# *1.0 General Project Description*

# Resource Report 1 – General Project Description
# FERC Environmental Checklist

| | Part 380-Appendix A Minimum Filing Requirements for Environmental Reports | Company Compliance or Inapplicability of Requirement |
|---|---|---|
| ☐ | Provide a detailed description and location map of the Project facilities. (§380.12(c)(1)) | *Sections 1.1 and 1.1.2; Figure 1.2-1* |
| ☐ | Describe any non-jurisdictional facilities that would be built in association with the Project. (§380.12(c) (2)) | *Section 1.9; Figure 1.2-1* |
| ☐ | Provide current original U.S. Geological Survey (USGS) 7.5-minute series topographic maps with mileposts showing the Project facilities. (§380.12(c)(3)). | *Appendix A* |
| ☐ | Provide aerial images or photographs or alignment sheets based on these sources with mileposts showing the Project facilities. (§380.12(c)(3)). | *Figure 1.2-1 and Appendix C* |
| ☐ | Provide plot/site plans of compressor stations showing the location of the nearest noise-sensitive areas (NSA) within 1 mile. (§380.12(c)(3,4)). | *Appendix B* |
| ☐ | Describe construction and restoration methods. (§380.12(c)(6)). | *Section 1.4, Appendix E and Resource Report 2* |
| ☐ | Identify the permits required for construction across surface waters. (§380.12(c)(9)). | *Section 1.6.1 and Table 1.5-1* |
| ☐ | Provide the names and addresses of all affected landowners and certify that all affected landowners would be notified as required in §157.6(d). (§§380.12(a)(4) and (c)(10)). | *Appendix F* |

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**Tables**



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**Appendices**

# 1.0 RESOURCE REPORT 1 - GENERAL PROJECT DESCRIPTION

Texas Eastern Transmission, LP (Texas Eastern) is seeking authorization from the Federal Energy Regulatory Commission (FERC or Commission) pursuant to Sections 7(b) and 7(c) of the Natural Gas Act for the abandonment of certain facilities and the construction and operation of the Texas Eastern Appalachia to Market 2014 Project (TEAM 2014 Project or the Project) located in Pennsylvania, West Virginia, Ohio, Kentucky, Tennessee, Alabama, and Mississippi. The TEAM 2014 Project is designed to deliver critically needed natural gas supplies that will meet immediate and future supply and load growth requirements in diverse markets in the Northeast, Midwest, Southeast, and Gulf Coast.

This Environmental Report (ER) has been prepared in accordance with the FERC Order Nos. 603, *et seq.*, which govern the filing of the ER portion of applications for Certificates of Public Convenience and Necessity, authorizing the construction and operation of facilities to provide service under Section 7 of the NGA.

Texas Eastern's ER has been organized into three separate volumes, in compliance with FERC's document control requirements for Public, Critical Energy Infrastructure Information (CEII), and Privileged and Confidential classes of information. The ER is contained in Volumes II-IV, the contents of which are outlined below. The Application text and related public exhibits are included as Volume I (not included as part of this Draft filing).

**Public**

- Volume I (not included as part of this Draft filing)

  Application
  Public Exhibits, Except F-1 (C, D, F, J, K, N, T, Y, Z-1)

- Volume II-A

  Resource Reports 1-13

- Volume II-B

  Appendices A, C, D, E, G, H, I, K, and L

**Privileged and Confidential**

- Volume III

  Appendix F- Landowner and Stakeholder Lists
  Appendix J - Cultural Resource Survey Reports
  Exhibit I

**CEII**

- Volume IV

  Appendix B - Plot Plans
  Exhibits G, G-1, and G-2

Resource Report 1 includes the purpose and need for the Project, the locations and descriptions of proposed facilities, and the expected land requirements associated with construction and operation of the Project. In addition, this Resource Report contains information regarding the proposed construction and right-of-way (ROW) restoration procedures, operation and maintenance (O&M) practices, the permits and approvals required to construct and operate the Project, landowner notification information, any potential plans for future expansion or

abandonment of the proposed facilities, proposed non-jurisdictional facilities, and a cumulative impacts analysis.

