013 that noted a staff review had been made of Project information and ADH had no comment on the submittal.

Private Water Supply - EGT identified ten private water supply wells within 150 feet of proposed work areas, and are listed in table 2.2.1-1.

TABLE 2.2.1-1

Private Water Supply Wells within 150 Feet of the Construction Workspace Associated with the Project

Facility/Milepost	Potable or Irrigation Well	Distance from Construction Workspace (feet)	Direction from Construction Workspace (feet)
Line BT-39			
0.83	Potable (residential well)	30	North
3.74	Potable (residential well)	35	West
3.80	Potable (residential well)	52	West
3.82	Potable (residential well)	74	West
3.87	Potable (residential well)	58	West
3.88	Potable (residential well)	123	West
4.00	Potable (residential well)	44	West
4.01	Potable (residential well)	59	West
4.10	Potable (residential well)	115	West
19.5	Agricultural (irrigation well)	6	West
Line BT-40			
N/A	None	N/A	N/A
Line BT-41			
N/A	None	N/A	N/A

Impacts and Mitigation

Aquifers - Pipeline construction activities would generally involve shallow, temporary, localized excavation (typically 8 feet below ground surface), and horizontal bores (typically 12 feet below most roads). The depth to the Western Interior Plains and the Ouachita Mountains Aquifer systems averages 300 feet, and would be below trench excavation depth.

Shallow aquifers could be temporarily impacted due to changes in overland water flow and recharge caused by clearing and grading of the proposed right-of-way. In addition, near-surface soil compaction caused by heavy construction vehicles could reduce the soil's ability to absorb water, which could increase surface runoff and the potential for ponding. In forested areas, water infiltration normally enhanced by vegetation would be reduced until vegetation is reestablished.

The direct and indirect impacts described above would be temporary and would not significantly affect groundwater resources. EGT would avoid or minimize impacts on groundwater by the use of construction techniques contained in the FERC Plan and Procedures, such as the use of temporary and permanent trench plugs and interceptor dikes. In instances where EGT would require trench dewatering, it would discharge all trench water into well-vegetated upland areas or dewatering structures to allow the water to infiltrate back into the ground, thereby minimizing any long-term impacts on the water table. Upon completion of construction, EGT would mitigate compacted soils, restore the ground surface as closely as practicable to original contours, and revegetate the right-of-way to ensure restoration of preconstruction overland flow and recharge patterns. Furthermore, the area of soil compaction would be small compared to the total recharge area.

Implementation of the measures in EGT's SPCC Plan would minimize the potential for groundwater impacts associated with an inadvertent spill of hazardous materials or petroleum. The SPCC Plan identifies preventive measures to reduce the likelihood of a spill such as secondary containment for petroleum products, daily equipment inspection for leaks, restrictions on the transport and storage of potentially hazardous materials to the construction work area. The SPCC Plan and our Procedures also specify restrictions on refueling near private water supply wells or springs, and measures to contain and clean up a spill should one occur.

Implementation of our Procedures and EGT's SPCC Plan would adequately address the storage and transfer of hazardous materials and petroleum products near wetlands and waterbodies, and the response to be taken in the event of a spill. Therefore, the potential for the Project to contaminate local aquifers or water supply wells would be minimal.

Water Supply Sources - The ADH identified the Conway Water System - Cadron Creek public water supply watershed and wellhead protection area in the vicinity of the Project. Due to the incorporation of our Plan and Procedures, EGT's SPCC Plan, and BMPs found acceptable to the ADH and the depth to groundwater in the Project area, we believe the Project would not impact the public water supply.

Private Wells and Springs - There are ten known wells that would be within 150 feet of the proposed Project. EGT would adhere to the measures included in our Plan and Procedures

and EGT's SPCC Plan to minimize impacts on groundwater as a result of the Project. Additionally, and if a well is identified within construction work areas, EGT would conduct pre- and post-construction monitoring of water yield and quality from the well. In the unlikely event that a well must be taken out of service during construction, EGT would provide an alternate water source or negotiate a mitigation plan with the landowner to offset any adverse impacts. In the unlikely event that construction activities temporarily impair well water, EGT would provide alternative sources of water or otherwise compensate the owner. If permanent well damage were substantiated, EGT would either compensate the owner for damages or arrange for a new well to be installed.

2.2.2 Surface Water

As identified in table 2.2.2-1, the proposed Line BT-39 would cross 33 intermittent streams, 12 perennial streams, and one barrow pit. EGT would cross three waterbodies more than once. The borrow pit is the only major waterbody (greater than 100 feet wide) that EGT would cross, while 14 intermediate (greater than 10 but less than or equal to 100 feet wide) and 31 minor waterbodies (less than or equal to 10 feet wide) would be crossed. The proposed Line BT-40 and Line BT-41 pipelines, ETWS, aboveground facilities, retirement facilities and access roads would not cross any waterbodies.

TABLE 2.2.2-1

Waterbodies Crossed by the Project

Feature ID	Milepost (MP)	Waterbody Name [1]	Waterbody Type [2]	Crossing Width (feet)	State Water Quality Certification [3]	Proposed Crossing Method [4]
Proposed Line BT-39						
S100FA	2.18	UNT Lake Carol-Dan	Intermittent	8	E, G, H, I	Open cut
S102FA	2.35	UNT Lake Carol-Dan	Intermittent	15*	E, G, H, I	Open cut
S104FA	3.15	UNT Arkansas River	Intermittent	6	E, G, H, I	Open cut
S105FA	3.29	UNT Arkansas R.	Intermittent	15*	E, G, H, I	Open cut
S105FA-2nd crossing	3.42	UNT Arkansas R.	Intermittent	15*	E, G, H, I	Open cut
S105DFA	3.42	UNT Arkansas R.	Intermittent	8	E, G, H, I	Open cut
S108AFA	3.67	UNT Arkansas R.	Intermittent	8	E, G, H, I	Open cut
S79FA	5.24	UNT Tucker Creek	Intermittent	8	E, G, H, I	Open cut
S82FA	5.56	UNT Tucker Creek	Intermittent	10	E, G, H, I	Open cut
S73FA	6.17	Tucker Creek	Perennial	50*	E, G, H, I	HDD
S72FA	6.44	UNT Tucker Creek	Intermittent	6	E, G, H, I	HDD
S70FA	7.27	UNT Tupelo Bayou	Perennial	10	E, G, H, I	Open cut
S19BFA	8.82	UNT Tupelo Bayou	Intermittent	8	E, G, H, I	Open cut
S24AFA	9.34	Tupelo Bayou	Perennial	12*	E, G, H, I	Open cut
S25AFA	9.51	UNT Tupelo Bay.	Intermittent	10	E, G, H, I	Open cut
S26AFA	9.77	Tupelo Bayou	Perennial	10	E, G, H, I	Open cut

TABLE 2.2.2-1

Waterbodies Crossed by the Project

Feature ID	Milepost (MP)	Waterbody Name [1]	Waterbody Type [2]	Crossing Width (feet)	State Water Quality Certification [3]	Proposed Crossing Method [4]
S26BFA	9.80	UNT Tupelo Bayou	Intermittent	12*	E, G, H, I	Open cut
S29FA	10.29	UNT Tupelo Bayou	Intermittent	10	E, G, H, I	Open cut
S31FA	10.52	UNT Tupelo Bayou	Intermittent	8	E, G, H, I	Open cut
S1FA	11.20	Tupelo Bayou	Perennial	4	E, G, H, I	Open cut
S6AFA	12.01	Tupelo Bayou	Perennial	4	E, G, H, I	Open cut
S6BFA	12.02	UNT Tupelo Bayou	Perennial	4	E, G, H, I	Open cut
S89AFA	13.94	UNT Beaverdam Creek	Perennial	8	E, G, H, I	Open cut
S38FA	14.47	UNT Beaverdam Creek	Intermittent	10	E, G, H, I	Open cut
S39FA	14.80	Beaverdam Creek	Perennial	12*	E, G, H, I	Open cut
S300FA	15.02	UNT Beaverdam Creek	Intermittent	3	E, G, H, I	HDD
S403FA	15.55	UNT Beaver Creek	Intermittent	8	E, G, H, I	Open cut
S403FA- 2nd crossing	15.60	UNT Beaver Creek	Intermittent	8	E, G, H, I	Open cut
S58FA	17.45	UNT Palarm Creek	Intermittent	4	E, G, H, I	HDD
S61PU	17.95	Palarm Creek	Perennial	40*	E, G, H, I	HDD
W90PU	18.50	Unnamed Borrow Pit	NA	575**	NA	HDD
S63PU	18.67	UNT Palarm Creek	Perennial	15*	E, G, H, I	HDD
S42APU	19.31	UNT Palarm Creek	Intermittent	5	E, G, H, I	Open cut
S42BPU	19.32	UNT Palarm Creek	Intermittent	5	E, G, H, I	Open cut
S43PU	19.60	UNT Palarm Creek	Intermittent	10	E, G, H, I	Open cut
S40PU	20.31	UNT Palarm Creek	Intermittent	6	E, G, H, I	Open cut
S40PU- 2nd crossing	20.40	UNT Palarm Creek	Intermittent	6	E, G, H, I	Open cut
S41APU	20.32	UNT Palarm Creek	Intermittent	6	E, G, H, I	Open cut
S173PU	22.20	UNT Palarm Creek	Intermittent	4	E, G, H, I	Open cut
S179PU	24.04	UNT to unnamed pond	Intermittent	10	E, G, H, I	Open cut
S183PU	24.72	UNT White Oak Bayou	Intermittent	12*	E, G, H, I	Open cut
S140PU	25.77	White Oak Bayou	Intermittent	20*	E, G, H, I	Open cut
S128BPU	27.43	Winifree Creek	Intermittent	12*	E, G, H, I	Open cut
S128PU	27.45	UNT Winifree Creek	Intermittent	25*	E, G, H, I	Open cut
S126CPU	28.24	UNT Newton Creek	Perennial	8	E, G, H, I	Open cut
S126PU	28.33	Newton Creek	Intermittent	30*	E, G, H, I	Open cut
Proposed Line BT-40						
None crossed						

TABLE 2.2.2-1

Waterbodies Crossed by the Project

Feature ID	Milepost (MP)	Waterbody Name [1]	Waterbody Type [2]	Crossing Width (feet)	State Water Quality Certification [3]	Proposed Crossing Method [4]
Proposed Line BT-41						
None crossed						
Proposed Line BT-39 Access Roads						
S1FA[5]	AR-11.18	Tupelo Bayou	Perennial	3	E, G, H, I	Temporary culvert
S6AFA[5]	AR-11.5	Tupelo Bayou	Perennial	2	E, G, H, I	Temporary culvert
S89AFA[5]	AR-13.42	UNT to Beaverdam Creek	Perennial	0	E, G, H, I	Temporary culvert
S59FA	AR-17.72	UNT to Palarm Creek	Intermittent	2	E, G, H, I	Existing culvert or bridge
S40PU	AR-19.20	UNT to Palarm Creek	Intermittent	2	E, G, H, I	Existing culvert or bridge
S128PU	AR-27.48	Winifree Creek	Intermittent	0	E, G, H, I	Existing culvert or bridge
Retirement Line B Access Roads						
S125FA	AR-21	UNT to Gold Creek	Perennial	18	E, G, H, I	Existing culvert or bridge
S202FA	AR-26	UNT to Lake Conway	Perennial	1	E, G, H, I	Existing culvert or bridge

Note: Rows above indicate stream crossings. There are 3 streams crossed by the pipeline more than one time, and those crossings are indicated by the same feature number.

[1] UNT= Unnamed Tributary to Named Waterbody

[2] Perennial stream: has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year.

Intermittent stream: has flowing water during certain times of the year, when groundwater provides water for stream flow.

[3] Certifications:

E Secondary Contact Recreation: This beneficial use designates waters where secondary activities like boating, fishing, or wading are involved. All waters within the Arkansas River Valley Ecoregion are designated for these uses.

G, H, I Domestic, Industrial and Agricultural Water: This use includes surface waters designated as domestic, industrial, and agricultural. All waters within the Arkansas River Valley Ecoregion are designated for these uses.

[4] HDD = Horizontal Directional Drill

[5] Stream has an existing low water crossing, no culvert or bridge.

* Crossing width classifies the waterbody as an intermediate waterbody.

** Crossing width classifies the waterbody as a major waterbody,

Sensitive Waterbodies - The proposed Project would not cross any state-designated Extraordinary Resource Waters (ERW), Ecologically Sensitive Waterbodies, or Natural and Scenic Waterways (APCEC, 2011). According to the National Park Service (NPS, 2013a and 2013b), no National Wild or Scenic Rivers would be crossed by the proposed pipeline.

Line B retirement activities are proposed near Cadron Creek, a state-designated ERW and a Nationwide Rivers Inventory-listed stream. These activities include closing a valve on Line B 130 feet northwest of Cadron Creek, removing a river header 110 feet southeast of Cadron Creek, and grouting the existing pipeline under the creek.

Contaminated Waters – Line BT-14 crosses one stream, Stone Dam Creek, that is listed as a 303(d) impaired water. Stone Dam Creek is listed in Category 4a, which includes impaired or threatened waterbodies for one or more designated uses. Line BT-14 will be transferred to CERC and no construction activities are proposed in this location, therefore no impacts to this stream are anticipated.

On March 29, 2013, the ExxonMobil Pegasus pipeline ruptured in the vicinity of Lake Conway and the Northwoods subdivision in Mayflower, AR, approximately 200 feet west of the existing Line B retirement pipeline (MP 14.75). This site is currently under remediation; there are no known contaminated sediments within the Project work area.

Flooding - According to the most recent published Federal Emergency Management Agency floodplain map, portions of the proposed pipeline route are within the 100-year floodplain zone with 1 percent annual chance of flooding (high flooding risk) and within a zone designated as 0.2 percent annual chance of flooding between the 100- and 500-year floodplain zones (moderate flooding risk) (FEMA 2013). The mapped 100- and 500-year zones include 87 and 91.4 Project acres, respectively, and are typically associated with the larger perennial streams in the Project area: the Arkansas River, Tucker Creek, Tupelo Bayou, Beaverdam Creek, Palarm Creek, White Oak Bayou, Winifree Creek, and Newton Creek.

Construction of the proposed Project would be timed to avoid typical wet-weather seasons when flooding is a greater risk. Therefore, we conclude that flooding impacts on construction and operation of the Project would be minimized or avoided.

Impacts and Mitigation

EGT would cross waterbodies that are flowing at the time of construction using either the open-cut or HDD method. All waterbodies would be crossed in accordance with our Procedures.

EGT proposes to cross six waterbodies with the HDD method, including Tucker Creek, an unnamed tributary (UNT) to Tucker Creek, an UNT to Beaverdam Creek, Palarm Creek, and two UNTs to Palarm Creek. The remaining waterbodies would be crossed based on conditions (*i.e.*, saturation levels) at the time of crossing.

Pipeline construction could affect surface waters in several ways. Clearing and grading of streambanks, in-stream trenching, trench dewatering, and backfilling could affect waterbodies temporarily through modification of existing aquatic habitat, an increased rate of in-stream

sediment loading, increased turbidity levels, reduced dissolved oxygen concentrations, stream warming, and introduction of chemical discharges from fuels/lubricants.

The clearing and grading of the waterbody banks would disturb the riparian vegetation, exposing soils to erosion. Heavy equipment used during construction could compact upland and riparian soils, which could greatly reduce infiltration and cause greater runoff to waterbodies. Refueling of vehicles and storage of fuel, oil, or other hazardous materials near surface waters and spills from equipment working in waterbodies could create a potential for contamination, which, if a spill were to occur, could degrade downstream water quality and aquatic habitat.

The greatest potential impacts of pipeline construction would result from an increase in sediment loading to surface waters and an increase in internal sediment loading due to channel/floodplain instability as a result of a change in erosion/deposition patterns. The level of impact of the proposed Project on surface waters would depend on precipitation events, sediment loads, stream area/velocity, channel integrity, and bed material.

It should be noted that many of the intermittent waterbodies may be dry at the time of construction, which would significantly reduce the potential impacts described above.

Implementation of our Procedures would reduce sediment impacts. Following pipeline installation, suspended sediment and turbidity levels would return to pre-construction levels soon after the crossing is complete. At a minimum, restoration of waterbodies would involve EGT restoring the pre-construction contours and seeding the stream banks.

Additionally, the USACE and ADEQ regulate construction activities within waterbodies. EGT would construct the waterbody crossings in accordance with the requirements of these permitting agencies.

Some of the relevant mitigation measures pertaining to waterbody crossings that EGT would implement include:

- locating extra work areas at least 50 feet from water's edge, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land (see discussion of extra workspaces within 50 feet of waterbodies below);
- limiting the size of extra work areas to the minimum needed to construct the waterbody crossing;
- installing temporary erosion and sediment control measures across the construction right-of-way as necessary to prevent the flow of spoil or silt-laden water into any waterbody;
- constructing crossings as close to perpendicular to the waterbody channel as engineering and routing conditions permit;
- maintaining adequate flow rates throughout construction to protect aquatic life and prevent the interruption of existing downstream uses;

- designing and maintaining equipment bridges to prevent soil from entering the waterbody and minimize impacts on the channel bottom and banks;

- restricting spoil placement near surface waters to the construction right-of-way at least 10 feet from the water's edge or in other approved additional extra workspaces away from the water's edge;

- completing open-cut crossings of minor waterbodies within 24 hours and intermediate waterbodies within 48 hours (not including rock breaking measures);

- maintaining erosion and sediment control measures until streambanks and adjacent upland areas are stabilized;

- storing fuel, lubricants, and hazardous materials in upland areas at least 100 feet from waterbodies and wetlands;

- prohibiting refueling or lubricating of vehicles or equipment, and concrete coating activities within 100 feet of a waterbody, except where approved by the EI;

- responding quickly to leaks and spills by implementing the containment, countermeasure, and cleanup measures outlined in the SPCC Plan;

- returning waterbody banks to preconstruction contours or to a stable angle of repose as approved by the EI;

- stabilizing waterbody banks and installation of temporary sediment barriers within 24 hours of completing in-stream construction activities;

- revegetating streambanks quickly in accordance with the Procedures and any other applicable agency requirements.

We believe EGT's implementation of these and other measures contained in the Procedures and SPCC Plan would minimize impacts on the waterbodies that would be crossed by the Project.

HDD Installation

EGT would use HDD to avoid direct impacts on seven waterbodies, as well as other sensitive resources. HDD is further described in section 1.5.2 of this EA. To minimize potential impacts of inadvertent releases of drilling fluid, EGT has prepared and filed a Directional Drilling Contingency Plan (DDCP). The DDCP describes the procedures that would be used to monitor, contain, and clean up any potential releases of drilling fluid. Implementation of the procedures described in the DDCP would minimize the impacts of any potential inadvertent release of drilling fluid.

Inadvertent drilling fluid releases could result if the drilling fluid escapes containment at pits that would be excavated at the HDD entrance and exit points or if a "frac-out" occurs. A frac-out occurs when drilling fluids escape the drill bore hole and are forced through the

subsurface substrate to the ground surface. Frac-outs occur most often in highly permeable soils during the entrance and exit phases of the pilot hole drill, as this is when the greatest pressures are exerted on the bore walls in shallow soils. Minimal, consistent loss of drilling fluid may also occur during the drilling process when layers of loose sand, gravel, or fractured rock are encountered and drilling fluid fills voids in the material. The loss of returning drilling fluid and a reduction in drilling pressure indicates that seepage is occurring outside of the bore hole.

Drilling fluid pressures in the bore hole and drilling fluid pumping and return flow rates would be monitored to detect the potential occurrence of a frac-out or loss of drilling fluid. In the event a complete loss of circulation of drilling mud occurs during operation of an HDD, the Contractor would:

- cease pumping immediately;
- contain any drilling fluid that has surfaced;
- notify the Chief Inspector and Environmental Inspector; and
- evaluate the data and circumstances leading to the loss of circulation to determine what method is to be utilized to seal the fracture. Most fractures can be sealed, if detected early, by pumping special materials to prevent loss of circulation down hole.

In-stream Blasting

No blasting is anticipated for the Project. If blasting becomes necessary, EGT would prepare a Project-specific blasting plan to minimize stream impacts.

Hydrostatic Test Water

Before the pipelines are placed into service, they would be hydrostatically tested to ensure structural integrity. Table 2.2.2-2 lists the potential hydrostatic test water sources, discharge locations, and approximate rates and volumes for the Project.

Hydrostatic test water withdrawal is proposed from municipal sources, therefore no recreational or biological uses of surface water sources would be affected. EGT would withdraw and discharge hydrostatic test water in accordance with our Procedures and other applicable permits. Additionally, EGT would obtain a general permit from the ADEQ prior to conducting hydrostatic testing.

Potential impacts that could result from the discharge of hydrostatic test water include soil erosion, stream scour, and subsequent degradation of water quality. EGT would minimize the potential for these impacts by discharging the test water in accordance with our Procedures, including controlling discharges to prevent scour and sedimentation, flooding, erosion, and the introduction of foreign or toxic substances into waterbodies. Further, EGT would discharge water through energy dissipation devices and dewatering structures in well-vegetated and stabilized upland areas within or adjacent to the construction work area. Additional protective measures include locating test manifolds outside of wetlands and riparian areas (where

practicable) and operating and refueling the pumps used for hydrostatic testing in accordance with the restrictions of EGT's SPCC Plan.

TABLE 2.2.2-2

Summary of Proposed Hydrostatic Test Water Discharge Locations Associated with the Project

Facility	Source	Approximate Discharge Location (MP) [a]	Approximate Discharge Rate (gal/min)	Approximate Volume (gallons)
Pipeline				
Line BT-39	Municipal – Conway	MP 18	500	283,284
Line BT-40	Municipal – Mayflower	MP 27.5	200	140
Line BT-41	Municipal – Mayflower	MP 23.5	200	975
			Facility Total	**284,399** [b]
HDD Test Sections				
UCPR Railroad and Highway 64	Municipal – Conway	MP 0.4	200	4,087
Tucker Creek	Municipal – Conway	MP 6	200	14,640
Luker Lane and UNT to Beaverdam Creek	Municipal – Conway	MP 15	200	6,368
Center Street and Railroad	Municipal – Mayflower	MP 16	200	2,848
Tributary to Palarm Creek	Municipal – Mayflower	MP 18	200	9,760
Palarm Creek	Municipal – Mayflower	MP 18	200	9,150
Borrow Pit	Municipal – Mayflower	MP 18	200	8,540
Interstate 40	Municipal – Mayflower	MP 20	200	9,740
			Facility Total	**56,343** [b]
Aboveground Facilities/Fabrications				
BT-39 Hwy 64	Municipal – Conway	MP 0	200	800
BT-14 Shoemaker Circle	Municipal – Conway	MP 110.5	200	400
BT-39 Bryant Road TBS	Municipal – Conway	MP 7.5	200	400
BT-39 Mayflower Hwy 365	Municipal – Mayflower	MP 17	200	500
BT-41 Morgan TBS	Municipal – Mayflower	MP 0.25	200	300
BT-40 James Road TBS	Municipal – Mayflower	MP 0.04	200	300
BT-39 Oak Grove TBS	Municipal – Mayflower	MP 28.5	200	600
			Facility Total	**3,300** [b]

[a] Hydrostatic test water discharges would occur on vegetated upland areas at test segment breaks and/or at the beginning and end of the pipeline segments.