## 1.1 Purpose and Need

Texas Eastern held an open season for the Project from January 17, 2012 through February 17, 2012, and a reverse open season from March 12, 2012 through March 30, 2012. The Project will create additional firm pipeline capacity necessary to deliver 600,000 dekatherms per day (Dth/d) of natural gas for Chevron U.S.A., Inc. (Chevron) and EQT Energy, LLC (EQT) (collectively, the Project Shippers) to markets along the Texas Eastern system in the Northeast and Gulf Coast areas, as well as to markets in the Midwest and Southeast through Texas Eastern's interconnections with downstream pipelines. The Project also provides access to the new, emerging liquefied natural gas export and Gas-to-Liquids markets. The Project is production-driven and will provide much-needed market access as the production comes on line. Texas Eastern designed the Project to meet a targeted in-service date of November 1, 2014, as reflected in Texas Eastern's precedent agreements with the Project Shippers. The estimated capital investment for the project is approximately $500 million.

The Project Shippers have a need for additional capacity to transport natural gas supplies to expanding Northeast, Midwest, and Gulf Coast market areas. The Project scope and construction have been planned to mitigate environmental impacts and decrease the possibility for any Project delays that could result in a completion date later than the targeted in-service date of November 1, 2014. The Project Shippers own production assets in the Marcellus Shale region, located within the Appalachian Basin, from which they intend to transport natural gas from various existing interconnects located in Greene County, Pennsylvania; Fayette County, Pennsylvania; and Marshall County, West Virginia through the Project facilities for delivery to the aforementioned market areas.

In addition to providing access to major natural gas markets for the Project Shippers, TEAM 2014 will promote increased commodity price competition and reduce price volatility by introducing new supply sources from the Marcellus Shale production region to these markets. Overall, the Project will improve transportation security, flexibility, and reliability on the Texas Eastern system.

## 1.2 Location and Description of Facilities

The Project will entail the construction of approximately 33.4 miles of 36-inch diameter pipeline composed of seven separate pipeline loops and associated pipeline facilities in Pennsylvania, horsepower upgrades at four existing compressor stations in Pennsylvania. Existing compressor stations, two meter stations and 20 launcher/receiver sites in Pennsylvania, West Virginia, Ohio, Kentucky, Tennessee, Alabama, and Mississippi will require existing piping modifications and maintenance to accommodate bi-directional flow along Texas Eastern's system. Figures 1.2-1a to 1.2-1e show the regional and specific locations of the Project. Appendix A contains U.S. Geological Survey (USGS) topographic quadrangle maps depicting the locations of the proposed facilities. Appendices B and C contain plot plans and aerial alignment sheets, respectively, of the proposed facilities.

### 1.2.1 Pipeline Facilities

The Project's pipeline facilities have been identified by discharge segments along the existing Texas Eastern system. Table 1.2-1 provides a summary of the proposed Project's pipeline installations, including pipeline diameters, approximate length, mileposts (MPs), and type of activity.

- The Holbrook Loop segment is an approximately 6.6-mile long new pipeline loop in Fayette County, Pennsylvania, downstream of Texas Eastern's existing Holbrook Compressor Station.
- The Perulack West Loop segment is an approximately 2.7-mile long new pipeline loop in Perry County, Pennsylvania, downstream of Texas Eastern's existing Perulack Compressor Station.
- The Perulack East Loop segment is an approximately 5.3-mile long new pipeline loop in Perry County, Pennsylvania, downstream of Texas Eastern's existing Perulack Compressor Station.
- The Shermans Dale Loop segment is an approximately 7.1-mile long new pipeline loop in Dauphin County, Pennsylvania, downstream of Texas Eastern's existing Shermans Dale Compressor Station.
- The Grantville West Loop segment is an approximately 2.4-mile long new pipeline loop in Lebanon County, Pennsylvania, downstream of Texas Eastern's existing Grantville Compressor Station.
- The Grantville East Loop segment is an approximately 3.8-mile long new pipeline loop in Lebanon County, Pennsylvania, downstream of Texas Eastern's existing Grantville Compressor Station.
- The Bernville Loop segment is an approximately 5.5-mile long new pipeline loop in Berks County, Pennsylvania, downstream of Texas Eastern's existing Bernville Compressor Station.

TABLE 1.2-1
PIPELINE FACILITIES

| Facility | Pipeline Diameter and Type | Approx. Length (miles) | Pipeline No.* | Begin MP | End MP | State | County |
|---|---|---|---|---|---|---|---|
| Holbrook Loop | 36-inch – new loop | 6.6 | Line 30 | 0.0 | 6.6 | Pennsylvania | Fayette |
| Perulack West Loop | 36-inch – new loop | 2.7 | Line 28 | 0.0 | 2.7 | Pennsylvania | Perry |
| Perulack East Loop | 36-inch – new loop | 5.3 | Line 28 | 0.0 | 5.3 | Pennsylvania | Perry |
| Shermans Dale Loop | 36-inch – new loop | 7.1 | Line 28 | 0.0 | 7.1 | Pennsylvania | Dauphin |
| Grantville West Loop | 36-inch – new loop | 2.4 | Line 28 | 0.0 | 2.4 | Pennsylvania | Lebanon |
| Grantville East Loop | 36-inch – new loop | 3.8 | Line 28 | 0.0 | 3.8 | Pennsylvania | Lebanon |
| Bernville Loop | 36-inch – new loop | 5.5 | Line 28 | 0.0 | 5.5 | Pennsylvania | Berks |

* Pipeline No. reflects the Texas Eastern Line Number to be assigned to the new pipelines.