[b] Approximate volume provided is for testing of the entire associated facility.

Test water would contact only new pipe and no chemicals are anticipated to be added to the water. EGT would test the water prior to discharge , as required by the hydrostatic test water discharge general permit. Any required treatment procedures would be implemented prior to discharge. After completion of hydrostatic testing, EGT would clean and dry the new pipeline using pipeline pigs that are propelled through the pipeline with compressed air.

EGT's use of the mitigation measures described above would minimize any impacts associated with hydrostatic testing.

Extra Workspace within 50 feet of Waterbodies

Project staging areas would generally be a minimum distance of 50 feet from waterbodies, in accordance with the Procedures. EGT proposes to use one ETWS area that is

within 50 feet of a waterbody (MP 20.3). However, this ETWS area is within cultivated or rotated cropland.

Based on the characteristics of the identified waterbodies, the potential impacts on those waterbodies resulting from construction, the duration of construction, EGT's proposed crossing methods, proposed mitigation measures for spoil and construction waste storage, and implementation of the FERC Plan and Procedures, we believe that the impacts on surface water resources resulting from construction and operation of the Project would not be significant.

2.2.3 Wetlands

Wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of wetland vegetation adapted for life in saturated soil conditions (Environmental Laboratory, 1987). Wetlands can be a source of substantial biodiversity and serve a variety of functions that include providing wildlife habitat, recreational opportunities, flood control, and naturally improving water quality.

Palustrine forested (PFO) wetlands are dominated by woody vegetation that is at least 18 feet tall or taller. PFO wetlands normally include an overstory of trees, an understory of young trees or shrubs, and an herbaceous layer. The dominant canopy species in the Project area was identified as red maple, willow oak, green ash, and persimmon.

Palustrine scrub-hrub (PSS) wetlands are dominated by woody vegetation less than 18 feet tall. Scrub-shrub land types may represent a successional stage leading to a forested wetland and include young trees or shrubs that are small and/or stunted due to environmental conditions, and an herbaceous layer. The dominant scrub shrub vegetation in the Project area was identified as sweetgum saplings, red maple saplings, black willow, and buttonbush.

Palustrine Emergent (PEM) wetlands are characterized by erect, rooted, herbaceous hydrophytes not including mosses and lichens. These wetlands maintain the same appearance year after year, are typically dominated by perennial plants that are present for the majority of the growing season. In the Project area these plants were identified as soft rush, sedges, woolgrass, beggarticks, and asters.

Wetlands in the Project area are regulated at the federal and state levels. On the federal level, the USACE has authority under Section 404 of the Clean Water Act (CWA) to review and issue permits for activities that would result in the discharge of dredged or fill material into waters of the United States, including wetlands. Section 401 of the CWA requires that proposed dredge and fill activities under Section 404 be reviewed and certified by the designated state agency so that the proposed Project would meet state water quality standards. In Arkansas, the designated state agency responsible for Section 401 permitting is the ADEQ.

EGT field delineated Project wetlands in accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region: Version 2* (USACE, April 2012). Wetland types were assigned based on the National Wetland Inventory classifications as described in Cowardin et al. (1979).

The location, classification, and amount of temporary and permanent impact on each of the wetland areas are listed below in table 2.2.3-1.

TABLE 2.2.3-1

Wetlands Impacted by the Project

Facility/Wetland [a]	County	Milepost	Classification	Crossing Length (feet)	Construction Impact (acres)	Operation Impact (acres) [b]
Line BT-39						
W101FA	Faulkner	0.01	PEM	246.62	0.33	0.00
W102FA	Faulkner	0.07	PEM	242.34	0.33	0.00
W104FA[c]	Faulkner	0.32	PFO	62.56	0.00	0.00
W71FA	Faulkner	4.80	PFO	35.68	0.04	0.03
W80FA	Faulkner	5.27	PFO	37.40	0.16	0.07
W81FA**	Faulkner	5.32	POW	0.00	<0.01	0.00
			PFO**	0.00	0.00	0.00
W70FA[c]	Faulkner	6.29	PSS	779.50	0.00	0.00
			PEM	287.50	0.00	0.00
W69FA**	Faulkner	6.67	PEM	0.00	0.01	0.00
W68FA	Faulkner	7.37	PEM	204.23	0.33	0.00
W13FA	Faulkner	8.28	PFO	14.20	0.02	0.01
W18FA	Faulkner	8.79	PFO	48.05	0.04	0.03
W19FA	Faulkner	8.83	PEM	25.00	0.02	0.00
W24FA	Faulkner	9.34	PFO	0.06	0.02	<0.01
			PEM	0.00	0.08	0.00
W38FA	Faulkner	14.32	PSS	219.00	0.28	0.05
			PFO	119.41	0.19	0.08
W39FA	Faulkner	14.54	PFO	218.70	0.36	0.14
W53FA[c]	Faulkner	15.03	PEM	92.50	0.00	0.00
			PFO	168.82	0.00	0.00
W408FA	Faulkner	15.25	PFO	240.84	0.41	0.17
W407FA**	Faulkner	15.53	PEM	0.00	0.03	0.00
W405FA	Faulkner	16.01	PFO	24.00	0.05	0.02
W301FA	Faulkner	16.02	PFO	169.71	0.09	0.07
W404FA	Faulkner	16.07	PFO	17.10	0.06	0.02
W403FA	Faulkner	16.19	PFO	35.44	0.07	0.02
W402FA[c]	Faulkner	16.29	PFO	21.84	0.00	0.00
W400FA	Faulkner	16.39	PFO	52.31	0.26	0.05
W58FA**	Faulkner	16.84	PFO	0.00	0.01	0.01
W59FA	Faulkner	17.24	PEM	15.03	0.26	0.00

TABLE 2.2.3-1

Wetlands Impacted by the Project

Facility/Wetland [a]	County	Milepost	Classification	Crossing Length (feet)	Construction Impact (acres)	Operation Impact (acres) [b]
W60FA	Faulkner	17.33	PFO	55.65	0.00	0.00
			PFO	1,150.00	0.00	0.00
W61FA[c]	Faulkner	17.50	PEM	312.00	0.00	0.00
			PSS	1,390.70	1.28	0.00
W66PU	Pulaski	18.13	PEM	612.08	0.89	0.00
W64PU	Pulaski	18.48	PFO	30.50	0.02	0.02
W90PU[c]	Pulaski	18.50	POW	590.00	0.00	0.00
W45PU[c]	Pulaski	20.76	PEM	44.00	0.00	0.00
W46PU[c]	Pulaski	20.78	PFO	116.21	0.00	0.00
W48PU	Pulaski	20.95	PFO	0.00	0.06	0.00
W411PU**	Pulaski	24.82	PFO	0.00	0.03	0.00
W120PU	Pulaski	24.38	PSS	18.54	0.02	<0.01
W121PU	Pulaski	24.45	PFO	62.86	0.10	0.04
W113PU	Pulaski	25.45	PEM	0.00	<0.01	0.00
W410PU	Pulaski	28.25	PEM	77.20	0.04	0.00
W109PU**	Pulaski	28.39	PEM	9.40	0.05	0.00
				Line BT-39 Subtotal	**5.96**	**0.84**
Line BT-39 Aboveground Facilities						
None Crossed						
Line BT-40						
None Crossed						
Line BT-41						
None Crossed						
Extra Temporary Workspaces						
W61FA	Faulkner	17.50	PEM	N/A	0.85	0.00
				ETWS Subtotal	**0.85**	**0.00**
Retirement Line B						
W108FA	Faulkner	24.64	PEM	9.23	0.02	0.00
W104FA	Faulkner	26.47	PFO	2.4	<0.01	0.00
W200PU	Pulaski	7.44	PSS	30	0.02	0.00
				Retirement Line B Subtotal	**0.04**	**0.00**
				Totals by Wetland Classification:		
				POW	**<0.01**	**0.00**
				PEM	**4.53**	**0.00**
				PSS	**0.32**	**0.05**
				PFO	**2.00**	**0.79**

TABLE 2.2.3-1

Wetlands Impacted by the Project

Facility/Wetland [a]	County	Milepost	Classification	Crossing Length (feet)	Construction Impact (acres)	Operation Impact (acres) [b]
				PROJECT TOTAL	**6.86**	**0.84**

[a] Some wetlands are listed more than once to separate them into different classifications, as appropriate.

[b] Permanent PFO wetland impacts calculated based on a 30-foot-wide maintained right-of-way in a PSS or PEM state. Permanent PSS impacts calculated based on a 10-foot-wide maintained right-of-way in an emergent state. There would be no permanent impacts on PEM wetlands.

[c] These features are crossed by HDD.

** Feature not crossed by centerline.

PEM = Palustrine Emergent Wetland, PSS = Palustrine Scrub-Shrub Wetland, PFO = Palustrine Forested Wetland

Impacts and Mitigation

Construction of the proposed Project would affect a total of approximately 6.9 acres of wetlands, of which approximately 2.0 acres are PFO, 4.5 acres are PEM, and 0.3 acre is PSS. Of the 6.9 acres of wetlands impacted during construction, a total of 0.9 acre would be permanently impacted by operations. The 0.9 acre of permanent impact would be associated with the conversion of PFO (to PSS or PEM) and PSS (to PEM) wetlands as a result of right-of-way maintenance for the proposed Line BT-39. EGT would not permanently impact PEM wetlands, as those areas would be allowed to revegetate to preconstruction conditions. EGT would mitigate permanent impacts on PFO wetlands by purchasing credits from an approved mitigation bank.

The effects of construction in wetlands would be greatest during and immediately following construction. The majority of these effects would be short-term. Herbaceous vegetation in emergent wetlands would regenerate quickly (typically within 1 to 3 years). In forested and scrub-shrub wetlands, the impact on vegetation would be somewhat greater due to the longer time required for woody vegetation to regenerate.

Project construction and right-of-way maintenance would primarily impact wetlands by altering wetland vegetation through clearing, excavation, or rutting and compaction. Construction could also impact water quality within the wetland due to sediment loading or inadvertent spills of fuel or chemicals. Other impacts in wetlands from construction include temporary changes to hydrology. Construction could increase the potential for erosion and sedimentation and the mixing of topsoil with the subsoil. The temporary stockpiling of soil and movement of equipment in wetlands could also compact and furrow wetland soils, which could alter the natural hydrologic patterns, inhibit seed germination, or increase seedling mortality.

Trenching could penetrate or remove impervious soil layers under the wetland draining perched water tables. Construction clearing activities and disturbance of wetland vegetation could also temporarily affect the wetland's capacity to buffer flood flows and/or control erosion. Construction activities also have the potential to temporarily diminish the recreational and aesthetic value of wetlands.

EGT would minimize the potential for wetland impacts by implementing the measures contained in our Procedures. These measures include: segregating up to 12 inches of topsoil

from the trench line in unsaturated wetlands; limiting the pulling of stumps to that necessary to excavate the trench and safely operate equipment; temporarily installing mats or timber riprap where necessary to create a stable surface for equipment, or using low ground weight equipment to minimize soils mixing and disturbance; installing erosion controls to control sedimentation until disturbed soils are adequately stabilized and adjacent upland areas are restored; reseeding wetlands (except where standing water is present) with annual ryegrass as a temporary control until native vegetation becomes established, and limiting post-construction vegetation maintenance to selective cutting of woody vegetation within 15 feet of the pipeline centerline with roots that could compromise the integrity of the pipeline coating and maintaining no more than a 10-foot wide herbaceous strip centered over the pipeline centerline.

Following construction, EGT would monitor the revegetation of the affected wetlands annually until wetland revegetation is successful. Revegetation would be considered successful when the native vegetative cover is at least 80 percent of the total area. If after 3 years revegetation is not successful, EGT would develop and implement a remedial revegetation plan in consultation with a professional wetland ecologist.

Based on EGT's proposed wetland crossing techniques, the potential impacts on wetlands, and the implementation of proposed minimization and mitigation measures, we believe that construction and operation of the proposed Project would not significantly impact wetlands.

Extra Workspace within Wetlands

In accordance with section VI.B.1.a of FERC's Procedures, ETWS and staging areas must be at least 50 feet from wetlands, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. EGT has provided site-specific justification in accordance with section VI.B.1.b of the Procedures due to construction conditions that require workspace within the 50-foot setback. The locations and justifications are listed in table 2.2.2-3.

Based on our review of the proposed workspaces near the wetlands described above and the mitigation proposed to protect these wetlands, we believe the location of the proposed ETWS is warranted and would not have a significant impact.

Based on the characteristics of the identified wetlands, the potential impacts on those wetlands resulting from construction, the duration of construction, the proposed crossing methods, the proposed mitigation measures for construction, spoil and construction waste storage, and the implementation of our Plan and Procedures, we believe that the impacts on wetlands resulting from construction and operation of the Project would not be significant.

TABLE 2.2.3-2

Extra Temporary Workspaces In or Within 50 Feet of a Wetland Along the Project

ETWS ID	Approx. MP	Disturbed land? Existing Land Use?	Feature ID	Within Wetland?	Distance from Wetland (ft)	Acres of Wetland Impacted	Justification
1	0.01	No-fallow field	W101FA	No	8	0.00	Workspace associated with aboveground facility. Facility located outside wetland, but location is constrained by the intersection of existing pipelines
2	0.07	No-fallow field	W102FA	No	27	0.00	Workspace is adjacent to a road and between two wetlands. It is needed for the crossing of the road.
6	0.26	No-forested	W105FA	No	13	0.00	Workspace is adjacent to railroad and is needed for bore activities.
181-185	17.50	Yes-Ag	W61FA	Yes	0.00	1.28	Not applicable – workspace is within agricultural land.
186-187	18.04	No-forested	W67FA	No	17	0.00	Workspace located where access road meets ROW and is needed for equipment turnouts, parking, and off-loading.
191	18.23	No-forested	W65PU	No	32	0.00	Workspace at edge of ag field and woods. It is needed for equipment turnouts, parking, and off-loading.
192-193	18.48	No-Forested	W64PU	No	28, 25	0.00	Workspace is at edge of ag field and woods. It is needed for placement of HDD equipment.
248	24.38	No-forested	W120PU	No	10	0.00	Workspace needed to support road crossing and point of inflection in pipeline alignment.
276	27.46	No-maintained firebreak for Camp Robinson	W110PU	No	25	0.00	Workspace required for crossing of stream S128PU. Cannot locate on other side of stream due to construction of Line BT-40.

2.3 VEGETATION AND WILDLIFE

2.3.1 Vegetation

Information on vegetation types within the Project area was obtained from available literature, aerial photography, and EGT's field surveys conducted in October of 2012, and January of 2013. The proposed Project would cross seven land cover types: forested, open, residential, industrial/commercial, agricultural, open water, and other lands. Table 2.5-1 summarizes the acreages of each land use type that would be crossed by the Project. Based on filed consultations between EGT and the NRCS, the proposed Project facilities do not cross areas known to have issues with exotic and or invasive species. No unique, sensitive, or protected vegetation areas are within a mile of the proposed Project area.

Forested Land

Approximately 62 percent (200 acres) of the proposed impacted area is forested. These forested lands are characterized as open woodlands and mature second growth. Dominant species include various oak species, sweet gum, hickories, red maple, greenbrier, loblolly pine, long-leaf pine, and eastern red cedar.

Open Land

Construction of the proposed Project would affect approximately 61.6 acres of open land, or approximately 19 percent of land impacted by the Project. This includes undeveloped land with no or minimal tree cover such as pasture, grasslands, successional old fields, shrublands, maintained utility rights-of-way, and PEM and PSS wetlands. PEM and PSS wetland types are discussed in section 2.2.3 above.

Residential and Industrial/Commercial Lands

Construction of the proposed Project would affect approximately 2.1 acres of residential land. These lands are primarily maintained grasses and ornamental trees and shrubs of commercial origins.

Construction of the proposed Project would affect approximately 25.9 acres of industrial/commercial land, or approximately 8 percent of land impacted by the Project. This includes areas of electric power or gas utility stations, manufacturing or industrial plants, landfills, mines, quarries, commercial or retail facilities, roads, and railroads. The industrial/commercial land affected by the Project consists primarily of roadways. Residential and industrial/commercial lands are discussed further in Section 2.5.1 of this EA.

Agricultural Land

Construction of the proposed Project would affect approximately 33.9 acres of agricultural land, or approximately 10 percent of land impacted by the Project. Agricultural lands in the proposed Project area consist primarily of soybean fields and rice farms. No orchards or vineyards were observed along the pipeline right-of-way during EGT's field surveys. No specialty crops would be crossed.

Impacts and Mitigation

Construction of the proposed Project facilities require vegetative clearing, resulting in the loss of wildlife habitat, alteration of water flow and infiltration, and increasing the potential for soil erosion and the introduction of invasive or exotic species. Operation and maintenance of the proposed facilities also would require periodic vegetative clearing. To minimize the amount of new disturbance associated with the installation of the pipeline, approximately 17.5 miles of existing ROWs would be paralleled along the proposed pipeline route. Forested vegetation would be converted to open and developed vegetation. This conversion would be long-term in temporary construction work areas and permanent in the operational right-of-way. EGT minimized the amount of forested vegetation impact during construction by collocating with existing ROWs, by maintaining stream bank/riparian woody vegetation when utilizing HDDs,

and by limiting the width of the construction ROW to the minimum necessary to complete the work. Additionally, EGT has proposed to site numerous ETWS within existing ROWs paralleled by the proposed pipeline route, which would further minimize workspace clearing needs and associated impacts. Agricultural vegetation would be lost for a growing season; however, this impact would be temporary. Residential and open land vegetation would be temporarily impacted.

To minimize potential impacts on vegetation cover types from construction and operations activities, EGT would implement the impact minimization and mitigation measures in our Plan. These measures include:

- installing temporary and permanent erosion control devices;
- seeding the right-of-way after construction;
- monitoring revegetation success; and
- reseeding, if necessary.

Exotic and Invasive Species Control and Mitigation Measures

EGT has consulted with the local Natural Resources Conservation Service (NRCS) offices to obtain recommendations for the control and management of noxious weeds along the pipeline right-of-way. Based on EGT's consultations with local NRCS offices, concerns associated with noxious weeds are not expected for the Project area. Additionally, EGT would follow the practices outlined in the FERC Plan to minimize sediment movement and the associated potential movement of noxious weed seeds. EGT would also use construction techniques that minimize the time that bare soil is exposed and thereby minimize the opportunity for invasive species to become established.

Considering EGT's proposed construction techniques, the characteristics of the identified vegetation groups, the potential impacts on vegetation, and the implementation of minimization and mitigation measures, we believe construction and operation of the proposed pipeline would not significantly impact vegetation.

2.3.2 Fisheries

The Project would require 46 waterbody crossings, all associated with the proposed Line BT-39. They include 12 perennial stream crossings. No marine or estuarine waterbodies would be affected. Appendix B-4 lists surface waterbodies crossed by the Project and includes approximate MP, waterbody name, approximate waterbody width, flow regime (perennial or intermittent), and state designated use. No EFH would be affected by the Project.

Construction of the proposed pipeline would potentially result in the temporary loss of fisheries and aquatic habitat. As a result of this potential loss and other potential impacts on water quality including sedimentation and turbidity, construction of the proposed pipeline could result in injury and/or mortality to fish and aquatic species due to increased stress and changes to behavior patterns. The removal of hydrostatic test water could entrain fish and other aquatic

species and potentially affect water quality, which could also impact fisheries and aquatic resources.

Impacts and Mitigation

To minimize potential impacts on fisheries, EGT would implement measures described in its SPCC Plan and in the FERC Procedures. Specifically, EGT would maintain a vegetated strip adjacent to waterbodies until just prior to construction; restore stream beds to preconstruction conditions; screen water withdrawals; and regulate water discharges.

Section V.B.1 of the FERC Procedures imposes timing restrictions requiring that instream work occur between June 1 and November 30 for warmwater fisheries, unless otherwise specified by the appropriate federal or state agency. Based on filed consultations between EGT and Arkansas Game and Fish Commission (AGFC), all fisheries crossed by the Project are warmwater and no timing restrictions on instream work would be necessary in the Project area. Measures that would be used to minimize impacts on fish include the use of HDD at 7 stream crossings; completing instream construction activities of open-cut crossings within 24 hours for minor streams and within 48 hours for intermediate streams; limiting the use of equipment operating within streams to only that necessary to construct the crossing; and utilizing equipment bridges for the crossing of all other construction equipment. Additionally, EGT will schedule stream crossing activities during low-flow conditions, where practicable.

Hydrostatic test water would be obtained from a municipal source. Upon completion of each test, hydrostatic test water would be discharged in upland areas in accordance with the FERC Procedures and applicable discharge permit requirements. The water would be discharged within or along the edges of the construction right-of-way using energy dissipation devices to minimize erosion and sedimentation.

Based on EGT's proposed waterbody crossing techniques, hydrostatic test water withdrawal and discharge methods, the characteristics of the crossed waterbodies, the potential impacts on fisheries and aquatic resources, and the implementation of minimization and mitigation measures, we believe construction and operation of the proposed pipeline would not significantly impact fisheries and aquatic resources.

2.3.3 Wildlife

The vegetative cover types described previously, including wetlands, also serve as habitat for a variety of wildlife species. Forested habitats provide necessary food, cover, and reproductive habitat for a wide variety of wildlife species. The wildlife communities within forested habitats depend largely on tree species composition and successional stage. Nuts from trees such as oaks and hickories provide food for deer, turkey, mice, and squirrels. Berries from understory shrubs and woody vines may also provide important wildlife foods. Secondary canopy shrubs and saplings, brush piles, and fallen logs provide cover for various small- to medium-sized mammals. Large standing dead trees (particularly with cavities and/or exfoliating bark) provide nesting or roosting sites for a variety of birds, bats, and mammal species, as well as foraging opportunities for birds such as woodpeckers. Forested areas, particularly large un-fragmented tracts, provide important habitat for warblers and other migrating and nesting

songbirds. Game species such as the wild turkey may spend all or most of their time in these forested habitats.

The open land cover type primarily includes pastures, hayfields, old fields, and scrub-shrub lands. Open land is important to many of the same species found in the forested habitats because it provides habitat needed for feeding and "edge" habitat that is important for security and raising young. Edge habitats are transition zone areas where two different habitat types meet, such as forested and open land or agriculture fields. In addition to the increased diversity of wildlife and plant communities, these areas are also used for feeding and predation. Typical species that are dependent on this type of land cover are white-tailed deer, coyote, and red-tailed hawk.

Wetlands crossed by the Project include PFO, PEM, and PSS communities. Although some of the wildlife species noted above may occupy wetland areas from time to time and depend on them for a portion of their normal habitat, several species are typically found only in these habitat types. Wildlife species that are typically found only in wetland ecosystems and are dependent on forested wetlands for much of their life cycle include species such as the American beaver. Emergent and scrub-shrub wetlands also support diverse vegetation and open water communities that provide habitat for species such as the great egret, common muskrat, and a variety of reptiles and amphibians.

Consultations with the U.S. Fish and Wildlife Service (USFWS) and Arkansas Natural Heritage Commission (ANHC) have not identified any significant or sensitive wildlife habitats in the Project area.

Impacts and Mitigation

Construction and operation of the Project may result in short- and long-term impacts on wildlife. Although some wildlife species would be affected, the proposed Project would not likely have a significant impact on local populations or habitats of any species. The extent and duration of impacts would vary depending on the species present in each affected habitat type and their individual life history. Because the Project would not permanently alter the characteristic of a majority of the available habitats, most Project-related impacts are anticipated to be temporary.

The impact of the proposed pipeline segments on wildlife species and their habitats would vary depending on the requirements of each particular species and the existing habitat present along the proposed pipeline routes. The cutting, clearing, and/or removal of existing vegetation would also affect wildlife by reducing the amount of available habitat. The degree of impact would depend on the type of habitat affected and the rate at which vegetation regenerates after construction.

EGT's utilization of existing rights-of-way, to the extent practicable, would minimize impacts on wildlife by reducing the amount of clearing for pipeline installation. The Project would likely increase forest edge habitats along portions of the proposed Line BT-39. The corridor would provide increased utilization and diversity along fragmented forest portions of this facility.

Construction activities, especially clearing of the right-of-way, would reduce feeding, nesting, and cover habitat components until vegetation has become re-established. Mobile species may be temporarily disturbed or displaced from portions of their habitats, and mortality of less mobile species, such as some small mammals, reptiles, or amphibians may occur. However, direct impacts on wildlife along the pipeline corridors and associated work spaces would generally be of short duration and limited to the period of construction activities. Indirect wildlife impacts associated with construction noise and increased activity would be short term but could result in the temporary displacement of wildlife species from the construction areas.

Impacts on non-forested upland habitat and associated species disturbed by construction would be temporary, and these areas are expected to recover quickly once construction is completed. Similarly, Project-related impacts on scrub-shrub and emergent wetland habitats and species would be relatively short term. Forested communities, both upland and wetland, would be affected to a greater extent because of the long-term conversion of these wooded habitats to earlier successional stages in the temporary right-of-way and the permanent conversion to scrub-shrub and/or non-woody herbaceous species in the permanent, maintained right-of-way.

ETWS outside the permanent right-of-way would revert to pre-construction conditions. In accordance with our Plan and Procedures, in upland portions of the permanent right-of-way, vegetation maintenance would be limited to once every 3 years. However, a 10-foot-wide swath centered over the pipeline would be mowed annually for maintenance and inspection purposes. To avoid impacts on ground nesting migratory birds, EGT would not conduct maintenance clearing between April 15 and August 1 of any year. In wetlands, EGT would limit vegetation maintenance to annual mowing of a 10-foot-wide strip centered over the pipeline and the cutting of trees and shrubs greater than 15 feet in height with roots that may compromise the integrity of the pipeline coating. Vegetation maintenance practices on the right-of-way adjacent to waterbodies would consist of maintaining a riparian strip within 25 feet of the stream as measured from the mean high water mark. This riparian area would be allowed to permanently revegetate across the entire right-of-way. However, similar to wetland areas, a corridor centered on the pipeline up to 10 feet wide would be maintained in an herbaceous state and trees and shrubs with roots that may compromise the integrity of the pipeline coating would be selectively cut within 15 feet on either side of the pipeline.

The permanent, maintained right-of-way may function as a travel corridor for some wildlife species and may provide food, cover, and breeding habitat for those species that use open and emergent habitats. In addition, maintained utility rights-of-way can provide important early successional habitats for several important game species and migratory birds.

Based on EGT's proposed construction methods, the characteristics of the wildlife and wildlife habitat potentially affected, and the implementation of its minimization and mitigation measures, we believe construction and operation of the proposed pipeline would not significantly impact local wildlife.

2.3.4 Migratory Bird Treaty Act

Migratory birds are avian species that nest and brood in the United States and Canada during the summer, and then migrate to and from the tropical regions of Mexico, Central and

South America, and the Caribbean for the non-breeding season. A variety of migratory bird species, including songbirds, raptors, and waterfowl, utilize the habitat found within the Project area (see table 2.3.4-1 below).

TABLE 2.3.4-1

Migratory Bird Species of Concern in the Project Area

Common Name	Scientific Name
Least Bittern	*Ixobrychus exilis*
Little Blue Heron	*Egretta caerulea*
Swallow-Tailed Kite	*Elanoides forficatus*
Bald Eagle	*Haliaeetus leucocephalus*
American Kestrel	*Falco sparverius*
Chuck-Will's-Widow	*Antrostomus carolinensis*
Red-Headed Woodpecker	*Melanerpes erythrocephalus*
Loggerhead Shrike	*Lanius ludovicianus*
Brown-Headed Nuthatch	*Sitta pusilla*
Bewick's Wren (*bewickii* ssp.)	*Thryomanes bewickii*
Wood Thrush	*Hylocichla mustelina*
Prairie Warbler	*Setophaga discolor*
Cerulean Warbler	*Setophaga cerulea*
Prothonotary Warbler	*Protonotaria citrea*
Worm-Eating Warbler	*Helmitheros vermivorum*
Swainson's Warbler	*Limnothlypis swainsonii*
Louisiana Waterthrush	*Parkesia motacilla*
Kentucky Warbler	*Geothlypis formosa*
Bachman's Sparrow	*Peucaea aestivalis*
Painted Bunting	*Passerina ciris*
Orchard Oriole	*Icterus spurius*

Sources: U.S. Fish and Wildlife Service, 2008 and Ehrlich, 1988.

Although the USFWS (2013) identified the bald eagle as occurring within this region, no bald eagle nests were observed by EGT in the Project area during field surveys for the proposed Project. If any nesting bald eagles are identified in the Project area prior to construction, EGT would implement measures set forth in the USFWS' 2007 National Bald Eagle Management Guidelines.

The Migratory Bird Treaty Act regulates the taking of and impacts on migratory birds, including their nests. Executive Order 13186 (January 2001) directs federal agencies to avoid or minimize adverse impacts on migratory birds and to identify where unintentional take is likely to have a measurable negative impact on migratory bird populations.

The greatest potential to impact migratory birds would be from Project activities such as grading, tree clearing, and construction noise. Construction may temporarily eliminate a small amount of habitat available for migratory birds; the temporary loss of upland forest may present a long-term impact for migratory birds that depend on forest. Construction noise and activity may also cause migratory birds to temporarily avoid the Project area. Impacts on extensive forested tracts would result in direct forest interior habitat loss in the temporary and permanent

rights-of-way. Eventually, habitat would be restored in the temporary construction right-of-way, and areas with new permanent right-of-way would have a reduction in forest canopy in perpetuity. It may take up to 50 years for forest to regenerate in the temporary right-of-way to near preconstruction conditions. This direct impact on forest interior habitat could indirectly impact some individuals and species that utilize these areas, particularly for breeding, by reducing available habitat.

Another possible indirect impact on forest interior dwelling species involves those species that utilize edge habitat or fragmented forest that may utilize the newly fragmented areas and displace the existing forest interior avian species. Several factors could lead to displacement, including increased interspecific competition for prey and/or fragmentation of territory. To minimize new fragmentation, EGT was able to design the Project to maximize the use of existing rights-of-way. Approximately 17.5 miles (62 percent) of the Project would be collocated (*i.e.*, abutting or located within 200 feet) with existing EGT pipeline, electric transmission corridors, and fire breaks. Approximately 56 acres (28 percent of forested vegetation impacted by construction activities) of previously unfragmented forested lands would be disturbed, or fragmented, by the Project.

EGT has designed the Project in a manner so as to minimize potential impacts on migratory birds and would take other measures during Project construction and operation to limit migratory bird impacts. These measures include:

- routing Project facilities to avoid sensitive resources where possible;
- maximizing the use of existing pipeline rights-of-way and other utility corridors;
- limiting the construction and operation right-of-way widths to the minimum necessary;
- completing the clearing of trees from the construction right-of-way prior to April 15;
- conducting mitigation for impacts on sensitive resources (*e.g.*, wetlands) through agency permit conditions;
- adhering to the measures outlined in the FERC Plan and Procedures during construction of the Project facilities;
- limiting routine right-of-way maintenance clearing and prohibiting clearing during the migratory bird nesting season (April 15 to August 1); and
- limiting routine vegetation maintenance of the full pipeline right-of-way to not more frequently than once every 3 years.

Due to the linear nature of the Project, the abundance of contiguous habitat outside of the proposed right-of-way, and implementation of our Plan and Procedures, construction and operation of the Project would not likely result in long-term, population-level impacts on

migratory birds. EGT determined that impacts on raptors and other migratory birds would be minimized to the extent practicable. On August 22, 2013, USFWS concurred with EGT's determination and further stated that the Project is not likely to result in long-term or cumulative impacts on migratory birds as no substantial changes in habitat availability or suitability are anticipated as a result of the proposed Project.

2.3.5 Threatened and Endangered Species

EGT has consulted with the USFWS, ANHC and AGFC to identify the potential for the Project to affect federally and/or state-listed endangered and threatened species, candidate species or species proposed for such listing, species of special concern, and critical habitats in the vicinity of the proposed Project. Additionally, EGT obtained data from natural heritage databases on known occurrences of federally and/or state-listed threatened or endangered species, other species or natural communities of conservation concern, and special features in proximity to the proposed Project facilities.

EGT conducted an assessment of habitat types in the Project area based on aerial photography review, field studies, and various publicly available resources to determine if any threatened or endangered species could be affected by Project activities. Table 2.3.5-1 identifies and summarizes status and suitable habitat for federally and state-listed species potentially occurring in the Project area.

Federally Listed Species

By letter to EGT representatives dated May 6, 2013, the USFWS provided general comments and technical guidance regarding federally listed endangered and threatened species potentially occurring in the Project area. In its comments, the USFWS identified the red-cockaded woodpecker, interior least tern, running buffalo clover, piping plover, and bald eagle as occurring in the region. EGT submitted additional correspondence to the USFWS on June 4, 2013, describing the results of additional field surveys that had been conducted in association with proposed route modifications for the Project. By letter dated June 13, 2013, the USFWS stated that the Project is *not likely to adversely affect* any federally listed species.

TABLE 2.3.5-1

Federally and State-listed Species of Concern with Potentially Suitable Habitat within the Project Area

Common Name/Scientific Name	Status	Habitat within Project Area known to Occur	Suitable Habitat Present	Effect Determination
FEDERALLY LISTED [a]				
Red-cockaded woodpecker (*Picoides borealis*)	E	Mature pine forests, specifically those with long leaves.	No	Not likely to adversely affect.
Interior least tern (*Sterna antillarum athalassos*) [b]	E	Sand and gravel islands in the Arkansas and Mississippi Rivers.	No	Not likely to adversely affect.
Piping plover (*Charadrius melodus*)	T	Nests on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands and on beaches, sand bars, and dredged material islands of major river systems.	No	Not likely to adversely affect.
Running buffalo clover (*Trifolium stoloniferum*)	E	Mesic woodlands in partial to filtered sunlight, where there is a pattern of moderate periodic disturbance for a prolonged period, such as mowing, trampling, or grazing. Limestone or calcareous substrate.	No	Not likely to adversely affect.
Bald eagle (*Haliaeetus leucocephalus*)	Delisted / BGEPA	Estuaries, large lakes, reservoirs, rivers, and some seacoasts.	No	Not likely to adversely affect.
STATE LISTED				
Opaque prairie sedge (*Carex opaca*)	E	Moist depressions, drainages, and swales in wet or mesic prairie; also colonizes roadside ditches and railroad rights-of-way; often in heavy, clayey soils.	Yes	Not likely to cause a trend toward federal listing.
Open ground whitlow grass (*Draba aprica*)	T	Thin soils exposed to at least partial sun; 4-5-cm-deep soils near the edges of tree islands (Gaddy, undated) on Granite Outcrops; in other areas it may be in shallow soil over or among boulders or in excessively drained sandy or gravelly soils.	Yes	Not likely to cause a trend toward federal listing.
Alabama snow-wreath (*Neviusia alabamensis*)	T	Forested bluffs, talus slopes, and stream banks on a variety of geologic substrates, soil types, and aspects, and under open- to completely closed-canopy conditions; most typical habitat may be within forested areas on thin soil over limestone that is moist for part of the year (seasonal streambeds, margins of sinkholes, river bluffs); usually found in large clonal clumps.	Yes	Not likely to cause a trend toward federal listing.
Rein orchid (*Platanthera flava*)	T	Sandy silt alluvium and rotting logs in bottomland (floodplain) forests, wet thickets, or hydric hammock communities; it also occurs in wet-mesic prairies and wet meadows.	Yes	Not likely to cause a trend toward federal listing.
Purple fringeless orchid (*Platanthera peramoena*)	T	Habitats include moist meadows and prairies, prairie swales, openings in floodplain woodlands, swamps, moist thickets, gravelly seeps, stream banks, poorly drained fallow fields, and ditches; this orchid benefits from disturbance that reduces overhead trees and other kinds of competing vegetation; it often is found in seasonal wetlands that are flooded during the spring, but dry out during the summer.	Yes	Not likely to cause a trend toward federal listing.

TABLE 2.3.5-1

Federally and State-listed Species of Concern with Potentially Suitable Habitat within the Project Area

Common Name/Scientific Name	Status	Habitat within Project Area known to Occur	Suitable Habitat Present	Effect Determination
Bush's poppy mallow (*Callirhoe bushii*)	R	Habitats include rocky open woods, along the borders of limestone glades, roadsides and fence rows. The substrate is usually calcareous, and the soil is typically deeper than that found on glades or barrens. This species often occurs in habitats that are sparse in shrub and other woody vegetation cover. Although this species is sometimes found in shaded areas, the preferred habitat is usually open.	Yes	Not likely to cause a trend toward federal listing.
Nuttall's pleat-leaf (*Nemastylis nuttallii*)	R	Habitats include cherty open slopes bordering cedar woods, along the borders of limestone glades, and limestone barrens.	Yes	Not likely to cause a trend toward federal listing.

[a] Following consultation, the U.S. Fish and Wildlife Service has determined that the proposed Project is not likely to adversely affect federally listed species.

[b] Species is listed as both federally and state endangered.

Notes: E, Endangered; S, Special Concern; SOC, Species of Concern; T, Threatened; R, Rare; BGEPA, Bald and Golden Eagle Protection Act

Sources: Gray's Herbarium, plants.usda.gov, naturalheritage.com, natureserve.org

Red-cockaded Woodpecker (*Picoides borealis*)

The red-cockaded woodpecker is a small woodpecker with black wings, a black cap, a dull white breast with small black spots, and a barred, black and white back. They occur primarily in mature, long leaf, pine forests. They are rarely found in deciduous or mixed pine-hardwood forests (NatureServe, 2013). There is one location throughout the proposed and existing pipeline corridors that includes larger areas of mature, long leaf, pine forests. These areas are in Camp Robinson, in the southern portion of the action area. As it relates to the abandonment pipeline, this pipeline corridor is devoid of mature trees and the work proposed here is simply to access valve locations for decommissioning. The proposed new pipeline corridor is within or immediately adjacent to a routinely plowed fire break that ranges from 50 to 100 feet wide. There may be scattered individual pine trees that would be felled, but there are no large stands of long leaf pine trees that would be removed as part of the undertaking. Due to the minimized tree removal, combined with the transient nature of the red-cockaded woodpecker, we conclude the proposed Project is *not likely to adversely affect* the species.

Interior Least Tern (*Sterna antillarum athalassos*)

The interior least tern is a small shore bird that is found throughout much of the United States and migrates as far south as northern South America. Nesting and foraging habitats are near larger bodies of water, such as ocean coasts, lagoons, tidal flats, estuaries, rivers, and large streams and include beaches, sand dunes, and sand and gravel bars. In inland areas, the interior least tern inhabits islands, beaches, sandbars, dredge islands, sandpits, and gravel roads on top of levees (Missouri Department of Conservation, 2013). They typically migrate into the general Project area from April to mid-May and tend to nest around large rivers away from the water line in gravel or sand depressions. EGT would not impact any large rivers or other major waterbodies by the Project and no sand or gravel depressional areas were identified during field surveys. No interior least terns were seen or heard during field surveys, and there are no known occurrences of the species within the Project area. Although Lake Carol Dan and the Arkansas River are in the general Project area, and may provide suitable tern nesting habitat, the proposed Project does not cross, or is directly adjacent to these resources. For these reasons, we conclude that construction and operation of the proposed Project is *not likely to adversely affect* the interior least tern or its preferred habitat.

Piping Plover (*Charadrius melodus*)

The piping plover is a small, stocky shorebird that nests on open, sparsely vegetated sand or gravel beaches adjacent to wetlands and on beaches, sand bars, and dredged material islands of major river systems. Piping plovers are migratory birds that breed in the spring in the northern United States and Canada. They nest on shorelines of the Great Lakes, the shores of rivers and lakes in the Northern Great Plains, and along the Atlantic Coast. In the fall, plovers migrate south and winter along the coast of the Gulf of Mexico or other southern locations (USFWS, 2013). EGT would not impact any large rivers or other major waterbodies by construction of the Project and no sand or gravel beaches were identified during field surveys. No piping plovers were seen or heard during field surveys, and there are no known occurrences of the species within the Project area. Although Lake Carol Dan and the Arkansas River, which are in the general Project area and may provide suitable plover habitat, the proposed Project does

not directly cross, nor is located directly adjacent to these resources. For these reasons, EGT concludes that construction and operation of the proposed Project is *not likely to adversely affect* the piping plover or its preferred habitat.

Running Buffalo Clover (*Trifolium stoloniferum*)

The running buffalo clover is found in mesic woodlands in partial to filtered sun on limestone and other calcareous substrates. It occurs in areas of moderate disturbance for a prolonged period, such as mowing, trampling, or grazing. The preferred habitat of the running buffalo clover may exist throughout the extreme northern, central, and extreme southern portions of the proposed project corridor. The USFWS determined that the northern portion did not include any populations of running buffalo clover. The forested areas within the central portion of the proposed route are steeper, rockier, and exhibit a more xeric moisture regime, and therefore, do not provide suitable habitat. Also, according to the revised USFWS endangered species inventory dated March 5, 2013, there are currently no known individuals or populations of running buffalo clover in Faulkner County, which includes the northern and central portions of the Project corridor.

The revised inventory does indicate known individuals or populations in Pulaski County, which corresponds with the southern portions of the project corridor. The geology underlying this portion of the action area includes Quaternary sands, gravels, and alluvium (associated with floodplains). It is also underlain by the Upper and Lower Atoka formations and the Jackfork Sandstone formation. According to the Arkansas Geologic Survey (AGS), these formations are composed primarily of sandstones and shales, and rarely include calcareous beds. Furthermore, according to the United States Department of Agriculture, NRCS, the soils underlying the southern portion of the action area include members of the Leadvale, Linker, and Mountainburg series (USDA, 2013). Based upon the chemical soil properties for these soils, they are not alkali soils and have mid-to low pH's that range from 4.5 to 6. Therefore, it is believed any known occurrences of running buffalo clover in Pulaski County would likely occur in calcareous substrates outside of the Project corridor. For these reasons, we conclude that construction and operation of the proposed Project is *not likely to adversely affect* the running buffalo clover or its preferred habitat.

Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle is a raptor of aquatic ecosystems that prefers habitat near seacoasts, rivers, large lakes and other large areas of open water. The species primarily uses old growth and mature stands of conifers or hardwoods to nest, perch and roost. Bald eagles usually select the oldest and tallest trees that provide visibility, an open structure, and are near prey. Bald eagles generally prefer areas away from human disturbance and select nesting sites near large bodies of water with an abundance of warm-water fish. No large rivers or other major waterbodies would be impacted by the Project. No bald eagles were seen or heard during field surveys, and there are no known occurrences of the species within the Project area. Although Lake Carol Dan and the Arkansas River are within 660 feet of the general Project area, and may provide potentially suitable eagle nesting habitat, the proposed Project does not directly cross, nor is it located directly adjacent to these resources. Lake Carol Dan lies east and north of the Project near MP 3.0; the Arkansas River is west of the Project, being in closest proximity between MP 2.0 and

MP 5.0. Two access roads in this location, Line BT-39 AR2.62 and AR2.63, lie within 100 feet of the Arkansas River. These access roads represent existing roads (two different sections of Marinda Lane) that are currently utilized for access to an active, existing quarry. Additionally, while the bald eagle has been recorded within a one-mile buffer of the Project by the ANHC, no known bald eagle or osprey nests were reported within 0.25 mile of the proposed Project area. For these reasons, we conclude that construction and operation of the proposed Project would not cause a trend in federal listing of the bald eagle or its preferred habitat.

State-listed Species

In Arkansas, the ANHC is responsible for administering the state endangered species laws. As identified in table 2.3.5-1, two state-listed endangered species and four state-listed threatened plant species occur within a 5-mile buffer of the Project area. By their letter dated October 18, 2012, the ANHC noted two rare plant species of state conservation concern (see below) within in the Project area and provided a list of elements of special concern within 5 miles of the Project. Of the species noted in the element list, only one species, opaque prairie sedge, has been documented as occurring within one mile of the Project corridor.

Opaque Prairie Sedge (*Carex opaca*)

The opaque prairie sedge is a perennial sedge that grows in large, dense clumps to three feet tall. It can be found in moist depressions, drainages, and swales in wet or mesic prairie. It also colonizes roadside ditches and railroad rights-of-way, often in heavy, clayey soils. There are currently no known individuals or populations of opaque prairie sedge within the Project corridor and no species were identified by EGT during wetland field studies. For these reasons, EGT concludes that construction and operation of the proposed Project is not likely to cause a trend toward federal listing of the opaque prairie sedge or its preferred habitat.

Open Ground Whitlow-Grass (*Draba aprica*)

Open ground whitlow-grass is an annual forb of the mustard family. It is native to Arkansas, growing on thin soils exposed to at least partial sun. It may be found near the edges of tree islands or on granite outcrops; in other areas it may be in shallow soil over or among boulders or in excessively drained sandy or gravelly soils. There are currently no known individuals or populations of open ground whitlow-grass within the Project corridor. Additionally, no species were identified by EGT during a walkover of the Project site performed for wetland field studies. For these reasons, EGT concludes that construction and operation of the proposed Project is not likely to cause a trend toward federal listing of the open ground whitlow-grass or its preferred habitat.