FIGURE 1.2-1a
TEAM 2014 PROJECT OVERVIEW MAP

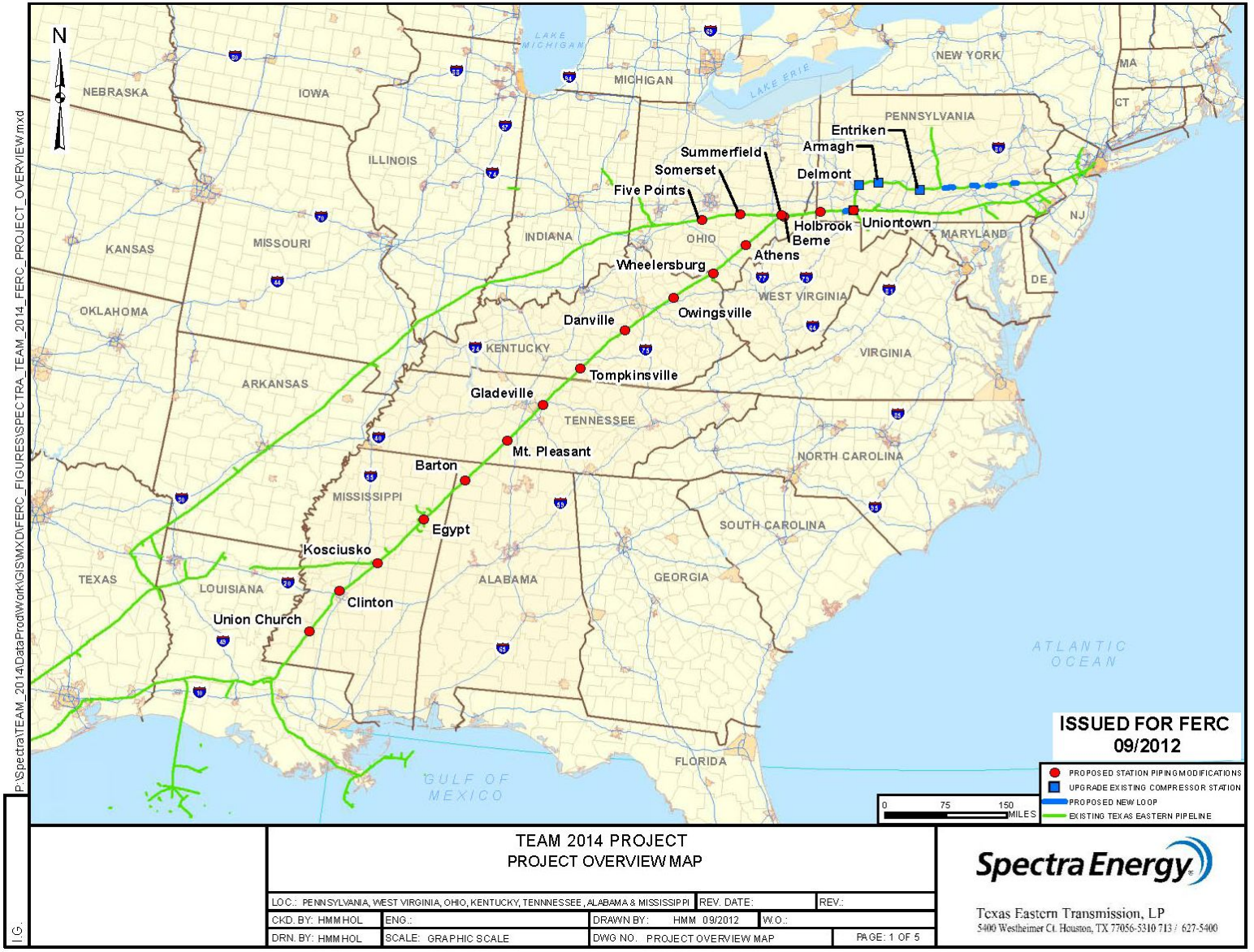


FIGURE 1.2-1b
TEAM 2014 PROJECT OVERVIEW MAP

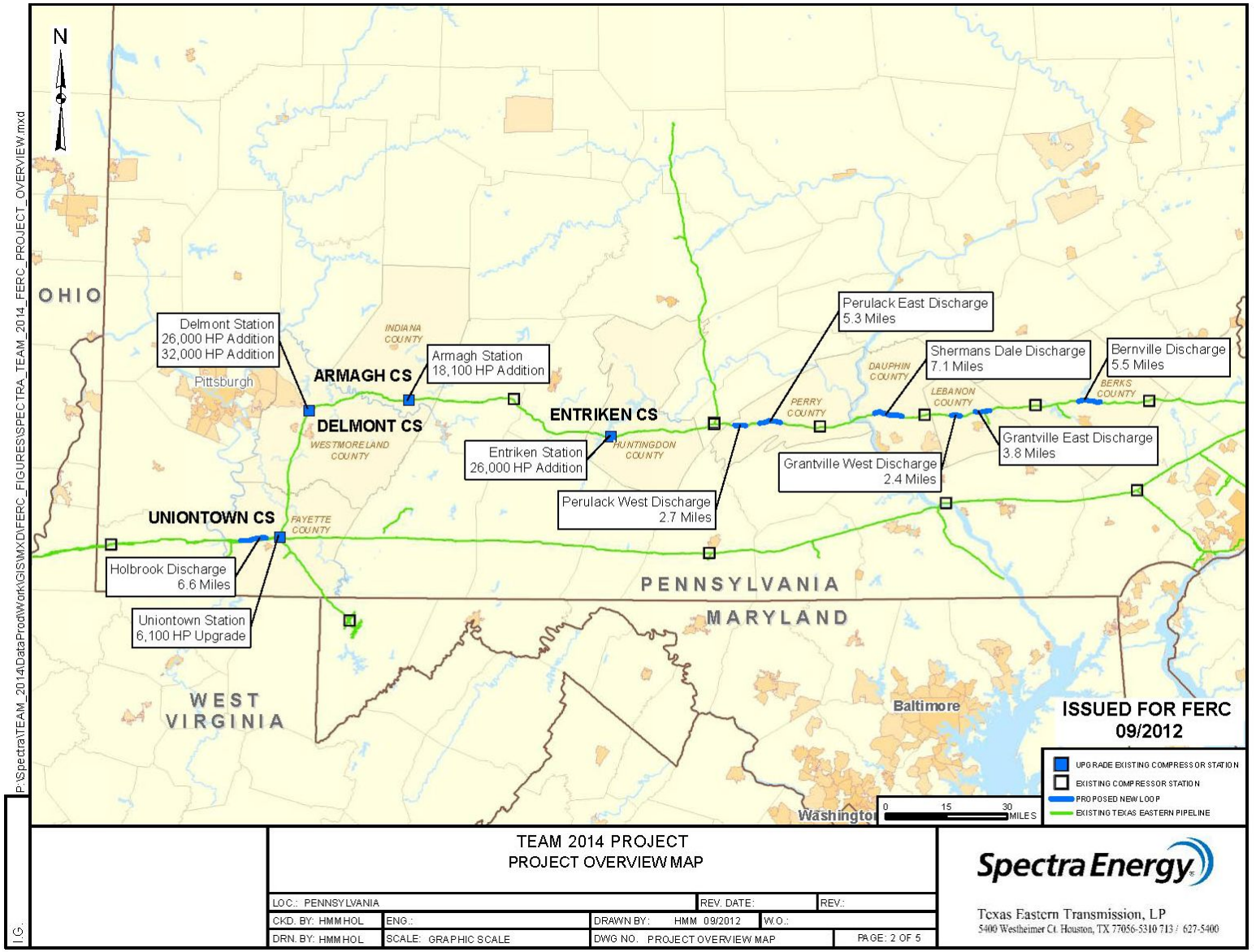


FIGURE 1.2-1c
TEAM 2014 PROJECT OVERVIEW MAP

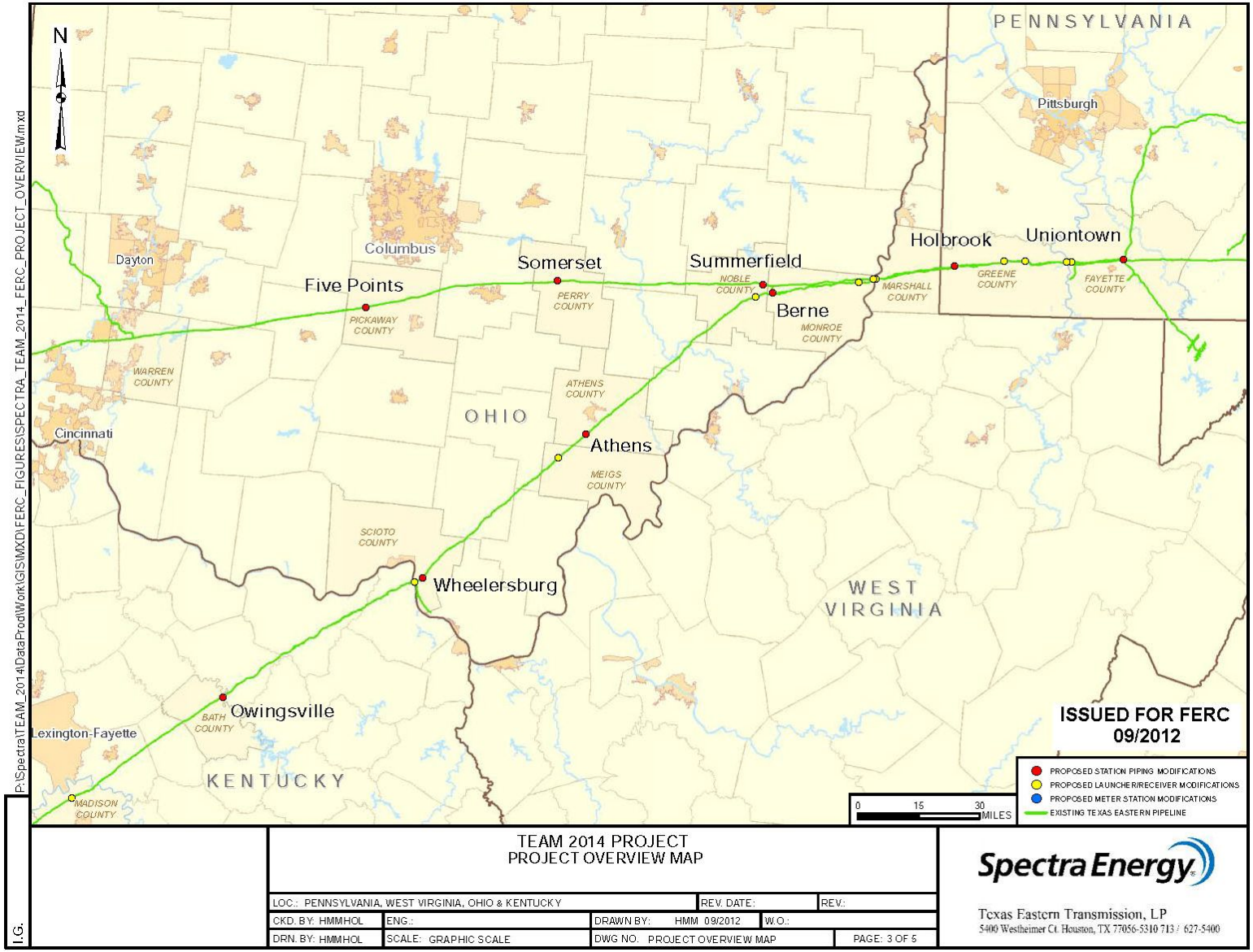