Alabama Snow-wreath (*Neviusia alabamensis*)

Alabama snow-wreath is a shrub in the rose family. It may be found on forested bluffs, talus slopes, and stream banks on a variety of geologic substrates, soil types, and aspects, and under open- to completely closed-canopy conditions. The most typical habitat may be within forested areas on thin soil over limestone that is moist for part of the year (seasonal streambeds, margins of sinkholes, river bluffs). It is usually found in large clonal clumps. There are currently no known individuals or populations of Alabama snow-wreath within the Project

corridor. Additionally, no species were identified by EGT during a walkover of the Project site performed for wetland field studies. For these reasons, EGT concludes that construction and operation of the proposed Project is not likely to cause a trend toward federal listing of the Alabama snow-wreath or its preferred habitat.

Rein Orchid (*Platanthera flava*)

Rein orchid is a perennial herbaceous plant with 10-40 yellow or yellow-green flowers along an erect stem. It occurs on sandy silt alluvium and rotting logs in bottomland (floodplain) forests, wet thickets, or hydric hammock communities. It also occurs in wet-mesic prairies and wet meadows. There are currently no known individuals or populations of rein orchid within the Project corridor. Additionally, no species were identified by EGT during wetland field studies. For these reasons, EGT concludes that construction and operation of the proposed Project is not likely to cause a trend toward federal listing of the rein orchid or its preferred habitat.

Purple Fringeless Orchid (*Platanthera peramoena*)

Purple fringeless orchid is a terrestrial orchid found growing in moist meadows and prairies, prairie swales, openings in floodplain woodlands, swamps, moist thickets, gravelly seeps, stream banks, poorly drained fallow fields, and ditches. This orchid benefits from disturbance that reduces overhead trees and other kinds of competing vegetation. It often is found in seasonal wetlands that are flooded during the spring, but dry out during the summer. There are currently no known individuals or populations of purple fringeless orchid within the Project corridor and no species were identified by EGT during wetland field studies. For these reasons, EGT concludes that construction and operation of the proposed Project is not likely to cause a trend toward federal listing of the purple fringeless orchid or its preferred habitat.

Species of Special Concern

As noted above, the ANHC noted in their letter dated October 18, 2012 that two rare plant species of state conservation concern occur within in the Project area. The ANHC identified the two species of state conservation concern (table 2.3.5-1) as occurring within Camp Robinson. These species have been identified in the vicinity of an existing access road to be used for the Project. On the recommendation of the ANHC, EGT consulted with Brian Mitchell at Camp Robinson who indicated that use of the existing access road in the vicinity of the plant species would require no special protection measures. We believe, based on the proposed activity in the vicinity of the species, that construction and operation of the proposed Project would not likely cause a trend toward federal listing of species of special concern.

Impacts and Mitigation

Federally Listed Species

There are no known occurrences of any of the listed species within the Project corridor and no individuals were identified during biological field surveys of the Project. Additionally, the proposed Project does not directly cross, nor is located directly adjacent to habitat of the listed species. Therefore, we concur with the USFWS that construction and operation of the proposed Project would not likely adversely affect federally listed species or critical habitat.

State-Listed Species

There are no known occurrences of any of the listed species within the Project corridor and no individuals or populations of the listed species were identified during surveys conducted by EGT. Based on the potential impacts on water resources, vegetation, fisheries and aquatic resources, and wildlife described previously, that construction and operation of the proposed Project would not likely adversely affect state listed species or critical habitat.

Species of Special Concern

Though there are known occurrences of the two rare plant species, we believe, based on the proposed activity in the vicinity of the occurrences, that construction and operation of the proposed Project would not likely adversely affect state species of special concern.

2.4 CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act (NHPA), as amended, requires the Commission to take into account the effects of its undertakings (including the issuance of Certificates) on properties listed or eligible for listing in the National Register of Historic Places (NRHP), and to afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the undertaking. EGT, as a non-federal party, has been assisting the FERC in meeting its obligations under Section 106 and the ACHP's regulations set forth at 36 CFR Part 800.

2.4.1 Consultations and Cultural Resource Surveys

EGT consulted with the Arkansas Historic Preservation Program, which serves as the Arkansas State Historic Preservation Office (SHPO), regarding cultural resources and historic properties potentially affected by the Project. Prior to commencement of field surveys, EGT conducted background research and searched the site files maintained by the applicable state entities to identify previously documented cultural resources within or near the Project area. The searches examined a 1-mile corridor centered on proposed pipeline corridors and boundaries of the proposed aboveground facilities.

EGT conducted a Phase I cultural resources survey of the proposed Project area in October 2012, and January and February 2013 to identify any cultural resources that might be affected by the undertaking. A portion of the Project area was previously surveyed as part of an earlier EGT Project, known as the Line BT-14 Replacement Project. The SHPO concurred with the results of the survey in 2012. The Phase I inventory examined the environmental survey corridor, which was generally 200-feet-wide for the BT-14 survey and 150- to 200-feet-wide for the new Line BT-39 Pipeline corridor. The width of the cultural survey corridor encompassed the full width of the proposed construction corridor in addition to extra temporary workspaces. Archaeological reconnaissance, as well as architectural evaluation of all standing structures older than 50 years in age located within or immediately adjacent to the proposed Project corridor and all Project facilities, was undertaken as part of the cultural resources investigation. In addition, EGT conducted archaeological surveys for portions of the Line B Retirement portion of the Project. A 50-foot-wide survey corridor was examined for those areas identified for potential

removal. Workspaces outside the environmental survey corridor, including access roads and pipeyards/contractor yards were examined through appropriate testing strategies.

2.4.2 Impacts and Mitigation

The combined cultural resources surveys of the Project resulted in the identification of 20 new archaeological sites, revisiting four previously recorded archaeological sites, identification of eight Isolated Finds, and revisiting one previously recorded historic resource. Table 2.4.2-1 lists the cultural resources identified during the survey. The table also lists resource type, NRHP status, and recommendations regarding additional work for each resource. A description of the sites that were either undetermined or eligible for listing in the NRHP is provided below.

TABLE 2.4.2-1

Cultural Resources Identified During Phase I Survey of the Project Area

Site Number	Facility/Segment	County	Resource Type	Recommended NRHP Status	Recommended Action [a]
3FA0266	Line BT-39	Faulkner	Prehistoric artifact scatter	Not eligible	No additional work
3FA0267	Line BT-39	Faulkner	Historic artifact scatter	Not eligible	No additional work
3FA0268	Line BT-39	Faulkner	Prehistoric isolated projectile point	Not eligible	No additional work
3FA0269	Line BT-39 Route variation	Faulkner	Late 20th Century farmstead	Not eligible	No additional work
3FA0265	Line BT-39 Route variation	Faulkner	Historic artifact scatter	Not eligible	No additional work
3FA0270	Line BT-39 Route variation	Faulkner	Isolated prehistoric artifact	Not eligible	No additional work
3FA0099	Proposed Contractor/Storage Yard	Faulkner	Multi-component prehistoric and historic artifact scatter	Not eligible	No additional work
3FA0100	Line BT-39	Faulkner	Prehistoric artifact scatter	Not eligible	No additional work
3FA0274	Line BT-39	Faulkner	Prehistoric artifact scatter	Not eligible	No additional work
3FA0275	**Line BT-39**	**Faulkner**	**Prehistoric artifact scatter**	**Undetermined**	**Avoided by use of HDD**
3FA0276	**Line BT-39**	**Faulkner**	**Prehistoric artifact scatter**	**Undetermined**	**Avoided by reroute**
3FA0277	Line BT-39	Faulkner	Multi-component prehistoric and historic artifact scatter	Not eligible	No additional work
3FA0278	**Line BT-39**	**Faulkner**	**Historic artifact scatter**	**Undetermined**	**Avoided by reroute**
3FA0279	Line BT-39	Faulkner	Multi-component prehistoric artifact scatter and historic domestic site	Not eligible	No additional work
3PU0691	Line BT-39	Pulaski	Multi-component prehistoric artifact scatter and historic domestic site	Not eligible	No additional work
3PU0777	Line BT-39	Pulaski	Historic domestic site	Not eligible	No additional work
3PU0844	**Line BT-39**	**Pulaski**	**Multi-component prehistoric camp site and historic domestic site**	**Undetermined**	**Avoided by use of HDD**
3PU0845	Line BT-39	Pulaski	Prehistoric artifact scatter	Not eligible	No additional work

TABLE 2.4.2-1

Cultural Resources Identified During Phase I Survey of the Project Area

3PU0846	Line BT-39	Pulaski	Prehistoric artifact scatter	Not eligible	No additional work
3PU0847	Line BT-39	Pulaski	Multi-component prehistoric artifact scatter and historic domestic site	Not eligible	No additional work
3PU0848	Line BT-39	Pulaski	Prehistoric artifact scatter	Not eligible	No additional work
3PU0849	Line BT-39	Pulaski	Historic domestic site	Not eligible	No additional work
3PU0850	**Line BT-39**	**Pulaski**	**Prehistoric artifact scatter**	**Undetermined**	**Avoided by reroute**
3PU0851	Line BT-39	Pulaski	Prehistoric isolated projectile point	Not eligible	No additional work
Isolated Find #1	Line BT-39	Pulaski	Isolated prehistoric artifact	Not eligible	No additional work
Isolated Find #2	Line BT-39	Faulkner	Isolated prehistoric artifact	Not eligible	No additional work
Isolated Find #3	Line BT-39	Faulkner	Isolated prehistoric artifact	Not eligible	No additional work
Isolated Find #4	Line BT-39	Pulaski	Isolated prehistoric artifact	Not eligible	No additional work
Isolated Find #5	Line BT-39	Pulaski	Isolated prehistoric artifact	Not eligible	No additional work
Isolated Find #6	Line BT-39	Faulkner	Isolated prehistoric artifact	Not eligible	No additional work
Isolated Find #7	Line BT-39	Faulkner	Isolated prehistoric artifact	Not eligible	No additional work
Isolated Find #8	Line BT-39	Pulaski	Isolated prehistoric artifact	Not eligible	No additional work
FA1041	**Line BT-39**	**Faulkner**	**Historic road**	**Eligible**	**Avoided by reroute**

[a] Items identified in **bold print** were recommended for avoidance or additional work by EGT to determine NRHP eligibility. Selected action is noted.

Site 3FA0276 is a moderate to high density prehistoric lithic scatter located on an abandoned channel of the Arkansas River. Recovered artifacts could not be associated with a specific temporal period. Site 3FA0276 was recommended for avoidance or additional work to determine the NRHP eligibility. EGT developed and adopted Route Variation RV-5 (see section 3.5) to avoid Site 3FA0276. Therefore, construction of Line BT-39 will not affect Site 3FA0276.

Site 3FA0279 is a historic domestic site and a light prehistoric lithic scatter. The site consists of a remnant of a stone chimney, a depression that may be a root cellar or collapsed well, and cultural materials that date to the mid nineteenth to mid-twentieth century. The site may represent an early frontier era domestic site. Site 3FA0279 was recommended for avoidance or additional work to determine the NRHP eligibility. EGT developed and adopted Route Variation RV-2 (see section 3.5) to avoid Site 3FA0279. Therefore, construction of Line BT-39 will not affect Site 3FA0279.

Sites 3FA0275 and 3PU0850 are both moderate to high density prehistoric lithic scatters. Site 3FA0275 likely dates to the Woodland period and Site 3PU0850 likely dates to the Archaic period based on recovered projectile points. Sites 3FA0275 and 3PU0850 were recommended

for avoidance or additional work to determine the NRHP eligibility. EGT extended the planned length of the Palarm Creek horizontal directional drill (HDD) to avoid Sites 3FA0275 and 3PU0850. Therefore, construction of Line BT-39 will not affect Sites 3FA0275 or 3PU0850.

Site 3PU0844 is a moderate density prehistoric lithic scatter and a historic period domestic site. The site consists of prehistoric artifacts indicating that the site may have functioned as a camp site. Historic artifacts and the remnants of a structural outbuilding indicate a late nineteenth to mid-twentieth century domestic site. Avoidance or additional work to determine the NRHP eligibility of the prehistoric component of Site 3PU0844 was recommended for Site 3PU0844. EGT extended the planned HDD of Interstate 40 to avoid Site 3PU0844. Therefore, construction of Line BT-39 will not affect Site 3PU0844.

Historic Resource FA1041 was identified as being located within or immediately adjacent to the cultural survey corridor during background research for the Project. This resource is a segment of the Little Rock to Cantonment Gibson Military Road previously determined eligible for inclusion in the NRHP. Field surveys determined that the southern end of the resource was within the cultural survey corridor but not within the proposed construction workspace. Avoidance was recommended for FA1041. To ensure the resource would be avoided, EGT developed and adopted route variation RV-3 (see section 3.5) for the Project. Therefore, FA1041 will not be affected by construction of Line BT-39.

The Little Rock to Cantonment Gibson Military Road was used as part of the overland route for the Trail of Tears passage through Arkansas. The proposed Line BT-39 crosses the mapped location of the Trail of Tears in several locations. Field surveys did not positively identify cultural resources associated with these locations, except for the location of Historic Resource FA1041. Therefore, the construction of the proposed Project will not affect resources associated with the mapped location of the Trail of Tears.

The remaining cultural resources were assessed as not significant and no additional testing was recommended. EGT submitted its report of cultural resources surveys titled *Phase I Cultural Resources Survey for the Proposed Central Arkansas Pipeline Enhancement Project in Faulkner and Pulaski Counties, Arkansas* to the Arkansas SHPO on August 2, 2013. On September 3, 2013, the SHPO provided a letter of concurrence with the recommendations of that report. EGT filed an Unanticipated Discovery Plan for the Project with the Phase I report to be used in the event that cultural resources or human remains are discovered during construction. We have reviewed both the report and the Unanticipated Discovery Plan and have determined that the Central Arkansas Pipeline Enhancement Project will not affect resources listed on or eligible for listing on the NRHP.

Since the initial cultural resources surveys, EGT made some minor changes to the proposed Project workspace, resulting in approximately 1.4 acres of workspace outside the original survey corridor. These changes were surveyed in August, 2013, and no sites were discovered. EGT indicates that it plans to submit an addendum report to the Arkansas SHPO, seeking concurrence with its negative findings.

EGT provided information about the proposed Project to 20 Native American Tribes with historic ties to the Project area. Responses were received from seven of the tribes: the

Chickasaw Nation, the United Keetoowah Band of Cherokee Indians, The Delaware Nation, the Kialegee Tribal Town, The Choctaw Nation of Oklahoma, the Eastern Shawnee Tribe of Oklahoma, and the Osage Nation. Two tribes indicated that they had no interest or objection to the Project. Two other tribes asked to be contacted should cultural materials be identified. The Choctaw Nation of Oklahoma, the Osage Nation, and the Kialegee Tribal Town requested copies of the cultural reports and/or to be consulting parties during the pre-filing process. The tribal nations were also provided with the Commission's NOI and copies of this EA.

We are awaiting EGT's submittal of its addendum report for cultural resources and the Arkansas SHPO comments on the report to draw conclusions on the impacts on cultural resources within the proposed Project area. Therefore, **we recommend that:**

- **EGT should not begin construction of the proposed facilities and/or use of staging, storage, or temporary work areas and new or to-be-improved access roads until:**
  - **a. EGT files with the Secretary:**
    - **i. comments on the cultural resources addendum report from the Arkansas SHPO;**
  - **b. the FERC staff reviews and the Director of OEP approves the cultural resources addendum report, and notifies EGT in writing that construction may proceed.**

Materials filed with the Commission containing location, character, and ownership information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: "CONTAINS PRIVILEGED INFORMATION - DO NOT RELEASE."

2.5 LAND USE, RECREATION AND AESTHETICS

Construction and operation of the Project would impact seven land use types. These are in order of most to least prevalent: forested land, industrial/commercial land, open (nonagricultural) land, residential land, agricultural land, open water, and other land. Table 2.5-1 lists by facility the acreage of each land use that would be affected by construction and operation of the Project.

EGT would negotiate with landowners to acquire easements to construct and operate the proposed facilities. These negotiations would also cover compensation for damages. If an easement cannot be negotiated and a FERC Certificate is issued approving the Project, EGT could acquire use of the property through the eminent domain authority that would be granted to it under Section 7(h) of the NGA. If this were to occur, the level of compensation due the landowner would be determined by a court in accordance with applicable laws.

TABLE 2.5-1

LAND USES AFFECTED BY THE PROJECT (ACRES)

Facility	Agricultural Land		Forest/ Woodland		Residential Land		Industrial/ Commercial Land		Open Land		Open Water		Other Land		Total	
	Const.	Oper.[1]	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.[1]	Const.	Oper.	Const.	Oper.	Const.	Oper.
BT-39 Pipeline[2,3]	22.17	0	171.32	88.75	1.05	0.51	2.79	1.00	36.89	0	0	0	0	0	**234.22**	**90.26**
BT-40 Pipeline[4]	0	0	0	0	0	0	0	0	0.20	0	0	0	0	0	**0.20**	**0**
BT-41 Pipeline[4]	0	0	1.14	0.69	0	0	0.02	0	0.40	0	0	0	0	0	**1.56**	**0.69**
Pipeline ETWS	8.11	0	14.19	0	0.08	0	0.22	0	7.24	0	0	0	0	0	**29.84**	**0**
Pipe/Contractor Yard	0	0	0	0	0	0	0	0	9.60	0	0	0	0	0	**9.60**	**0**
Aboveground Facilities	0	0	0.57	0.57	0	0	1.74	1.74	0.00	0.00	0	0	0	0	**2.31**	**2.31**
Access Roads	3.56	0.03	12.29	0.00	0.42	0	18.48	0.00	6.02	0.30	0	0	0	0	**40.77**	**0.33**
Retirement Work Areas	0	0	0.44	0	0.59	0	2.65	0	1.21	0	0	0	0.11	0	**5.00**	**0**
Total	**33.84**	**0.03**	**199.95**	**90.01**	**2.14**	**0.51**	**25.90**	**2.74**	**61.56**	**0.30**	**0**	**0**	**0.11**	**0**	**323.50**	**93.59**

[1] Although permanent pipeline easement is proposed within Agricultural and Open Lands, no change in vegetative cover type will result from the maintenance of the pipeline easement. Agricultural and Open Lands will be allowed to revert to pre-construction conditions, and the proposed permanent pipeline easement will not restrict current land use in these areas. Therefore, no permanent impacts will result. Permanent easement in agricultural and open lands will total 13.61 and 29.15 acres, respectively.

[2] Construction acreages reflect a nominal 65- to 75-foot-wide construction right-of-way, except in areas encompassed by horizontal directional drill (HDD) crossings, which will not require construction right-of-way between the HDD entrances and exits.

[3] Operation acreages reflect a nominal 40-foot-wide permanent easement for Line BT-39. A permanent easement will be retained in areas encompassed by HDD crossings; however, these areas generally will not require clearing or routine maintenance. Operation impacts on PSS wetlands are based on a 10-foot-wide corridor, over the pipeline that will be maintained in an herbaceous state. Operation impacts on PFO wetlands are based on a 30-foot-wide corridor, due to the potential for selective thinning of trees within 15 feet of the pipeline with roots that may compromise the integrity of the pipeline coating.

[4] Operation acreages reflect a nominal 20-foot-wide permanent easement for Lines BT-40 and BT-41.

2.5.1 Impacts and Mitigation

Construction of the Project would result in the disturbance of about 323.50 acres of land. Approximately 93.59 acres of this land would be retained as permanent right-of-way to operate the pipeline. The remaining 229.91 acres of temporary workspace (including pipe and contractor yards) would be restored and allowed to revert to its former use.

The proposed pipelines would impact approximately 200 acres of forested land. As discussed previously, the amount of forested land potentially affected by the Project was significantly reduced by EGT's collocation and (where possible) use of existing utility corridors for the construction of the proposed facilities. Forested land impacts are primarily associated with Line BT-39 (about 171.32 acres). About 90.01 acres of forest land on the new permanent rights-of-way, access roads or aboveground facilities would be prevented from becoming re-established by periodic vegetation maintenance, and thus would be converted to open land. The remaining 109.94 acres of forest impact would be within temporary workspaces, ETWS, access roads, and retirement aboveground work areas; these areas would be allowed to revegetate naturally. However, it is estimated that reestablishment of trees in this area would take between 20 and 40 years, depending on the age and size of the trees that are cleared.

The open land use includes old fields, pasture, hayfields, and other undeveloped, non-forested areas, including existing maintained rights-of-way. Impacts to areas characterized as open land are expected as a result of construction and operation of the Project. About 61.56 acres of open land would be disturbed during construction. Following construction, these areas would primarily be restored and revegetetated. About 0.30 acre of open land use would be converted to use as a permanent access road. No other open land use would be converted to other uses as a result of construction or operation of the project. Therefore, impacts to open land use are considered minor and short term.

Construction of the Project would impact about 33.84 acres of agricultural lands. Impacted agricultural lands lie along Line BT-39 and access roads. Short-term impacts on agricultural land use are expected as a result of construction and operation of the Project. All temporarily disturbed areas would be restored and returned to their previous agricultural land use after construction, and agricultural activities could resume in affected areas; therefore, no permanent impacts to agricultural land are anticipated. EGT would implement the construction and restoration procedures in accordance with the FERC Plan to minimize impacts in agricultural land.

Most of the project areas has forested, open, agricultural or industrial/commercial land use; few residential properties would be impacted by construction. EGT identified 21 structures that would be within 50 feet of the proposed construction work areas. Nine of these are residential structures (2 abandoned); however, none are located with 25 feet of proposed work areas (see table 2.5-2).

There are no new planned residential developments within 0.25 mile of the construction right-of-way, but approximately 2.14 acres of existing residential land would be impacted by the Project. Of this residential land, 0.51 acre would be located within EGT's existing permanent right-of-way. Therefore, the Project would not substantially encumber existing or proposed

residential property. Following construction, residential areas would be restored in accordance with the FERC Plan to pre-construction conditions or as specified in landowner agreements. If any residential property is damaged during construction, EGT would repair the damaged property or provide compensation at fair market value.

TABLE 2.5.1-2

Aboveground Structures Located Within 50 Feet of the Construction Work Area Associated with the Project

Facility	Feature	Milepost	Distance from Construction Pipeline Permanent Easement (feet)	Distance from Temporary Workspace (feet)
Line BT-39				
	Shed	0.37	6	N/A
	Shed	0.82	49	14
	Shed	0.83	58	23
	Shed	0.87	73	39
	Shed	1.88	38	N/A
	Single Family House	3.84	31	N/A
	Shed	4.00	12	N/A
	Single Family House	4.22	30	N/A
	Barn	14.35	57	23
	Shed	14.48	63	28
	Mobile Home	15.98	42	N/A
	Abandoned House	20.85	26	N/A
	Abandoned House	20.93	26	N/A
Line BT-40				
	None present	N/A	N/A	N/A
Line BT-41				
	Single Family House	0.03	26	N/A
	Shed	0.06	62	N/A
	Mobile Home	0.10	37	N/A
	Shed	0.12	40	N/A
	Shed	0.15	43	N/A
	Mobile Home	0.15	49	N/A
	Mobile Home	0.23	43	42
	Shed	0.25	17	N/A

To minimize impacts on nearby residences, EGT would mitigate impacts by ensuring that construction proceeds quickly and that landowners in the immediate vicinity of the pipeline would be notified about construction times and special construction activities that may affect them prior to the commencement of construction. Property access and traffic flow would be maintained during construction activities, particularly for emergency vehicles. EGT would schedule work hours taking landowners' needs into consideration. Dust minimization techniques would be utilized onsite, and litter and debris would be removed daily from the construction site.

EGT would also implement the following mitigation measures in accordance with our Plan to minimize construction-related impacts on residences and other structures within 50 feet of the construction right-of-way:

- fence the boundary of the construction work area to ensure that construction equipment and materials, including the spoil pile, remain within the construction work area;

- install safety fence at the edge of the construction right-of-way for a distance of 100 feet on either side of a residence or business establishment;

- avoid removal of mature trees and keep landscaping intact within the construction work area unless the trees and landscaping interfere with the installation techniques, present unsafe working conditions, or as specified in landowner agreements;

- segregate or import topsoil on residential lawns;

- restore all lawn areas and landscaping immediately following cleanup operations, or as specified in landowner agreements; and

- complete final grading, topsoil replacement, and installation of permanent erosion control devices within 10 days after backfilling the trench. If seasonal or other weather conditions prevent compliance with this time frame, maintain and monitor temporary erosion controls (sediment barriers and mulch) until conditions allow completion of restoration.

EGT has sited the proposed pipeline routes with a minimum separation of 25 feet between residences and any construction work area. Therefore, site-specific plans for residences located within 25 feet of proposed construction work areas are not required as part of this Project.

Based on EGT's implementation of residential impact minimization and mitigation measures, we believe that impact on residential land would be short-term and minor.

EGT contacted local and county planning and zoning departments, and the Arkansas State Highway and Transportation Department (AHTD) to acquire information pertaining to future planned developments within 0.25 mile of the Project. The only planned construction identified within 0.25 mile of the Project is the widening of Interstate 40 (AHTD, 2013). The AHTD webpage also identified several proposed transportation projects within 5 miles of the proposed Project (AHTD, 2013) that are primarily associated with the widening of Interstate 40 and related structural rehabilitation. We believe that the Project would not impact highway construction activities.

Local and county planning and zoning departments indicated several planned residential and two public park developments within 5 miles of the proposed Project. Three of these developments are within one mile of the proposed Project: Ferry Landing Annexation (0.39 mile), Salem Woods Subdivision (0.59 mile), and Wallace Subdivision (0.92 mile) (City of Conway, 2013; Maumelle, 2013). The Ferry Landing site is for annexation of property with no planned development at this time. The Salem Woods Subdivision is in proximity to a portion of Line B that would be retired; no construction activities are proposed. The Wallace Subdivision

is for property subdivision with no construction proposed at this time. We believe that impact from any construction activities at these sites would generally be localized and would not correspond in time to impacts from the Project.

EGT also consulted with MetroPlan, the designated Metropolitan Planning Organization responsible for the transportation planning process in central Arkansas and is awaiting further comments on planned developments within the Project area.

Short- and long-term impacts on industrial/commercial land use are expected as a result of construction and operation of the Project. About 26.30 acres of industrial/commercial land would be impacted during construction; about 4.28 acres of industrial/commercial land would be retained for operation within the permanent pipeline right-of-way (2.16 acre), at aboveground facilities (1.75 acres), and at permanent access roads (0.37 acre). Temporary impacts to industrial/commercial land use would primarily be related to the use of access roads (19.55 acres).

The Project would cross several major roads and 2 railroads. Construction across roadways would be performed in accordance with applicable permits and easement agreements. The two railroad crossings (Union Pacific) and four road crossings (U.S. Routes 64 and 65, and AR Highways 60 and 365) would be accomplished using HDD techniques. The pipeline would be installed beneath other paved roads by conventional boring. Use of the HDD and bore crossing methods would avoid impacts on the surfaces of these roads and railways and thus would not disrupt traffic. Unpaved and minor roads generally would be open cut. Open cutting could results in some minor traffic disruptions and inconvenience to motorists. These impacts would be minimized by establishing detours, or if there are no reasonable detours, by maintaining at least one lane of the road open, except for the brief periods when it is necessary to install and backfill the pipeline and restore the road surface. Traffic safety personnel would be present during construction periods, and signage and safety measures would be implemented in compliance with applicable state and local roadway crossing permits. To the maximum extent practicable, EGT would schedule work within roadways to avoid commuter traffic and impacts on school bus schedules. We believe EGT's implementation of these measures would minimize traffic impacts.

EGT would use existing public and private roads to move equipment and materials to the construction right-of-way. Existing public highways would be used for access without modification or improvement. In addition to public roads, EGT would use 67 access roads, totaling 43.01 acres, to provide access to the proposed pipeline (Lines BT-39, BT-40 and BT-41) rights-of-way and aboveground facilities during construction. Of these, 65 roads would be used for temporary access to the construction rights-of-way; one (1) would be a new, permanent road constructed to provide permanent access to the Bryant Road TBS; and one (1) is an existing, permanent road that provides access to the existing Oak Grove TBS. EGT also proposes to use 37 access roads, encompassing approximately 11.68 acres, to provide temporary access to the proposed retirement work areas during construction. A listing of these roads is included in Appendix B-2.

EGT proposes to retire some existing pipeline assets (Lines BM-1, and portions of Line B and BM-21), and realign ownership of a segment of Line BT-14, as well as the entirety of Line

BT-19, to its distribution affiliate. These proposed Retirement Work Areas would require minimal ground disturbance for removal of pipeline (cut, cap and grout within an estimated 50-foot by 50-foot work area) and ancillary facilities (*e.g.*, rectifiers, pipeline markers). All such ground disturbing activities would be confined to EGT's existing and maintained right-of-way or facility sites. The land area associated with the proposed Retirement Work Areas is classified as industrial/commercial land and open land. Disturbance at these locations would be minimal and would result in only temporary impacts. Following construction, these areas would be restored to match the surrounding land use as the aboveground facilities would be permanently removed.

2.5.2 Public Lands

Several areas of publicly owned lands are crossed by or located within 0.25 mile of the proposed Project. Public lands that would be crossed belong to the City of Conway (landfill and water tower property), Faulkner County (Cadron Settlement Park and Toad Suck Park), AGFC (Bell Slough Wildlife Management Area), and Arkansas National Guard (Camp Joseph T. Robinson).

The proposed Project crosses approximately 1,603 feet of land owned by the City of Conway between approximate MP 0.0 to 0.3. This property is used as a landfill for the city. No conflicts with landfill operations are anticipated. The Project also crosses approximately 1,562 feet of land owned by the City of Conway between approximate MP 0.4 to 0.7. This property houses a water tower used to supply drinking water to the City of Conway. As the Project crosses this property to the north of the water tower, no land use conflicts have been identified.

The proposed BT-39 pipeline crosses near Cadron Settlement Park at approximate MP 1.8. This Faulkner County park lies 1,505 feet outside of the BT-39 project corridor; however, Line BT-39 access road AR-2.63 begins at the southeast corner of the park where AR Hwy 319 enters the Jeffrey Sand Company property. Line BT-39 access road AR-2.62 also travels through the Jefferson Sand Company property to the south and terminates 275 feet north of Toad Suck Park. Toad Suck Park is located 1,407 feet to the west of the proposed BT-39 pipeline. These two access roads are already established and therefore should not pose any further impacts on the two aforementioned Faulkner County parks.

A small section of land owned and managed by the AGFC is paralleled by the proposed Project from approximate MP 17.7 to 18.2. This land is a part of the Bell Slough Wildlife Management Area (WMA), which is managed by the AGFC for fishing, hunting and recreation. The Project parallels just outside the southern edge of the property until it turns south and follows Interstate 40. Line BT-39 access road AR-17.72 also runs adjacent to the western boundary of the Bell Slough WMA for a length of 2,700 ft. EGT has indicated that the portion of the property traversed by the Project is located outside of actively managed areas, and no Project-related concerns have been identified. EGT is in the process of coordinating with the AGFC to obtain permission to use the access road in the Bell Slough WMA for construction.

Camp Joseph T. Robinson (Camp Robinson) is a very large parcel of land located at the southern end of the proposed Project. Proposed Line BT-39 crosses this Arkansas Air National Guard property for a total distance of 7.15 miles, following a maintained firebreak for nearly the entirety of its alignment on Camp Robinson. Although the firebreak is maintained as open land,

some forest/woodland areas would likely be disturbed during construction. Line BT-41 is proposed to tie into Line BT-39 at MP 23.6. This tie-in is located along the southern boundary of Camp Robinson. Another tie-in is located at Line BT-39 MP 27.5 where Line BT-40 joins Line BT-39 along the western boundary of Camp Robinson. Line B access road AR-31 also lies within Camp Robinson for approximately 4,670 feet. This access road would be used to complete work at the Line B meter site located at MP 10.7. EGT would work closely with Camp Robinson staff to avoid interference with base activities. In considering whether to grant an easement to EGT, Camp Robinson staff would complete a Record of Environmental Consideration (REC). A REC is a signed statement submitted with project documentation that briefly documents that an Army action has received environmental review. RECs are prepared for categorical exclusions that require them, and for actions covered by existing or previous NEPA documentation.

Construction of the proposed Project is not anticipated to have adverse impacts on public lands. The majority of the public lands crossed by the proposed Project would be located along the outer boundary of Camp Robinson or developed lands used by the City of Conway for various utility purposes. Undeveloped lands crossed by the Project would be minimal due to orientation along the property boundaries to the greatest extent possible. Therefore, we believe that impacts to public land would be minimized to the extent practicable and would be minor and short-term.

2.5.3 Natural, Recreational, or Scenic Areas

No portion of the Project would cross scenic highways, federal Wild and Scenic Rivers, Conservation Reserve Program lands, or conservation site properties. No special use areas, such as old growth forests, sugar maple stands, pine plantation, timber production, or Christmas tree farms, would be affected by the Project.

In several locations, proposed Line BT-39 crosses the mapped location of the Trail of Tears (Trail), which is part of the National Park Service's (NPS) National Historic Trails System. A majority of the Trail is located on private land and it is the landowner's choice to participate in a certification process to allow public access to that portion of the Trail. In the certification process, the landowner retains ownership of the property (NPS, 2013). The mapped location of the Trail is on private property where the proposed Line BT-39 crosses the Trail. The crossing of the Trail is addressed in Resource Report 4, which discusses cultural resources concerns. Therefore, the Project would not affect recreational uses of the trail; nor would it impact any potential future revitalization of trail during operation of the Project.

2.5.4 Visual Resources

No known federal, state, or locally designated visual resources would be impacted by the proposed Project. Visual resources in the Project area include vegetation, water, wildlife, land use, and human uses and development. Construction of the proposed facilities would impact these resources by removing existing vegetation and exposing bare soils. Temporary visual impacts may also result from earthwork and grading scars associated with heavy equipment tracks, trenching, and machinery and tool storage. The installation of new aboveground facilities could also impact existing visual resources. Visual impacts would be greatest during and shortly

after construction where the pipeline routes parallel or cross roads or is close to residences. The visual impact would diminish rapidly once the right-of-way is restored and revegetated. The specific duration of the impact would depend on the type of vegetation that is cleared or altered. The impact of clearing would be shortest in open and agricultural crop lands, which would be restored to pre-construction like condition quickly. The impact would be greater in forest land, which would take several years to regenerate. The greatest potential for impact would be along Line BT-39 where forest land would be permanently removed from the new permanent right-of-way.

EGT has significantly reduced the potential for visual impacts by collocating the proposed pipelines with existing cleared corridors where practicable. Therefore, based on the existing aesthetic properties of impacted lands, and the anticipated impacts on visual resources resulting, we believe construction and operation of the proposed project would not significantly impact aesthetic properties.

The visual impact of the proposed aboveground facilities is expected to be relatively minor as there are relatively few residences in the immediate vicinity of the proposed replacement pipeline route, and the route does not cross scenic highways or designated scenic rivers.

2.6 AIR QUALITY AND NOISE

2.6.1 Air Quality

Air quality impacts resulting from the Project would include emissions from fossil-fueled construction equipment, fugitive dust, and emissions generated from burning of any brush or debris generated during construction; however, no operational or permanent air quality impacts would be experienced. Due to the linear nature of pipeline construction activities, construction-related emissions would be transient in nature at a given Project location and are not expected to cause or contribute to any significant degradation of air quality. Furthermore, the Project would not modify any operational equipment or compressor stations and would, therefore, have no impact on operational emissions.

Table 2.6.1-1 presents the predicted fugitive dust, equipment, and vehicle emissions during construction of the Project. Construction activities along the pipeline right-of-way and at the aboveground facilities (including retirement work areas) would result in emissions of fugitive dust from vehicular traffic and soil disturbance, and combustion emissions from diesel and gasoline fired construction equipment. Such air quality impacts, however, would generally be temporary and localized, and are not expected to cause or significantly contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS). Large earth-moving equipment and other mobile sources are sources of combustion-related emissions, including criteria pollutants (*i.e.*, nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOCs), sulfur dioxide (SO_2), and particulate matter less than 10 microns in aerodynamic diameter (PM_{10})) and small amounts of hazardous air pollutants. Emissions from equipment would be short-term and localized in any given area as equipment and activities move along the route. Construction equipment would be operated on an as-needed basis, mainly

during daylight hours. Further, EGT would maintain fossil-fueled construction equipment in accordance with manufacturer's recommendations to minimize construction-related emissions.

TABLE 2.6.1-1

Construction Emissions Summary for the Project [a]

	Criteria Pollutants (tpy)					
Emissions Type	**NO_x**	**VOC**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Pipeline Non-Road Emissions	22.70	2.99	88.32	3.81	2.00	1.98
On- Road Emissions [b]	0.27	0.08	0.78	0.00	0.00	0.00
Fugitive Dust [c]	0.00	0.00	0.00	0.00	4.29	4.29
Total Construction Emissions	**22.97**	**3.07**	**89.10**	**3.81**	**6.29**	**6.27**

[a] Estimates of actual Project emissions should be divided by 2 to correspond with a 6-month construction duration.

[b] Emission rates are based on the emissions associated with an estimated number of worker commuter and delivery vehicles needed ot support the construction activities.

[c] Emission rates are based on fugitive dust emissions generated from the construction of typical pipeline spreads.

tpy = tons per year
NO_x = oxides of nitrogen.
VOC = volatile organic compound.
CO = carbon monoxide.
SO_2 = sulfur dioxide.
PM_{10} = particulate matter with an aerodynamic diameter of 10 microns or less.
$PM_{2.5}$ = particulate matter with an aerodynamic diameter of 2.5 microns or less.
CO_{2e} = carbon dioxide equivalent.

The majority of air emissions produced during construction activities would be PM_{10} and particulate matter less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$) in the form of fugitive dust. Fugitive dust would result from land clearing, grading, excavation, backfilling, concrete work, and vehicle traffic on paved and unpaved roads. The amount of fugitive dust generated would be a function of construction activity, soil type, soil moisture content, wind speed, precipitation, vehicle traffic, vehicle types, and roadway characteristics. Emissions would be greater during dry periods and in areas of fine-textured soils subject to surface activity. EGT would employ proven construction-related practices to control fugitive dust such as application of water, if needed, on unpaved areas subject to frequent vehicle traffic. In addition, construction equipment would be operated only on an as-needed basis and areas disturbed by construction would be stabilized in accordance with the FERC Plan.

Currently, both counties impacted by the Project are designated by the U.S. Environmental Protection Agency as in attainment with the NAAQS for all criteria pollutants; therefore, a comparison of the construction-related emissions to the General Conformity Thresholds is not required. Construction-related emission estimates were based on a typical construction equipment list, hours of operation, and vehicle miles traveled of the construction equipment and supporting vehicles for a typical pipeline construction spread of 5 miles over an 8-month construction duration.

Fugitive particulate emissions generated during construction would be mitigated, if necessary through the implementation of several measures. EGT would regulate the speed of vehicles to keep dust down, spray water on dry road surfaces when needed, and establish vegetation on disturbed areas as soon as possible after construction.

Emissions from open burning are regulated under Chapter 6 of the Arkansas Air Pollution Control Code. Under Section 18.603(D) of this chapter, controlled fires for the purposes of on-site land clearing operations are exempt from the general prohibition of open burning; however, the Arkansas Forestry Commission occasionally implements open burning bans. Any burning conducted during construction would comply with such bans.

Emissions generated from burning of any brush or debris generated during construction would be minimized to the greatest extent possible by implementing the following best management practices:

- Minimize the number and size of burn piles to the extent practicable;
- Excavate a burn pit and surround the pit with an earthen berm to minimize the risk of forest fire and damage to areas outside of the construction right-of-way;
- Do not burn petroleum-based, non-woody, or other noxious construction debris or materials (*e.g.*, old tires, batteries, plastic packaging, treated timber); and
- Monitor burn piles until burning is complete or the fire is extinguished.

The proposed Project does not involve the construction or operation of a compressor station or modifications at existing compression facilities. Therefore, there will be no impacts on air quality during operation.

In conclusion, the estimated air emissions from construction of the Project would be minor and transient in nature, with negligible impact on populated areas or regional air quality. We therefore conclude that emissions from construction-related activities for the Project would not have a significant impact on local or regional air quality.

2.6.2 Noise Quality

Construction and operation of the proposed Project would affect the local noise environment. The ambient sound level of a region is defined by the total noise generated within the specific environment, and usually comprises sounds emanating from natural and artificial sources. At any location, both the magnitude and frequency of environmental noise may vary considerably over the course of a day and throughout the week. This variation is caused in part by changing weather conditions and the effect of seasonal vegetative cover.

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 containing the same sound energy as the instantaneous sound levels measured over a specific time period. For an essentially steady sound source that operates continuously over a 24-hour period and controls the environmental sound level, the L_{dn} is approximately 6.4 decibels (dB) above the measured L_{eq}. 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 to early morning (10:00 pm to 7:00 am) noise exposures are penalized +10 dB, to account for people's greater sensitivity to sound during the nighttime hours.

In 1974, the USEPA 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 USEPA has indicated that an L_{dn} of 55 decibels on the A-weighted scale (dBA) protects the public from indoor and outdoor activity interference. FERC staff has adopted this criterion and uses it to evaluate the potential noise impacts. There are no state or local noise regulations applicable to the Project.

Noise generated during construction would be temporary in nature and primarily attributed to HDD and blasting activities. EGT indicated that blasting is not anticipated for this Project; however, should blasting be necessary, it would be conducted during the daytime only, when there is less potential for noise impact. HDD activity would be conducted only during daytime hours, and EGT does not propose to conduct overnight drilling. It is possible, although unlikely, that work would extend into evening hours, but such work activities would not occur past 10 p.m. No operational noise impacts are anticipated from the proposed Project, the pipeline facilities would be buried and there would be no noise-generating aboveground facilities.

A number of residences occur within 0.5 mile of the eight proposed HDD entry and exit locations. As shown in table 2.6.2-1, the results of the noise analysis indicate that the estimated noise attributable to HDD equipment operations would be less than 55 dBA at the nearest NSAs to both the entry and exit locations of all of the proposed HDDs except for the Hwy 64 & UCPR Railroad HDD entry and exit points, the Luker Lane HDD entry, the Center Road HDD entry and exit points, and the Palarm Tributary HDD entry. Noise attributable to HDD can be reduced to below 55 dBA at the nearest NSAs for all these HDD entry and exit points by implementing appropriate mitigation measures. Noise mitigation measures may include partial enclosure of the hydraulic unit, partial enclosure or partial barrier of pumps and engine-driven gen sets, and/or erection of a temporary noise barrier (*e.g.*, constructed of plywood panels and/or hay bale structure) around the HDD work space.

In the unanticipated and unlikely event that any of the planned HDDs would require overnight operations, EGT would notify residents of nearby NSAs in advance of any planned overnight HDD-related construction activities to advise them that noise-generating equipment could be operated during night-time hours. Since mitigated noise levels attributable to HDD would be below the FERC criterion at any NSAs, overnight construction, if necessary, would not be expected to create significant impacts on residents. If during nighttime construction the noise to HDD is above 55 dBA, EGT would either stop operations and implement noise control measures to reduce HDD noise to 55 dBA or less, or EGT would offer to provide temporary housing to the occupants of affected NSAs at a commercial hotel or motel in the Project area until the noise levels can be reduced to 55 dBA or less at residences within 0.5 mile of the proposed HDD location.

TABLE 2.6.2-1

Project HDD Sound Levels (dBA) at Nearest Noise Sensitive Areas

HDD No.	HDD Location	Approx MP	Distance & Direction of Nearest NSA (ft)	Calculated HDD L_{dn} Sound Level(dBA)[1]	Ambient L_{dn}(dBA)	Combined Ambient L_{dn} Plus HDD (dBA)	Increase Over Ambient (dB)	Mitigation Required
1	Hwy 64 & UCPR RR HDD Entry	.30	420 (SE)	67.6 (53.5 with mitigation)	50.0	67.7 (55.1 with mitigation)	17.7 (5.1 with mitigation)	Yes
	Hwy 64 & UCPR RR HDD Exit	.42	350 (NE)	58.6 (52.1 with mitigation)	50.0	59.1 (54.2 with mitigation)	9.1 (4.2 with mitigation)	Yes
2	Tucker Creek HDD Entry	.13	2,080 (NNW)	49.4	46.9	51.3	4.4	No
	Tucker Creek HDD Exit	.57	2,090 (SE)	38.1	39.8	42.0	2.2	No
3	Luker Lane HDD Entry	15.17	430 (W)	67.4 (53.2 with mitigation)	41.6	67.4 (53.5 with mitigation)	25.8 (11.9 with mitigation)	Yes
	Luker Lane HDD Exit	14.97	1,060 (S)	45.1	41.6	46.7	5.1	No
4	Center Road HDD Entry	16.23	200 (S)	76.0 (54.6 with mitigation)	46.5	76.0 (55.2 with mitigation)	29.5 (8.7 with mitigation)	Yes
	Center Road HDD Exit	16.32	350 (W)	57.7 (51.3 with mitigation)	46.5	58.0 (52.5 with mitigation)	11.5 (6.0 with mitigation)	Yes
5	Palarm Tributary HDD Entry	17.31	500 (SW)	65.9 (51.0 with mitigation)	49.8	66.0 (53.4 with mitigation)	16.2 (3.6 with mitigation)	Yes
	Palarm Tributary HDD Exit	17.60	1,600 (NW)	39.9	49.8	50.2	0.4	No
6	Palarm Creek HDD Entry	18.20	> ½ mile	N/A	N/A	N/A	N/A	No
	Palarm Creek HDD Exit	17.82	2,230 (NW)	47.6	49.8	50.2	0.4	No
7	Unnamed Impoundment HDD Entry	18.72	1,800 (ENE)	51.0	57.8	58.6	0.8	No
	Unnamed Impoundment HDD Exit	18.47	1,780 (E)	39.8	55.5	55.6	0.1	No
8	Interstate 40 HDD Entry	20.56	2,600 (SW)	46.9	48.7	50.9	2.2	No
	Interstate 40 HDD Exit	20.87	> ½ mile	N/A	N/A	N/A	N/A	No

[1] For hemispherical sound propagation, sound pressure level = sound power level - 20 * Log (r) - 2.3, where r = distance to the receiver.