FIGURE 1.2-1d
TEAM 2014 PROJECT OVERVIEW MAP

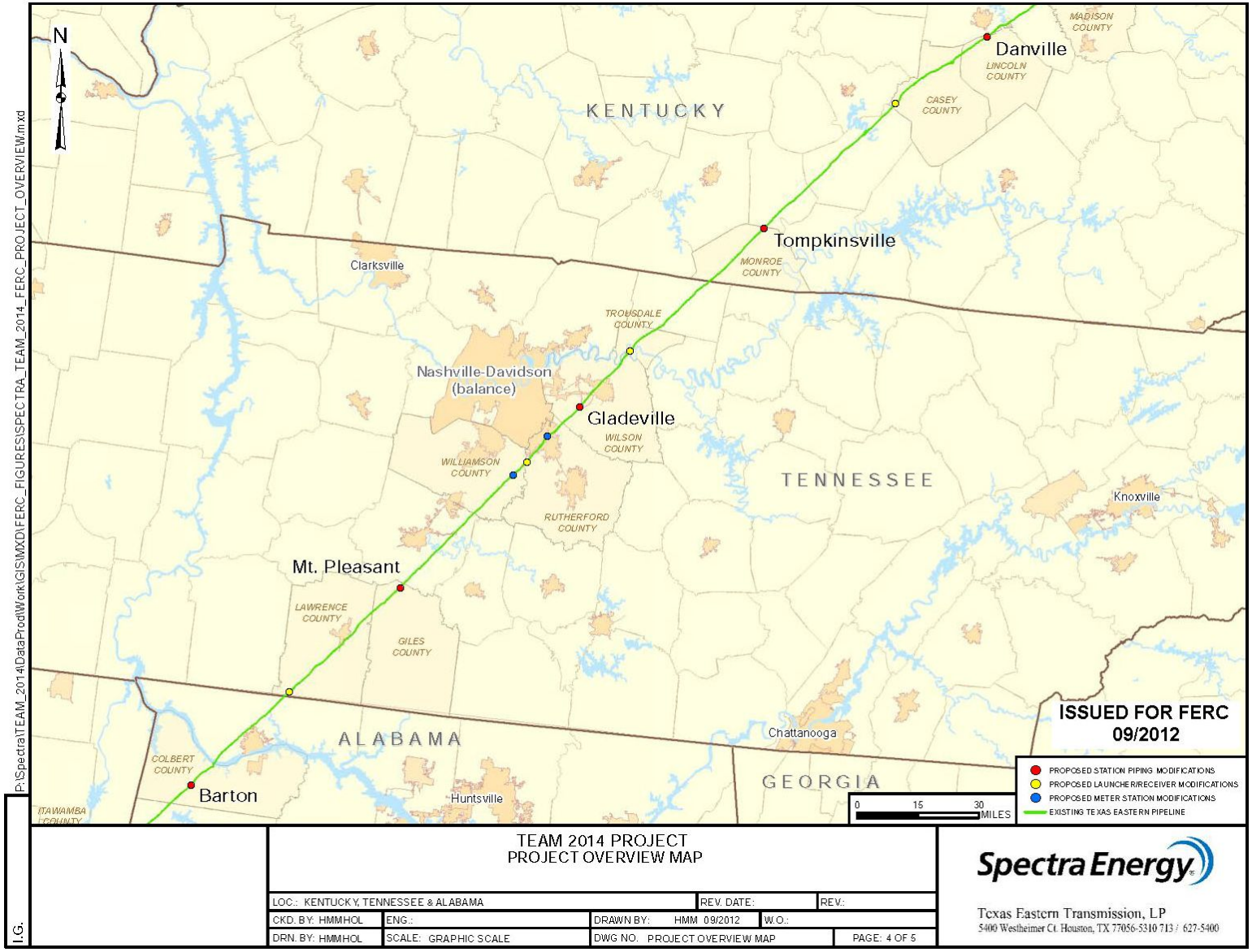
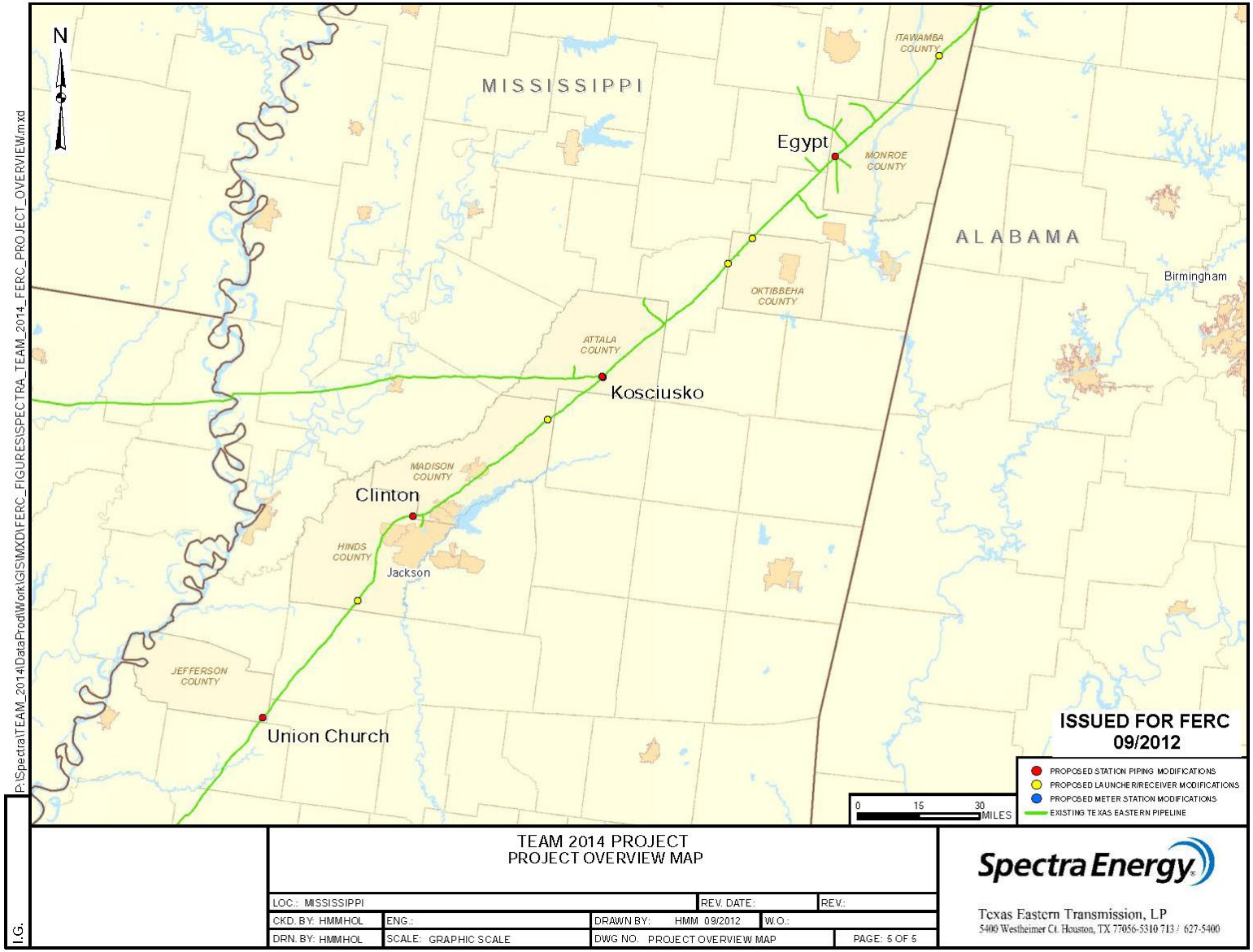


FIGURE 1.2-1e
TEAM 2014 PROJECT OVERVIEW MAP



### 1.2.2 Aboveground Facilities

The Project will allow Texas Eastern to meet its capacity commitments by providing increased throughput, with an aggregate increase of approximately 83,100 horsepower (hp) of compression. As noted below, the aboveground facility modifications to achieve this increase will take place at four existing Texas Eastern compressor stations. Latitude/longitude location coordinates are included in each of the facility descriptions, and the facilities are listed in Table 1.2-2.

**Uniontown Compressor Station**

The Uniontown Compressor Station is an existing approximately 58-acre facility in Fayette County, Pennsylvania (39º 55’ 52.56” N, 79º 40’ 18.63” W), that has been in operation since 1953. The proposed facility changes at the Uniontown Compressor Station consist of:

- Uprate of one existing 16,000 hp electric unit to 20,000 hp (This unit is already capable of operating at the higher horsepower and therefore no construction is necessary to implement this uprate. In order to implement this uprate, Texas Eastern must remove the software restriction to allow the unit to operate at its full service factor. Instrumentation on the existing electric unit will be recalibrated and/or verified to ensure proper operation at the new hp level.);
- Installation of new aero assemblies and oxidation catalysts in existing Units 1T and 2T; and
- Power uprate (from 12,250 to 13,300 hp), achieved by exchanging existing engines for new engines capable of greater horsepower, and emissions upgrade (42 parts per million, volumetric dry [ppmvd] to 25 ppmvd) of existing Units 1T and 2T.