Construction of the proposed Project would take approximately five months, and noise from general construction equipment would occur during that time. Construction noise would be highly variable, as the types of equipment in use at a construction site would change with the construction phase and the type of activities. Noise from construction activities may be

noticeable at nearby residences; however, because of the temporary nature of construction noise, no adverse or long-term impacts would be anticipated.

2.7 RELIABILITY AND SAFETY

The transportation of natural gas by pipeline involves some risk to the public in the event of an accident and subsequent release of gas. The greatest hazard is a fire or explosion following a major pipeline rupture.

Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death. Methane has an auto-ignition temperature of 1,000°F and is flammable at concentrations between 5.0 percent and 15.0 percent in air. An unconfined mixture of methane and air is not explosive, however it may ignite if there is an ignition source. A flammable concentration within an enclosed space in the presence of an ignition source can explode. It is buoyant at atmospheric temperatures and disperses rapidly in air.

The pipeline and aboveground facilities associated with the proposed Project must be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures.

The DOT pipeline standards are published in Parts 190, 191, 192, and 199 of Title 49 of the CFR. For example, Part 192 of 49 CFR specifically addresses natural gas pipeline safety issues, prescribes the minimum standards for operating and maintaining pipeline facilities, and incorporates compressor station design, including emergency shutdowns and safety equipment (Sections 192.163-192.173). Part 192 also requires a pipeline operator to establish a written emergency plan that includes procedures to minimize the hazards in a natural gas pipeline emergency.

The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials.

Facilities associated with the proposed Project must be designed, constructed, operated, and maintained in accordance with DOT standards, including the provisions for written emergency plans and emergency shutdowns. EGT maintains and emergency response plan and provides public awareness training to emergency and public officials.

EGT's proposed facilities, pipeline construction, and operation represent a minimal increase in risk to the public and we are confident that, with implementation of the above safety requirements during construction and operation of EGT's facilities, they would be constructed and operated safely.

2.8 CUMULATIVE IMPACTS

In accordance with NEPA and FERC policy, we considered the cumulative impacts of the Project and other projects in the general project area. Cumulative effects are defined as the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR §1508.7). Cumulative effects may result from either temporary (construction-related) or permanent (operation-related) impacts associated with a project. Although the individual impact of each separate project may be minor, the additive or synergistic effects of multiple projects could be significant.

The purpose of the cumulative impact analysis is to identify and describe cumulative impacts that would potentially result from development of the Project. This cumulative impact analysis generally follows the methodology set forth in relevant guidance (CEQ, 1997; USEPA, 1999). Under these guidelines, inclusion of other projects within the analysis is based on identifying commonalities of impacts from other projects with impacts that would result from the Project. The cumulative impacts analysis includes actions meeting the following three criteria:

- impact a resource area potentially affected by the proposed project;
- cause this effect within all or part of the proposed project area; and
- cause this effect within all or part of the time span for the potential effect from the Project.

The actions considered in the cumulative impact analysis may vary from the Project in nature, magnitude, and duration. We include these actions based on the likelihood of project completion and only projects with either ongoing impacts or "reasonably foreseeable" future actions were evaluated. We further considered existing and reasonably foreseeable actions expected to affect similar resources during similar time periods with the Project. We address the anticipated cumulative impacts of the Project and these other actions below, as well as pertinent mitigation actions. Anticipated cumulative impacts were based on NEPA documentation, agency and public input, and best professional judgment.

We identified three types of past, present and reasonably foreseeable future projects that would potentially cause a cumulative impact when considered with the Project. These are: 1) other natural gas pipelines; 2) natural gas facilities that would be associated with construction of the Project but that are not under the Commission's jurisdiction; and 3) unrelated projects that are either in place, under construction in the proposed project vicinity, or proposed. We identified these projects through scoping and independent research, as well as information provided by EGT. We have identified the tentative construction schedules of these projects, as available, but the actual construction schedules would depend on factors such as economic conditions, funding availability, and permitting considerations.

Table 2.8-1 lists projects that are under construction or proposed within 5 miles of the project. There are no FERC jurisdictional projects within a 5-mile proximity. Related nonjurisdictional projects that would be constructed in the Project area include the facilities

discussed in section 1.4 of this EA. Although we determined that analysis of the environmental impacts of these nonjurisdictional facilities is beyond the scope of this EA, we did include them in our analysis of cumulative impacts Unrelated projects that were identified in the project vicinity include remediation for the Mayflower, AR oil spill, residential home construction, parkland, and highway construction.

TABLE 2.8-1

Projects Proposed Within 5 Miles of the Construction Work Area Associated with the Project

Project	Description	Estimated Construction Date	Location Relative to the Project
CERC Natural Gas Distribution Facilities	Approximately 15.3 miles of small-diameter steel and plastic natural gas distribution pipelines	2014	Conway, Faulkner County
Acuff Subdivision	Residential Subdivision	2014	Conway, Faulkner County
Salem Woods Subdivision	Residential Subdivision	2014	Conway, Faulkner County
Blaney Hill Annexation	Reclaim landfill to public park	2013, 2014	Conway, Faulkner County
Ferry Landing Annexation	Annex land for public park	2013	Conway, Faulkner County
New Life Assembly of God	Upgrade and expansion of facilities	2013, 2014	Conway, Faulkner County
Churchill Place	Single family homes development	2013, 2014	Conway, Faulkner County
Kordmeier	Single family home construction (1 unit)	2013, 2014	Conway, Faulkner County
Princeton West PUD	Single family homes development	2013, 2014	Conway, Faulkner County
St. Andrew's	Single family homes development	2013, 2014	Conway, Faulkner County
Tuscany Holding LLC	Multi-family development	2013, 2014	Conway, Faulkner County
Azalea Holdings LLC	Multi-family development	2013, 2014	Conway, Faulkner County
Mountain Terrace Estates, Phase II	Single family home development	2014	Maumelle, Pulaski County
Wallace Subdivision	Residential Subdivision	2014	Maumelle, Pulaski County
ExxonMobil Pegasus Pipeline	Spill Remediation and Pipeline Replacement	2013	Mayflower, Faulkner County
Hwy. 25 Relocation (I-40-North)	New Location	2014	Faulkner County
Route 40 Conway South Interchange-Hwy. 365	New Location- grading, structures, resurface	2013, 2014	Faulkner County
Hwy. 365-Sturgis Rd	New Location- grading, structures, resurface	2013, 2014	Faulkner County
Route 40 from Palarm Creek-West	Major Widening	2013	Faulkner County
Union Pacific RR Overpass at Route 89	Realign Structures & Approaches	2016	Mayflower, Faulkner County
Route 40 from Palarm Creek-Hwy. 365	Major Widening	2013	Faulkner & Pulaski Counties
Route 40 from Hwy. 365-I-430 (Phase I)	Major Widening	2014	Pulaski County

Sources: conwayplanning.org; co.pulaski.ar.us; arkansashighways.com; maumelle.org/city-departments/planning-a-zoning.html

The Mayflower incident occurred March 29, 2013 when the Pegasus pipeline carrying crude oil ruptured. Since then, the spill has been cleaned up and remediation is in progress. Daily real-time outdoor air monitoring and comprehensive 24-hour indoor air sampling is reported below levels expected to be a public health hazard. Although there are environmental impacts associated with this incident, we believe that there would be no significant cumulative impact associated with the proposed Project.

Local and county planning and zoning departments indicated several planned residential and two public park developments within 5 miles of the proposed Project. Three of these developments are within one mile of the proposed Project: Ferry Landing Annexation (0.39 mile), Salem Woods Subdivision (0.59 mile), and Wallace Subdivision (0.92 mile). The Ferry Landing site is for annexation of property with no planned development at this time. The Salem Woods Subdivision is in proximity to a portion of Line B that would be abandoned; no construction activities are proposed. The Wallace Subdivision is for property subdivision with no construction proposed at this time. We believe the impact from any construction activities at these sites would generally be localized and would not correspond in time to impacts from the Project; therefore, they would not contribute significantly to cumulative impacts in the proposed Project area.

Based on a review of the Arkansas State Highway and Transportation Department (AHTD) webpage, several proposed transportation projects were identified within five miles of the proposed Project (AHTD, 2013). Proposed projects are primarily associated with the widening of Route 40 and associated structural rehabilitation. Given the spatial and chronological similarities between the Route 40 widening project and the Project, the Route 40 project was considered in the cumulative impact analysis, along with the CERC nonjurisdictional distribution facilities. No other reasonably foreseeable projects were identified within a close enough proximity to the Project or are included in this discussion of cumulative impacts.

Potential cumulative impacts are grouped by resource area. The potential impacts that we view as being most cumulatively significant pertain to geology and soils; wetlands and waterbodies; vegetation, wildlife and habitat; land use; cultural resources; and air quality and noise. Only the portions of the Route 40 widening project in Mayflower and Maumelle were considered as relevant to our analysis of cumulative impacts due to the proximity to the Project. The other listed projects are too distant from the proposed project area.

2.8.1 Geology and Soils

The facilities associated with the proposed Project are expected to have a temporary impact on near-surface geology and soils. Impacts on geology and soils could lead to poor revegetation potential and indirectly affect wildlife and aquatic resources as a result of poor vegetative cover and increased erosion and sedimentation. The soil stabilization and revegetation requirements included in the FERC Plan would prevent or minimize any impacts. Because the impacts would be highly localized and limited primarily to the period of construction, cumulative impacts on geology and soils would only occur if other projects are constructed at the same time and place as the proposed facilities. As a portion of the nonjurisdictional natural gas distribution facilities would connect to the proposed Project facilities, they would be located near the Project facilities in several locations. Route 40 lies in

proximity to the Project in the vicinity of Palarm Creek. Since the widening construction of Route 40 could coincide with the schedule proposed for the Project, there is potential for cumulative impacts on geology and soils during construction of the portions of the projects directly adjacent to each other. However, any cumulative impact on these resources would be minimized by the implementation of erosion control and restoration measures during the construction and restoration of the two projects. Consequently, any potential cumulative impacts on geological resources and soils would be temporary and minor.

2.8.2 Waterbodies and Wetlands

The Project would require 12 perennial stream crossings, 33 intermittent stream crossings, and one open water/impoundment for installation of Line BT-39. Line BT-39 access roads come within 50 feet of 11 waterbodies; retirement work areas come within 50 feet of 2 waterbodies. There are no proposed waterbody crossings associated with aboveground facilities, pipe/contractor yards, or retirement work areas.

EGT proposes to cross seven of the 46 waterbodies with HDD methods: Tucker Creek (S73FA), UNT to Tucker Creek (S72FA), UNT to Beaverdam Creek (S300FA), Palarm Creek (S61PU), two tributaries to Palarm Creek (S58FA and S63PU), and an unnamed borrow pit (W90PU), so impact on these resources would be minimized. The remaining waterbodies crossed by pipeline construction are proposed to be crossed by open cut. Of the 13 waterbodies in the vicinity of access roads, four have existing culverts, one has a bridge, and five would not be crossed.

The Project would not involve the construction of permanent diversions or dams and, therefore, would have only temporary impacts on surface water quality. The greatest potential impacts of pipeline construction on surface waters would result from an increase in sediment loading to surface waters and an increase in internal sediment loading due to channel/floodplain instability as a result of a change in erosion/deposition patterns. The level of impact of the proposed Project on surface waters would depend on precipitation events, sediment loads, stream area/velocity, channel integrity, and bed material.

Runoff from construction activities near waterbodies could also result in cumulative impacts, although this impact would be relatively minor and would be controlled by implementation of erosion and sediment control measures and by compliance with federal, state, and local requirements. Additionally, indirect economic impacts on individuals and/or communities could result if surface waters were to become contaminated. However, the potential for contamination during the construction of the Project would be minor and would be further minimized by implementation of our Plan and Procedures and EGT's SPCC Plan.

Route 40 crosses Palarm Creek and unnamed tributaries upstream from the Project. Thus there is the potential that cumulative impacts could result due to the overlapping construction schedules of the Project and the Route 40 widening project. Similarly, the nonjurisdictional natural gas distribution pipeline facilities would entail crossings of waterbodies within the general Project area. The geographic extent and duration of the disturbances resulting from the Project would be short term and would be minimized by the implementation of our Plan and Procedures and EGT's SPCC Plan. Waterbody impacts associated with the Route 40 crossing of

Palarm Creek would be minimized by limited in-stream activity for single span bridge construction and implementation of best management practices for erosion and sedimentation control. Similarly, CERC's small diameter natural gas distribution facilities are largely installed via HDD, and all nonjurisdictional pipelines would be installed within existing road ROWs, which would greatly minimize the potential for impacts to waterbodies. Therefore, the cumulative impact of these projects on surface water resources would be minor.

Minor impacts on wetlands would result from construction of the Project. Construction would affect a total of 7.51 acres of wetlands, of which approximately 2.05 acres are PFO, 5.13 acres are PEM, and 0.32 acre is PSS. Of the 7.51 acres of wetlands impacted during construction, a total of 0.90 acre would be permanently impacted by operations. The 0.90 acre of permanent impact is entirely associated with the conversion of PFO and PSS wetlands as a result of right-of-way maintenance for the proposed Line BT-39; no permanent fill of wetlands is proposed. EGT anticipates that permanent impacts to forested wetlands would be mitigated by purchasing credits from an approved mitigation bank. Therefore, construction and operation of the Project would not contribute to cumulative long-term impacts on wetlands within the region.

2.8.3 Vegetation, Wildlife and Habitat, and Aquatic Resources

Because they would be constructed during the same general time frame, construction activities associated with the Project, the nonjurisdictional natural gas distribution facilities, and the Route 40 widening project would have a potential cumulative impact on vegetation and wildlife. The cumulative impacts would include the clearing of existing vegetation; alteration of wildlife habitat; displacement of wildlife; and other potential secondary impacts such as increased population stress, predation, and introduction of invasive plant species. The nonjurisdictional natural gas distribution pipelines would be constructed within existing road rights-of-way, thus avoiding or minimizing impacts on vegetation, wildlife, and aquatic resources. The proposed Route 40 widening project is located immediately adjacent to existing Route 40, partially within the previously disturbed corridor. The impact of its development on vegetation and wildlife habitat would be comparatively minor on the scale of the Palarm Creek watershed. Impacts would be minimized by locating Route 40 construction activities adjacent to existing previously disturbed rights-of-way. Within the same watershed, the potential for cumulative habitat fragmentation from construction of Line B-39 would be reduced by implementation of our Plan and Procedures, which promote revegetation after construction and allow for the regrowth of natural vegetation on the temporary right-of-way.

Construction of the Project facilities and the Route 40 widening could have a small cumulative impact on aquatic resources within the Project area. But as discussed above, the geographic extent and duration of the disturbances resulting from the Project, and therefore its contribution to any cumulative impact, would be short term and minimized by the implementation of our Plan and Procedures and EGT's SPCC Plan.

Minor impacts would occur from construction of aboveground facilities but there are no other projects in the immediate vicinity of these facilities that would contribute to cumulative impacts. The retirement and abandonment of Line B, Line BM-1, Line BM-21 and associated aboveground appurtenances would have a positive effect on vegetation and habitat. There are no aquatic resources that would be disturbed in association with these facilities.

2.8.4 Land Use

The proposed Project would result in changes to both temporary and permanent land uses. Construction of the Project would disturb about 350.4 acres of land of which 21 percent would be open land, 59 percent would be forest land, 8 percent would be industrial/commercial land, 2 percent would be residential land, and 10 percent would be agricultural land. With only a single exception, the nonjurisdictional natural gas distribution system pressure regulation facilities would be collocated, and constructed concurrent with, the metering and appurtenances to be constructed at the town border station sites developed in association with the Project. Additionally, the nonjurisdictional natural gas distribution pipelines would be constructed within existing road rights-of-way. For these reasons, no significant land use impacts are anticipated. Construction activities associated with the portion of the Route 40 widening project in the vicinity of the Project would occur on previously disturbed areas, forested lands, and agricultural lands.

The majority of land use impacts associated with the Project would be temporary. Permanent impacts on land use would be minor because the majority of the land affected by construction of the pipeline facilities would be allowed to revert to prior uses following construction with no additional restrictions; although about 99.04 acres of land would be required for the new permanent pipeline easement, use of the new permanent access road, and proposed aboveground facilities. Because the majority of the impacts associated with the Project would be temporary and the nonjurisdictional natural gas distribution facilities and Route 40 widening are consistent with the adjacent land use, any cumulative impact on land use would be minor.

2.8.5 Cultural Resources

The proposed alignment has been surveyed and adjusted to avoid significant cultural resources. Therefore, the Project would not contribute to a cumulative impact on cultural resources in the area.

2.8.6 Air Quality and Noise

As discussed in section 2.6, the estimated air emissions from construction of the Project would be temporary, minor, and transient in nature, with negligible impact on the regional air quality. No operational or permanent air quality or noise impacts would be experienced due to the installation of the proposed pipeline facilities. If it becomes necessary for EGT to conduct HDDs at night, EGT would monitor the sound levels at the nearest residences and implement noise mitigation measures described in section 2.6.2 if levels generated by HDD activities are above 55 dBA.

Conclusion

We identified recently completed, ongoing, and planned projects in the project area that meet the criteria for inclusion in the cumulative impact analysis study. Due to the implementation of specialized construction techniques and resource protection and mitigation plans designed to minimize and control environmental impacts for the Project, only small, insignificant cumulative impacts are anticipated.

3.0 ALTERNATIVES

We identified and evaluated alternatives to the Project including the no-action alternative; alternative energy sources and energy conservation; system alternatives; pipeline route variations; and aboveground facility alternatives. We considered these alternatives to determine if any were reasonable and preferable to the proposed action. The criteria to evaluate potential alternatives included whether they:

- offer a significant environmental advantage over the proposed Project
- are technically and economically feasible and practical; and
- meet EGT's Project objectives.

Our alternatives analysis is based on information provided by EGT; our review of aerial photographs, USGS topographic maps, and other publicly available information; information from a site visit; and input from resource agencies and the public.

3.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, the proposed Project would not be constructed. If the Project is not constructed, EGT would not be able to provide for the continued safe, reliable, and efficient transportation of natural gas to the central Arkansas cities and towns of Conway, Mayflower, Maumelle, North Little Rock, and Little Rock. EGT currently owns and operates multiple, existing pipelines in this region, but the region has experienced substantial residential, commercial, and industrial development since the original Line B and BT-14 pipeline facilities were constructed. While the No Action Alternative would avoid environmental impacts associated with the proposed action, it would not meet the operational and maintenance requirements of the existing pipeline facilities, potentially resulting in integrity concerns and interruptions in gas flow to residences and major industrial users in the Conway and Little Rock area. For this reason, we believe the proposed action is preferable to the no action alternative.

3.2 ALTERNATIVE ENERGY SOURCES AND ENERGY CONSERVATION

The proposed Project is designed to meet the needs of natural gas consumers and major industrial users in the Conway and Little Rock area. The use of alternative energy sources is an option that, in theory, might reduce or eliminate the need to build the proposed facilities and thus avoid the associated environmental impacts.

Several alternative energy sources to natural gas currently exist, such as petroleum and coal-based energy, nuclear power, hydropower, and other energy sources, including renewable energy technologies. Petroleum and coal-based energy are commonly used and found throughout the United States; however, relative to natural gas, the use of petroleum or coal-based energy would result in greater emissions of pollutants such as NO_x, SO_2, and CO_2 (USEPA, 2013b). Further, the mining and transportation of coal to coal-burning power plants is considered to have additional or more complex adverse environmental impacts than environmental impacts associated with the use of natural gas. Similarly, the environmental

impacts associated with processing, transporting, and burning more oil would be greater than environmental impacts associated with the use of natural gas, as would the installation of new infrastructure to support the distribution of oil. Therefore, compared to the Project, the use of coal or petroleum based energy would not offer an environmental benefit, and use of these sources of energy would not be preferred alternatives to the Project.

Growth in nuclear generating capacity is estimated to account for approximately 17 percent of total United States generating capacity by 2040 (U.S. Energy Information Administration (EIA, 2013). However, regulatory requirements, cost considerations, and public concerns make it unlikely that a new nuclear power plant could be sited and developed to serve the central Arkansas energy market within a timeframe that would meet the objectives of the Project. The expansion and upgrading of hydropower facilities are expected to produce incremental additions of power production in the coming years. However, like nuclear power generation, it is unlikely that significant sources of energy production from hydropower sources serving the Project's target market would be permitted and brought online within the Project timeframe. For this reason, use of nuclear power is not considered to be a preferred or even viable alternative to the Project.

Federal, state, and local initiatives likely would contribute to an increase in the availability and cost effectiveness of non-hydropower renewable energy sources such as wind, solar, tidal, geothermal, and biomass. The EIA predicts that the share of generation coming from renewable fuels (including conventional hydropower) will grow from 13 percent in 2011 to 16 percent in 2040 (EIA, 2013). The EIA indicates that this increase in the use of renewable energy sources will be driven by federal tax credits, state-level policies, and federal requirements to use more biomass-based transportation fuels. Arkansas currently does not have a state renewable portfolio standard instituted (EIA, 2012a) and therefore, it is unlikely that adequate renewable energy sources would be available in a timeframe that would meet the Project's purpose and need. In addition, any of these alternatives or combinations of alternatives used to match the energy proposed by the Project would require transmission, distribution, and plant site components, all of which would result in land area impact for construction and operation. Depending on the locations of the sources, development of these components would likely result in impacts similar to or greater than those associated with the proposed Project.

Energy conservation could help alleviate some of the nation's growing demand for energy and eventually offset the need for increased natural gas supplies. The reference case in the EIA's Annual Energy Outlook 2012 projects that energy use per capita will decrease slightly between 2013 and 2035, and energy use per capita will decline by 0.6 percent per year on average (EIA, 2012b). Despite this per capita decrease, overall energy consumption in the United States is projected to increase by 0.3 percent per year from 2010 to 2035 due to population growth (EIA, 2012b). Arkansas' State Energy Program, which received a grant from the U.S. Department of Energy, includes 13 projects that are designed to increase energy efficiency (Arkansas Energy Office, 2010). Nevertheless, although energy conservation under state energy plans and other energy conservation measures will be important elements in addressing future energy demands in the long-term, energy conservation is not a viable alternative to meet the short-term energy needs of the country in general or the specific needs of the Conway and Little Rock area that would be met by the Project.

In summary, none of the alternative energy sources, either alone or in combination, would offer a significant environmental advantage over the Project. In fact, use and/or development of many, if not most, of the alternative energy sources would be associated with greater environmental impacts than those associated with the Project. Furthermore, many of the potential alternative energy sources could not be developed in time to meet the Project objectives. Since energy conservation also is not a viable alternative for meeting the short-term energy needs of the EGT's customers, there are no realistic alternatives to the Project for meeting the Project objectives.

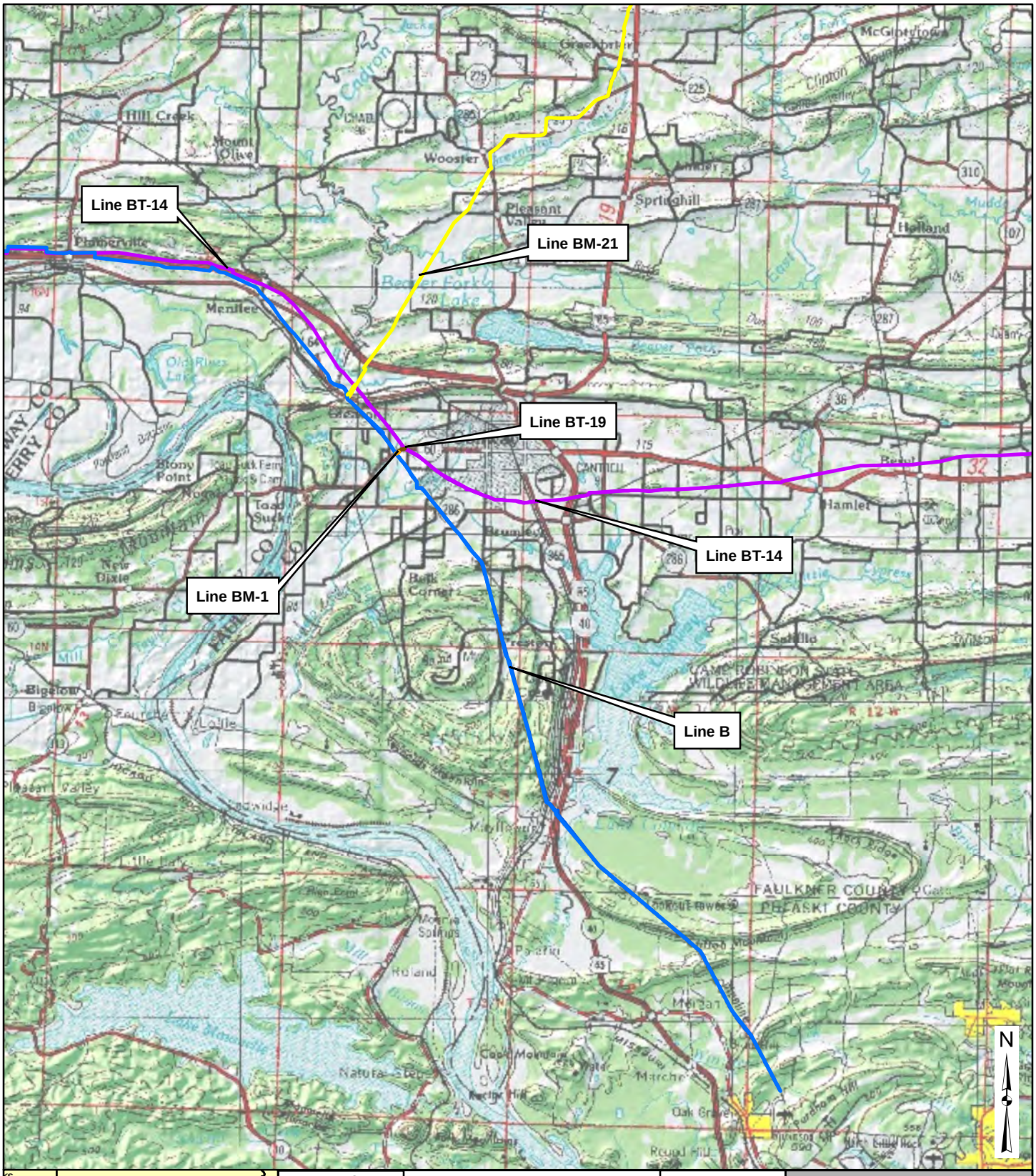
3.3 PIPELINE SYSTEM ALTERNATIVES

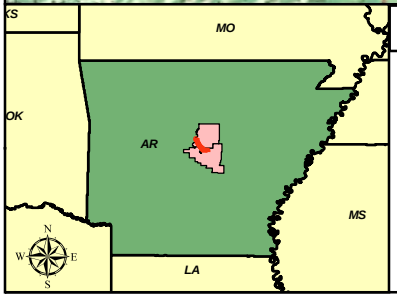
System alternatives are alternatives to the proposed action that would make use of other existing, modified, or proposed pipeline systems to meet the stated objectives of the proposed Project. The point of identifying and evaluating system alternatives is to determine if the potential environmental impact associated with the construction and operation of the proposed facilities could be avoided or reduced by using another pipeline system. Environmental considerations may include, but are not limited to, new right-of-way requirements, land use impacts, and stream and wetland disturbances. A system alternative could make it unnecessary to construct all or part of the proposed Project, although modifications or additions to another pipeline may be required. While modifications or additions to existing systems could result in environmental impact, this impact may be less, the same, or more than that associated with the proposed Project.

EGT currently operates two existing natural gas mainline pipelines, Lines B and BT-14, in central Arkansas, as shown on figure 3.3-1. These pipelines supply gas to three other smaller diameter EGT pipelines in the area, including Lines BM-1, BM-21, and BT-19, all of which serve the Conway area.

On April 13, 2012, EGT filed a Prior Notice request with the FERC for authorization to reroute a segment of the Line BT-14 pipeline around the City of Conway, Arkansas (refer to FERC Docket No. CP12-144-000). Subsequently, on July 3, 2012, EGT withdrew that application, having determined that the desired outcomes of the BT-14 replacement project, encroachment remediation and more efficient operation of Line BT-14, could be achieved by pursuing the current Project. Relative to the previously proposed Line BT-14 replacement, EGT determined that the proposed Project offers the overall best solution to provide more reliable, efficient, cost effective, and safe natural gas supply to the central Arkansas region.

Because the objective of the Project is to mitigate for encroachment along EGT's existing pipeline infrastructure and enhance reliability of natural gas transportation in the central Arkansas region, EGT has proposed the Project facilities, as well as retirement of certain other facilities, to fulfill the Project purpose and need. There are no other existing EGT pipelines or pipelines of other companies in the Conway area that could reasonably be modified to meet the objectives of the proposed Project. Any other company proposing to provide natural gas to the region would need to construct significantly more pipeline than the proposed Project. It is also likely that other additional modifications and improvements to these companies' systems would be necessary. Therefore any alternative based on another company's system would result in more land disturbance and greater environmental impacts than the proposed Project.





Drawn On:
August 22, 2013

CEGT Existing Pipelines

Figure 3.3-1

Central Arkansas
Pipeline Enhancement Project

Faulkner and Pulaski Counties, Arkansas

0 2.5 5 10 Miles

Legend

- Line B
- Line BT-14
- Line BT-19
- Line BM-1
- Line BM-21

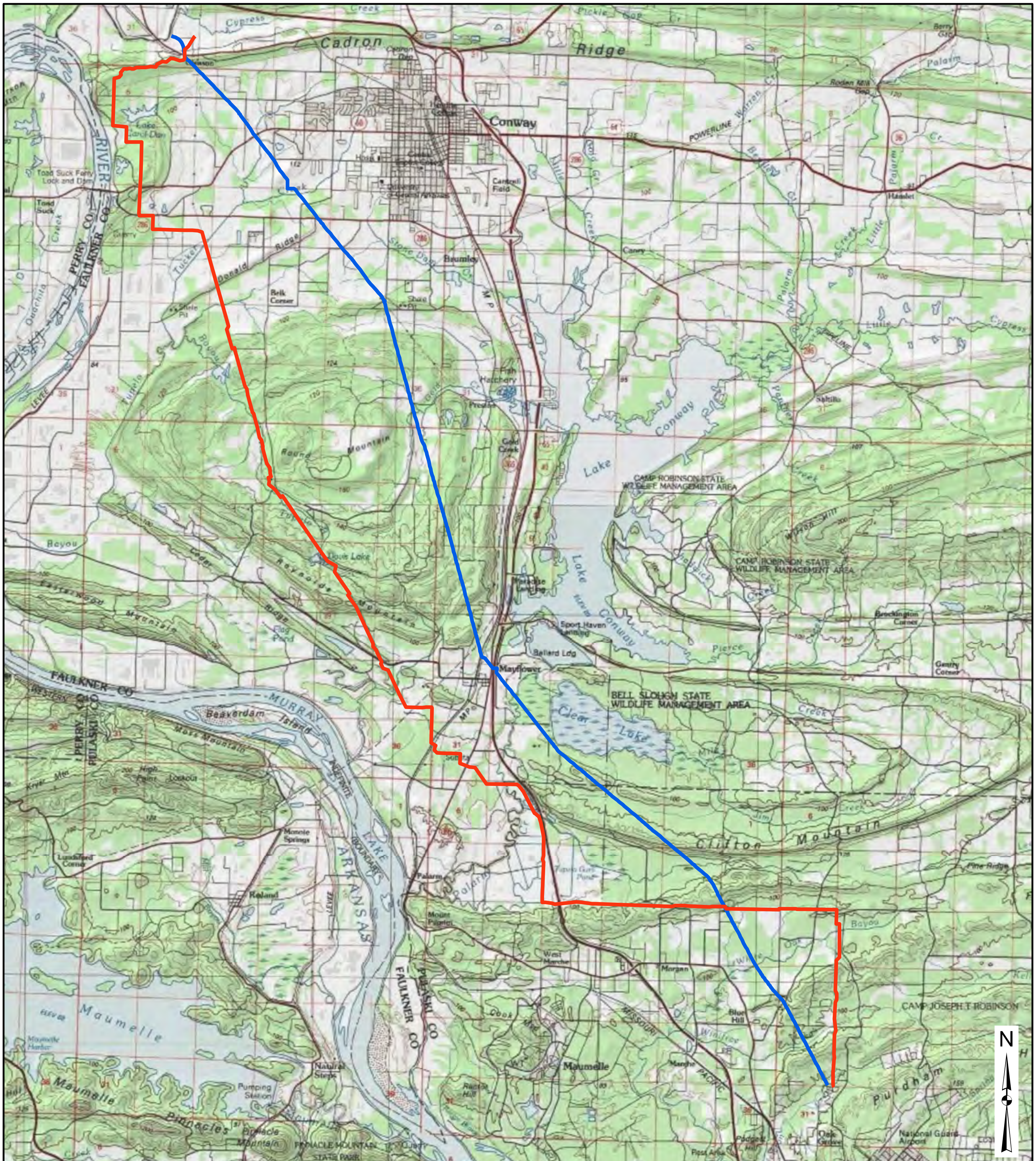
3.4 MAJOR ROUTE ALTERNATIVES

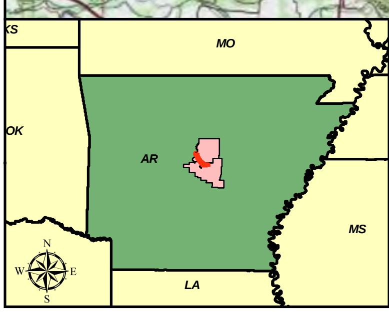
Route alternatives generally follow a different corridor for a portion of the proposed route, and may ultimately terminate at different locations. During the planning stage of the Project, EGT evaluated two different configurations that might meet the Project needs: Line B and Line BT-39. Although Line BT-39 is proposed as a replacement for the service to be abandoned on Lines B and BT-14, it is proposed on a new right-of-way, and therefore two major route alternatives were evaluated.

3.4.1 Line B Alternative

The Line B Route Alternative would follow the existing Line B right-of-way from beginning to end, as it passes through the cities and suburbs of Conway and Mayflower. The Line B Route Alternative would involve constructing 21.8 miles of new 12-inch-diameter natural gas pipeline, beginning and ending at the same locations as the proposed route for the BT-39 pipeline (figure 3.4-1). A comparison of construction and environmental considerations for the proposed route and the Line B alternative route is presented in table 3.4-1 and discussed below.

The Line B Route Alternative would be approximately 6.7 miles shorter than the proposed route and thus would result in corresponding reductions in anticipated construction and operational right-of-way land requirements. The Line B Route Alternative would be entirely collocated with the existing Line B right-of-way, while the proposed Line BT-39 route would be collocated with existing linear corridors for 62 percent of its length. However, the proposed Line BT-39 route would avoid the heavy congestion and associated constructability issues encountered along the existing Line B route. Issues that would accompany construction of a new pipeline along the Line B Route Alternative include right-of-way reductions in congested areas that would present extreme challenges to construction feasibility, cost, and schedule; and temporary closures of parking lots and roads, disrupting businesses and traffic in a large portion of the Project area. Additionally, the existing Line B pipeline must remain in service until the replacement pipeline is constructed and becomes operational. It would be challenging and impractical to construct a replacement pipeline in close proximity to the existing, active pipeline, particularly given the congested construction corridor and confined working space that would be realized along many portions of the route where development has encroached on the existing Line B pipeline right-of-way.





Drawn On:
August 22, 2013

Major Route Alternatives

Figure 3.4-1

Central Arkansas
Pipeline Enhancement Project

Faulkner and Pulaski Counties, Arkansas

0 1.25 2.5 5 Miles

Legend

Proposed Line BT-39

Existing Line B

TABLE 3.4-1

Comparison of Major Route Alternatives

Evaluation Criteria [a]	Unit	Line B Alternative Route	Proposed Line BT-39 Route [b]
Construction			
Route Length	miles	21.8	28.5
Construction ROW Land Disturbance [c]	acres	198.2	243.8
Permanent ROW Land Disturbance [c]	acres	105.7	137.9
Length Adjacent or Parallel to Existing Easements or other maintained corridors	miles	21.8	17.5
	percent	100	62
Land Use			
Federal Lands	miles	2.9	4.8
Developed Lands Crossed	miles	5.4	0.8
Forest Land Crossed	miles	6.8	16.4
Agricultural Land Crossed	miles	0.2	2.5
Open Lands Crossed	miles	6.5	4.0
Residences within 100 feet of Centerline	number	228	8
Wetlands and Waterbodies			
Total Wetlands Crossed	miles	1.3	0.2
Forested Wetlands Crossed	miles	1.3	0.1
Open Water Crossed	miles	0.01	0.2
Wetland Reserve Program Land	feet	1,727	0
Total Waterbodies Crossed	number	16 [d]	15 [d]

[a] Calculated from USGS topographic maps, national wetland inventory maps, and interpretation of aerial photography.

[b] Numbers shown may not agree with numbers presented in the Environmental Report. To facilitate an accurate comparison of all routes considered, publicly available data were used to prepare this comparison table and certain design features of the Proposed route (*e.g.*, impacts avoided by the use of horizontal direction drilling, aboveground facilities, extra temporary workspaces, etc.) were not included. Data provided in Resource Reports are based on field surveys and the actual proposed Project footprint.

[c] Acreages for the Alternative and Proposed Routes were calculated using a nominal 75-foot construction right-of-way width and a 40-foot permanent right-of-way width.

[d] Total number of crossings. Some waterbodies may have been crossed twice.

The proposed Line BT-39 route would result in greater impacts on forested and agricultural lands, but would cross fewer developed lands and would result in less disturbance of NWI-mapped wetlands. The Line B Route Alternative crosses a significant Wetland Reserve Program (WRP) easement. The Natural Resources Conservation Service (NRCS) administers the WRP, which is a voluntary program that offers landowners the opportunity to protect, restore, and enhance wetlands on their property under NRCS easement. The program attempts to improve wetland function and wildlife habitat, and to promote long-term conservation through technical and financial assistance. In order for a utility to encroach on an existing WRP easement, the NRCS must issue a subordination agreement to the utility. The NRCS prefers avoidance of these lands and requires a rigorous analysis of alternatives demonstrating that avoidance is not practical before issuing a subordination agreement. The proposed BT-39 route would entirely avoid the WRP parcel easement that would be crossed by the Line B Route Alternative.

The greatest difference between the proposed and Line B Alternative routes is the impact on residential areas, which is evidenced by the number of houses within 100 feet of the centerlines of the two routes. Much of the land surrounding the Line B Alternative route has

been developed in recent years, resulting in 220 more residences than would be encountered along the proposed Line BT-39 route, even though it is a longer route.

The Line B Route Alternative is shorter than the proposed route, would disturb less total land than the proposed route, and follows the conventional guidance of co-location with existing rights-of-way. However, the heavy development that has occurred along the existing Line B right-of-way severely limits the constructability and feasibility of that route. EGT rejected the Line B Route Alternative as it would pose significant impacts on residential and commercial areas and would not resolve encroachment concerns along the existing pipeline right-of-way. We concur with EGT's determination that the proposed Project is preferable to the Line B Alternative.

3.4.2 West Route Alternative

During the scoping process for the Project, two landowners with property along the portion of the proposed Line BT-39 route that parallels an existing electric transmission line right-of-way recommended a Project pipeline route to the west of the proposed Line BT-39 route. The landowners suggested that such a route would be preferable to the proposed route as it would cross land with fewer trees, less topographic relief, larger land parcels, and avoid a crossing of their property. In response to those comments, EGT considered a non-specific route alternative, which would deviate west of the proposed route between approximate MP 5 and MP 11.

The Line BT-39 pipeline route was developed to meet the Project objectives while minimizing environmental impacts. The FERC's regulations (18 CFR Section 380.15[d][1]) give primary consideration to the use, enlargement, or extension of existing right-of-way over developing a new right-of-way in order to reduce potential impacts on sensitive resources. In general, installation of new pipeline along existing, cleared right-of-way (e.g., pipeline, powerline, road, or railroad) is environmentally preferable to greenfield construction. Greenfield construction occurs on lands that are not on or adjacent to an existing maintained right-of-way, thereby resulting in creation of a new utility corridor or right-of-way. EGT indicates that one of its major objectives during pipeline route selection was to avoid and minimize incremental or additive environmental impacts that could be associated with greenfield construction. A route to the west of the proposed route would not be collocated with an existing ROW, and would instead result in greenfield construction.

A pipeline route far enough west to affect fewer trees and hills would require significant deviation from the proposed Line BT-39 route to agricultural lands located in the floodplain of the Arkansas River. Although a pipeline route and construction right-of-way that traverses level, agricultural lands could result in reduced clearing of forested vegetation and more rapid construction in some instances, but construction through low-lying agricultural lands could also result in constructability challenges and special requirements (e.g., full right-of-way topsoil segregation; matting to avoid excessive rutting and soil compaction; impacts to irrigation and/or drainage equipment; offsets for crop damages; restoration of precision leveled fields; etc.).

Additionally, a pipeline route that deviates into the agricultural floodplain of the Arkansas River would be more than 40 percent longer (i.e., approximately 8.5 miles vs. 6 miles)

and result in more than 40 percent greater construction and permanent land requirements than the corresponding segment of the proposed Line BT-39 pipeline route. Further, shifting the Line BT-39 pipeline route to the west would greatly increase the distance between the pipeline and the targeted service area and interconnect points with the distribution system in the Conway service area. This would result in the need for construction of greater lengths of nonjurisdictional natural gas distribution pipeline facilities, which would also result in increased construction and permanent land requirements relative to the proposed Project route. In general, increased land requirements result in greater land disturbance, impacting more soils, wetlands, and waterbodies. While a route to the west of the proposed Line BT-39 pipeline route may affect larger parcels of land and alleviate concerns raised by the commenting landowners, adoption of such a route would merely result in transference of impacts to other landowners.

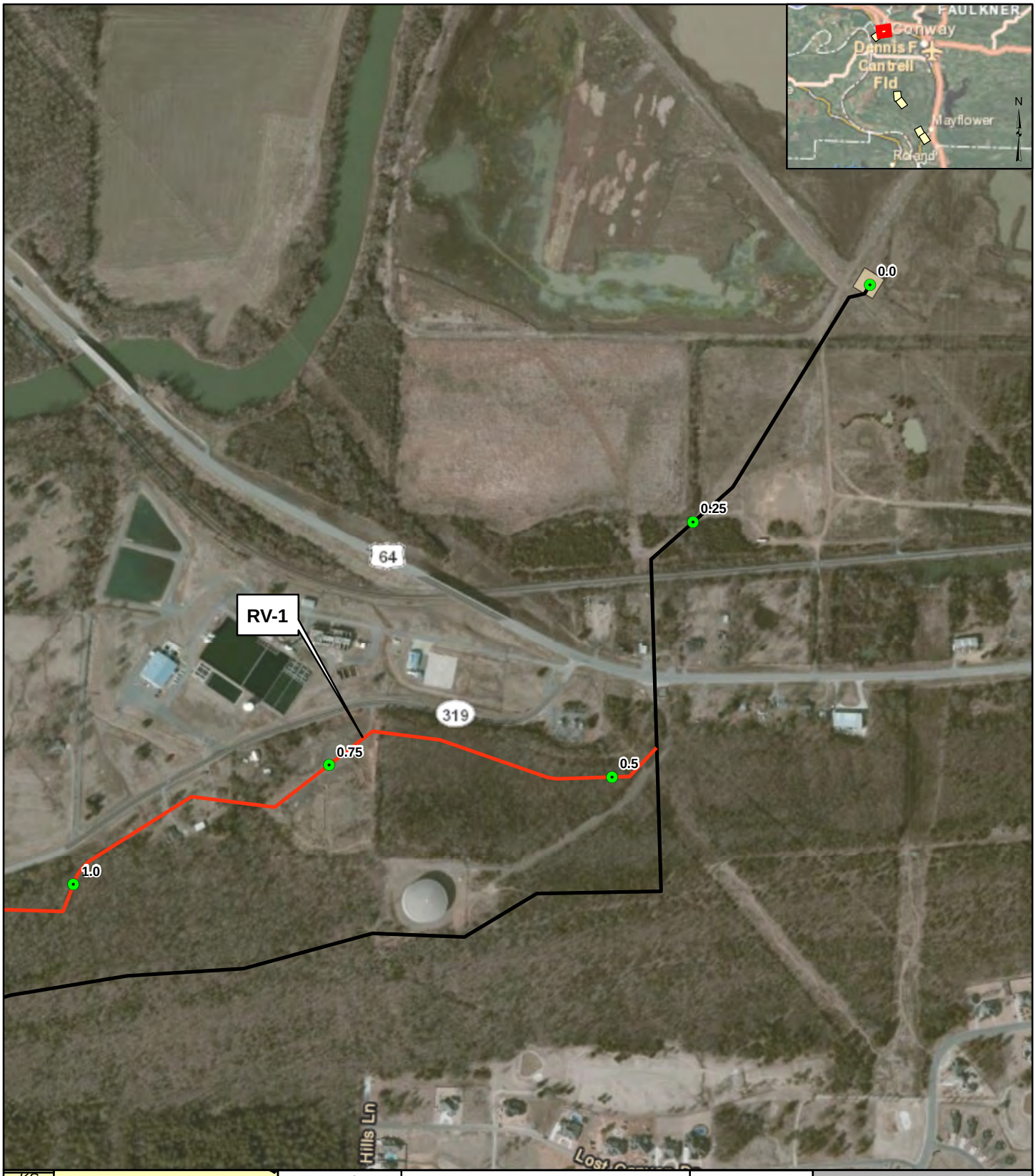
Relative to a route alternative through the agricultural floodplain of the Arkansas River, the proposed Line BT-39 pipeline route is shorter, would result in less total construction and permanent land requirements, and would maximize co-location opportunities with existing rights-of-way. For these reasons, EGT selected its proposed Line BT-39 pipeline route as a more practicable and environmentally preferable route. We concur with EGT's determination that the proposed route is preferable to the West Alternative.

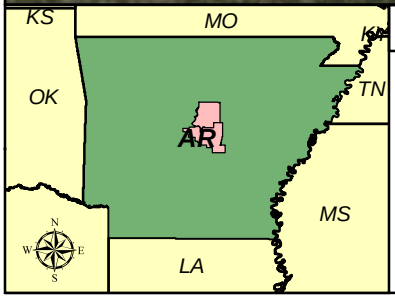
3.5 MINOR ROUTE VARIATIONS

Route variations are typically identified to avoid or reduce construction impacts on specific, localized resources that may include cultural resource sites, residences, or site-specific terrain conditions. EGT evaluated and adopted several minor route variations to address localized constructability and environmental issues identified through field surveys and landowner consultations. Maps depicting these route variations are included as figure 3.5-1. Comparisons of the environmental impacts and rationale for adopting each of the route variations are presented in table 3.5-1. Each route variation is discussed in greater detail below.

3.5.1 Route Variation RV-1 (MPs 0.45 – 2.14)

During project planning, EGT learned of landowner plans for development of the land south of Arkansas Route 319 and Cadron Ridge near the beginning of the proposed route for Line BT-39. EGT subsequently developed route variation RV-1 to minimize impact on existing and planned development in that area and to increase pipeline separation from the site of an existing, City of Conway water tower, where a second water tower may be constructed in the future. RV-1 departs the original BT-39 route at MP 0.45 to more closely follow the Arkansas Route 319 roadway, rather than traversing cross country, along the crest of Cadron Ridge. RV-1 proceeds west near the south side of the roadway for a little over a mile, then turns south along property lines, rejoining the original route south of Cadron Settlement Lane. Relative to the originally proposed route, RV-1 minimizes cross-country construction, avoids conflict with planned land development, locates the pipeline away from existing and planned water towers, and is also responsive to landowner requests in the area. For these reasons, RV-1 was adopted as the proposed route in this area. We concur with this determination.





Drawn On:
August 22, 2013

Project Variations

Line B Replacement - Conway to Little Rock

Faulkner and Pulaski Counties, Arkansas

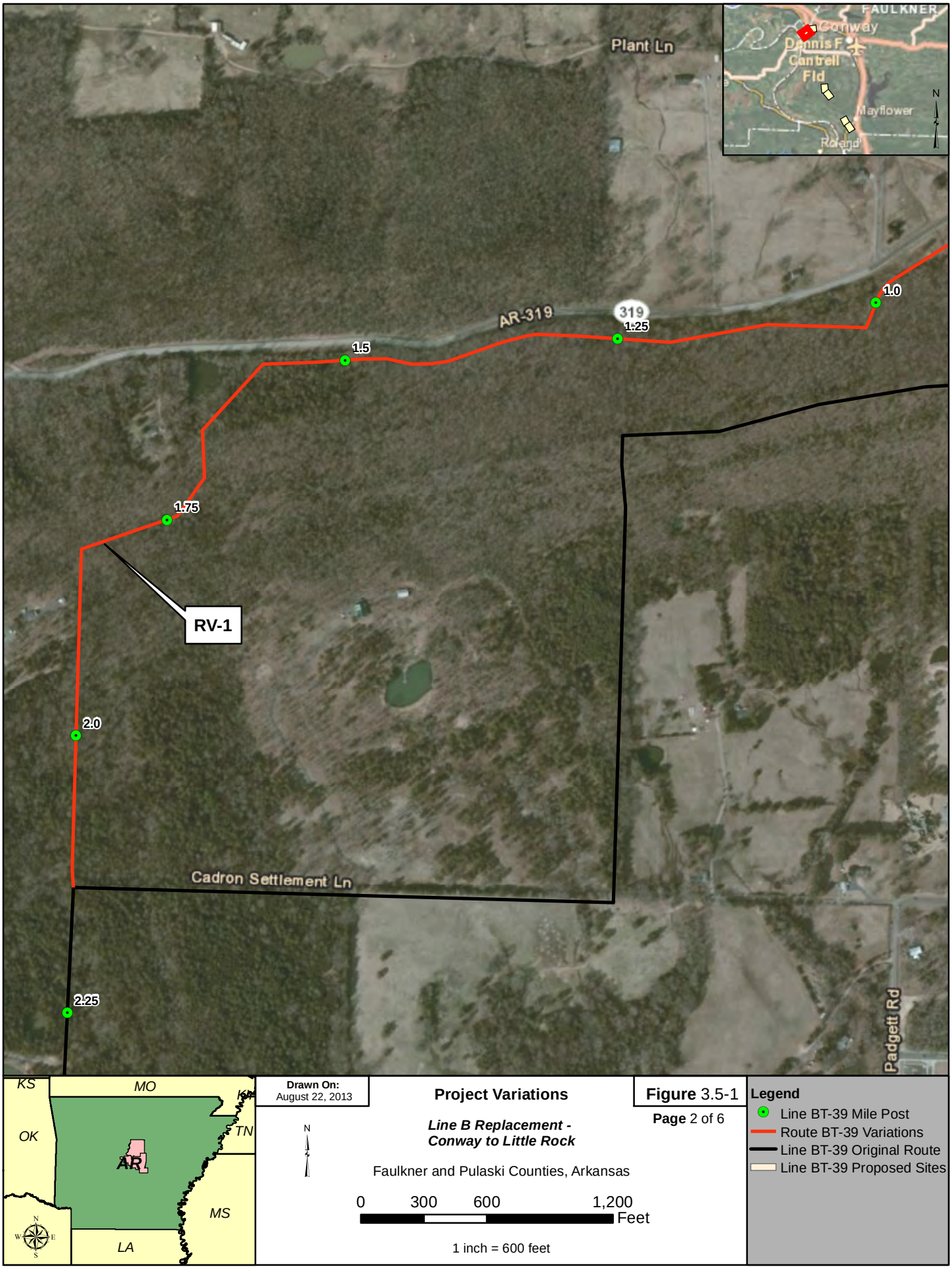
0 300 600 1,200 Feet

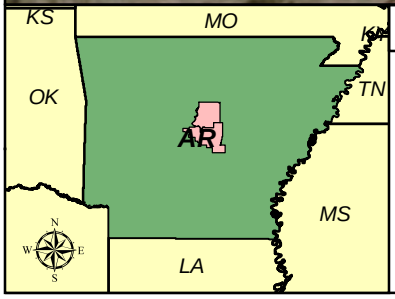
1 inch = 600 feet

Figure 3.5-1

Legend

- Line BT-39 Mile Post
- Route BT-39 Variations
- Line BT-39 Original Route
- Line BT-39 Proposed Sites


Plant Ln
AR-319
319
1.0
1.25
1.5
1.75
RV-1
2.0
2.25
Cadron Settlement Ln
Padgett Rd
FAULKNER
Conway
Dennis F
Cantrell
Fld
Mayflower
Roland
N
KS
MO
IL
OK
TN
AR
MS
LA
Drawn On:
August 22, 2013
Project Variations
Line B Replacement -
Conway to Little Rock
Faulkner and Pulaski Counties, Arkansas
0 300 600 1,200
Feet
1 inch = 600 feet
Figure 3.5-1
Page 2 of 6
Legend
Line BT-39 Mile Post
Route BT-39 Variations
Line BT-39 Original Route
Line BT-39 Proposed Sites



Drawn On:
August 22, 2013

Project Variations

Line B Replacement - Conway to Little Rock

Faulkner and Pulaski Counties, Arkansas

0 300 600 1,200 Feet

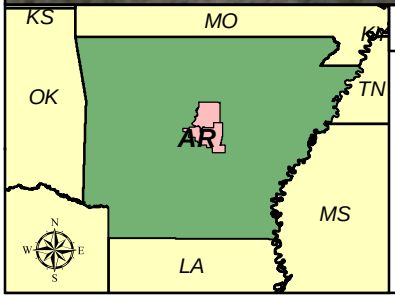
1 inch = 600 feet

Figure 3.5-1

Page 3 of 6

Legend

- Line BT-39 Mile Post
- Route BT-39 Variations
- Line BT-39 Original Route
- Line BT-39 Proposed Sites



Drawn On:
August 22, 2013

Project Variations

Line B Replacement - Conway to Little Rock

Faulkner and Pulaski Counties, Arkansas

N

0 300 600 1,200 Feet

1 inch = 600 feet

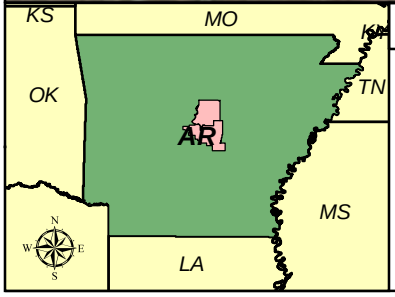
Figure 3.5-1

Page 4 of 6

Legend

- Line BT-39 Mile Post
- Route BT-39 Variations
- Line BT-39 Original Route
- Line BT-39 Proposed Sites


14.5
14.75
15.0
15.25
15.5
15.75
RV-4
RV-5
Oak Ridge Mountain
Old Sandy Rd
Eagle Cir
Luker Ln
FAULKNER
Conway
Dennis F
Cantrell
Fld
Mayflower
Roland
N
KS
MO
IA
OK
TN
AR
MS
LA
Drawn On:
August 22, 2013
Project Variations
Line B Replacement -
Conway to Little Rock
Faulkner and Pulaski Counties, Arkansas
0 300 600 1,200
Feet
1 inch = 600 feet
Figure 3.5-1
Page 5 of 6
Legend
Line BT-39 Mile Post
Route BT-39 Variations
Line BT-39 Original Route
Line BT-39 Proposed Sites



Drawn On:
August 22, 2013

Project Variations

Line B Replacement - Conway to Little Rock

Faulkner and Pulaski Counties, Arkansas

N

0 300 600 1,200 Feet

1 inch = 600 feet

Figure 3.5-1

Legend

- Line BT-39 Mile Post
- Route BT-39 Variations
- Line BT-39 Original Route
- Line BT-39 Proposed Sites

TABLE 3.5-1

Comparative Analysis of Adopted Route Variations

Route Variation/Comparison Factor	Original Route	Route Variation	Reason for Adoption
RV-1 (MPs 0.45 to 2.14)			To locate new pipeline closer to existing roadway, avoid water tower, and avoid area of reported planned development.
Route Length (feet)	9,301	8,893	
Construction Land Requirements (acres)	16.0	16.1	
Operational Land Requirements (acres)	8.5	8.2	
Public Lands Crossed (feet)	1,475	1,313	
Land Uses Crossed (feet)			
- Upland Forest	7,979	7,605	
- Agricultural	0	0	
- Open	1,322	0	
- Maintained Residential		688	
- Industrial/Commercial		600	
Perennial Waterbody Crossings (no.)	0	0	
Wetland Crossings (feet)			
- Forested	0	0	
- Non-forested	0	0	
Residences within 100 feet of Centerline (no.)	0	1	
RV-2 (MPs 10.14 to 10.42)			To avoid a sensitive environmental resource.
Route Length (feet)	1,494	1,487	
Construction Land Requirements (acres)	2.6	3.1	
Operational Land Requirements (acres)	1.4	1.4	
Public Lands Crossed (feet)	0	0	
Land Uses Crossed (feet)			
- Upland Forest	1,316	1,262	
- Agricultural	0	0	
- Open	0	175	
- Maintained Residential	0	0	
- Industrial/Commercial	178	50	
Perennial Waterbody Crossings (no.)	1	1	
Wetland Crossings (feet)			
- Forested	0	0	
- Non-forested	0	0	
Residences within 100 feet of Centerline (no.)	0	0	
RV-3 (MPs 10.83 to 10.88)			To avoid crossing a known historic road.
Route Length (feet)	268	268	
Construction Land Requirements (acres)	0.5	0.5	
Operational Land Requirements (acres)	0.3	0.3	
Public Lands Crossed (feet)	0	0	
Land Uses Crossed (feet)			

TABLE 3.5-1

Comparative Analysis of Adopted Route Variations

Route Variation/Comparison Factor	Original Route	Route Variation	Reason for Adoption
- Upland Forest	70	121	
- Agricultural	0	0	
- Open	198	147	
- Maintained Residential	0	0	
Perennial Waterbody Crossings (no.)	0	0	
Wetland Crossings (feet)			
- Forested	0	0	
- Non-forested	0	0	
Residences within 100 feet of Centerline (no.)	0	0	
RV-4 (MPs 14.97 to 15.10)			To straighten the centerline to construct segment by horizontal directional drill.
Route Length (feet)	786	732	
Construction Land Requirements (acres)	1.4	1.0	
Operational Land Requirements (acres)	0.7	0.5	
Public Lands Crossed (feet)	0	0	
Land Uses Crossed (feet)			
- Upland Forest	282	260	
- Agricultural	0	0	
- Open	431	399	
- Maintained Residential	0	0	
- Industrial/Commercial	73	73	
Perennial Waterbody Crossings (no.)	1	1	
Wetland Crossings (feet)			
- Forested	334	170	
- Non-forested	106	91	
Residences within 100 feet of Centerline (no.)	0	0	
RV-5 (MPs 15.18 to 16.41)			To avoid a sensitive environmental resource.
Route Length (feet)	4,701	6,483	
Construction Land Requirements (acres)	8.1	12.9	
Operational Land Requirements (acres)	4.3	6.0	
Public Lands Crossed (feet)	0	0	
Land Uses Crossed (feet)			
- Upland Forest	3,247	5,876	
- Agricultural	0	0	
- Open	1,364	519	
- Maintained Residential	0	0	
- Industrial/Commercial	90	88	
Perennial Waterbody Crossings (no.)	0	0	
Wetland Crossings (feet)			
- Forested	698	503	

TABLE 3.5-1

Comparative Analysis of Adopted Route Variations

Route Variation/Comparison Factor	Original Route	Route Variation	Reason for Adoption
- Non-forested	0	0	
Residences within 100 feet of Centerline (no.)	1	0	

3.5.3 Route Variation RV-2 (MPs 10.14 – 10.42)

EGT evaluated and adopted RV-2 to avoid a sensitive cultural resource site identified along the original Line BT-39 route. Additional information is provided in EGT's Phase I Cultural Resources Survey Report for the Proposed Central Arkansas Pipeline Enhancement Project in Faulkner and Pulaski Counties, Arkansas. We concur with this determination.

3.5.4 Route Variation RV-3 (MPs 10.83 – 10.88)

EGT evaluated and adopted RV-3 to avoid impacting a known, sensitive cultural resource site identified along the original Line BT-39 route. Additional information is provided in EGT's Phase I Cultural Resources Survey Report for the Proposed Central Arkansas Pipeline Enhancement Project in Faulkner and Pulaski Counties, Arkansas. We concur with this determination.

3.5.5 Route Variation RV-4 (MPs 14.97 – 15.10)

The original BT-39 route in the vicinity of MP 15 deviated slightly east of a straight line to improve the angle of a crossing of Luker Lane. This slight deviation was removed from the route by adoption of RV-4 to straighten the route, allowing for horizontal directional drill construction in this area as described below (see section 3.5.6). We concur with this determination.

3.5.6 Route Variation RV-5 (MPs 15.18 – 16.41)

RV-5 departs the original route at MP 15.18 and heads due east for about 0.4 mile, then turns due south for about 0.6 mile, before crossing Center Street and a railroad, then rejoining the original route. RV-5 was evaluated and adopted to avoid impacting a sensitive cultural resources site located along the original Line BT-39 route. Additional information is provided in EGT's Phase I Cultural Resources Survey Report for the Proposed Central Arkansas Pipeline Enhancement Project in Faulkner and Pulaski Counties, Arkansas. We concur with this determination.

3.6 ABOVEGROUND FACILITY SITE ALTERNATIVES

The Project includes installation of seven new or modified aboveground facilities, as listed below.

- Highway 64 Town Border Station (TBS), located at the origin of Line BT-39;

- Bryant Road TBS, located at the intersection of Line BT-39 with viable natural gas delivery/interconnect points with distribution infrastructure;

- Highway 365 TBS, located at the intersection of Line BT-39 with viable natural gas delivery/interconnect points with distribution infrastructure;

- Morgan TBS, existing facility located at the terminus of Line BT-41;

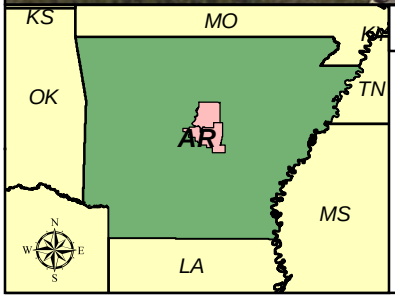
- James Road TBS, located at the terminus of Line BT-40;

- Oak Grove TBS, existing facility located at the terminus of Line BT-39; and

- Shoemaker Road TBS, located at the terminus of the section of Line BT-14 to be transferred to CERC.

The Morgan, Oak Grove, and Shoemaker Road TBSs represent modifications/expansions of existing facility sites, thus alternative sites were not considered. Because the locations of the other, new aboveground facilities are linked to the location of the proposed new pipelines and viable natural gas delivery/interconnect points, the search for alternatives was constrained to sites located adjacent to the intersection of the replacement pipeline facility and existing natural gas distribution infrastructure. EGT evaluated two alternative locations for the Bryant Road TBS (see Figure 3.6-1). Neither site alternative would impact sensitive environmental resources. Due to landowner comments, the Bryant Road TBS was ultimately sited on a property that provided a feasible location for interconnect with natural gas distribution infrastructure, as well as a landowner that was amenable to siting the facility on their property.

Because no appreciable environmental impacts will be associated with the selected sites (existing and new) for the proposed aboveground facilities, no additional alternative sites need be evaluated. We concur with this determination.



Drawn On: August 22, 2013

Bryant Road TBS Site Alternatives | **Figure** 3.6-1

Line B Replacement - Conway to Little Rock

Faulkner and Pulaski Counties, Arkansas

N

0 200 400 800 Feet

1 inch = 400 feet

Legend

- Line BT-39 Mile Post
- Proposed Site
- Original Site
- Line BT-39 Proposed Route

4.0 STAFF'S CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis in this EA, we believe that the proposed Project as described in EGT's application and supplemental filings, and with the implementation of our recommendations, would not have a significant impact on environmental resources within the defined Project area. Therefore, we conclude that approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment. We recommend that the Commission Order (Order) contain a finding of no significant impact and include the mitigation measures listed below as conditions to any Certificate the Commission may issue.

1. EGT shall follow the construction procedures and mitigation measures described in its application and as identified in the EA, unless modified by the Order. EGT must:

    a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (Secretary);

    b. justify each modification relative to site-specific conditions;

    c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and

    d. receive approval in writing from the Director of 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 proposed 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**, EGT shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel would be informed of the EI's authority and have been or would be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.

4. The authorized facility locations shall be as shown in the EA as supplemented by filed alignment sheets. **As soon as they are available, and prior to the start of construction**, EGT 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.

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

5. EGT 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 the Commission's Upland Erosion Control Revegetation and Maintenance Plan (Plan) or Wetland and Waterbody Construction and Mitigation Procedures (Procedures) 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 a certificate** and **before construction begins**, EGT shall file an initial Implementation Plan with the Secretary for review and written approval by the Director of OEP. EGT must file revisions to the plan as schedules change. The plan shall identify:

   a. how EGT will implement the construction procedures and mitigation measures described in its application, identified in the EA, and required by the Order;

b. how EGT 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 per spread, 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 locations and dates of the environmental compliance training and instructions EGT will give to all personnel involved with construction and restoration (initial and refresher training as the proposed Project progresses and personnel change);

f. the company personnel (if known) and specific portion of EGT's organization having responsibility for compliance;

g. the procedures (including use of contract penalties) EGT will follow if noncompliance occurs; and

h. for each discrete facility, a Gantt or PERT chart (or similar Project scheduling diagram), and dates for:

   i. the completion of all required surveys and reports;

   ii. the environmental compliance training of onsite personnel;

   iii. the start of construction; and

   iv. the start and completion of restoration.

7. Beginning with the filing of its Implementation Plan, EGT 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 EGT's efforts to obtain the necessary federal authorizations;

   b. the construction status of each segment or spread, 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 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 that 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 EGT from other federal, state or local permitting agencies concerning instances of noncompliance, and EGT's response.

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

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

10. **Within 30 days of placing the certificated facilities in service**, EGT shall file an affirmative statement with the Secretary, certified by a senior company official:

a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or

b. identifying which of the Certificate conditions EGT 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.

11. EGT shall not begin construction of the proposed facilities and/or use of staging, storage, or temporary work areas and new or to-be-improved access roads until:

a. EGT files with the Secretary:

i. comments on the cultural resources addendum report from the Arkansas SHPO.

b. the FERC staff reviews and the Director of OEP approves the cultural resources addendum report and notifies EGT in writing that construction may proceed.

Materials filed with the Commission containing location, character, and ownership information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: "CONTAINS PRIVILEGED INFORMATION - DO NOT RELEASE."