**Delmont Compressor Station**

The Delmont Compressor Station is an existing approximately 35-acre facility in Westmoreland County, Pennsylvania (40°23' 1.70" N, 79° 32' 52.75" W), that has been in operation since 1954. The proposed facility changes at the Delmont Compressor Station consist of:

- Installation of one new 26,000 hp gas turbine compressor unit, one new 32,000 hp electric motor-driven unit and gas cooling equipment; and
- Abandonment of one 18,500 hp gas turbine unit and six 1,100 hp gas-reciprocating units.

**Armagh Compressor Station**

The Armagh Compressor Station is an existing approximately 25-acre facility in Indiana County, Pennsylvania (40° 25' 50.84" N, 79° 5' 3.66" W), that has been in operation since 1958. The proposed facility changes at the Armagh Compressor Station element consist of:

- Installation of a new 18,100 hp gas compressor unit and gas cooling equipment; and
- Installation of a new aero assembly and recycle cooling on the existing gas compressor unit.

**Entriken Compressor Station**

The Entriken Compressor Station is an existing approximately 24-acre facility in Huntingdon County, Pennsylvania (40°18'30.29"N, 78° 8'19.59"W), that has been in operation since 1958. The proposed facility changes at the Entriken Compressor Station consist of:

- Installation of a new 26,000 hp gas compressor unit and gas cooling equipment; and
- Installation of a new aero assembly and recycle cooling on the existing gas compressor unit.

TABLE 1.2-2
ABOVEGROUND FACILITIES

| Facility/ Location | Type | New/ Modified | State | County |
|---|---|---|---|---|
| Uniontown Compressor Station | Compression Facilities<br>• Uprate of one existing 16,000 hp electric unit to 20,000 hp (this unit is already capable of operating at the higher horsepower and therefore no construction is necessary to implement this uprate);<br>• Install a new aero assemblies and oxidation catalysts in existing Units 1T and 2T; and<br>• Power uprate (12,250 to 13,300 hp), achieved by exchanging existing engines for new engines capable of greater horsepower, and emissions upgrade (42 to 25 ppmvd) existing Units 1T and 2T. | Modified | PA | Fayette |
| Delmont Compressor Station | Compression Facilities<br>• Install a new 26,000 hp gas turbine compressor unit<br>• Install a new 32,000 hp electric motor-driven unit<br>• Install new gas cooling equipment<br>• Abandon of one 18,500 hp gas turbine unit<br>• Abandon six 1,100 hp gas-reciprocating units | Modified | PA | Westmoreland |
| Armagh Compressor Station | Compression Facilities<br>• Install a new 18,100 hp gas compressor unit<br>• Install new gas cooling equipment<br>• Install a new aero assembly and recycle cooling on the existing gas compressor unit. | Modified | PA | Indiana |
| Entriken Compressor Station | Compression Facilities<br>• Install new 26,000 hp gas compressor unit<br>• Install new gas cooling equipment<br>• Install a new aero assembly and recycle cooling on the existing gas compressor unit | Modified | PA | Huntingdon |

### 1.2.3 Associated Facilities

Various associated facilities including launchers, receivers, and valves will be constructed to support the expansion of the pipeline system. Table 1.2-3 provides a list of the associated facilities.

TABLE 1.2-3
ASSOCIATED FACILITIES

| Facility/ Location | Type | New/ Modified | MP[1] | State | County |
|---|---|---|---|---|---|
| Holbrook Loop | Pig receiver assembly and crossover piping | New | 6.6 | Pennsylvania | Fayette |
| Perulack East Loop | Pig receiver assembly and crossover piping | New | 5.4 | Pennsylvania | Perry |
| | Mainline valve | New | 0.0 | | |
| Shermans Dale Loop | Pig receiver assembly and crossover piping | New | 7.1 | Pennsylvania | Dauphin |

TABLE 1.2-3
ASSOCIATED FACILITIES

| Facility/ Location | Type | New/ Modified | MP[1] | State | County |
|---|---|---|---|---|---|
| Grantville East Loop | Pig receiver assembly and crossover piping | New | 3.8 | Pennsylvania | Lebanon |
| | Mainline valve | New | 178.5[2] | | |
| Bernville Loop | Pig receiver assembly and crossover piping | New | 5.5 | Pennsylvania | Berks |
| | Mainline valve | New | 0.2 | | |

1 MPs refer to locations along the proposed TEAM 2014 loop segments.

2 This MP refers to a location along an adjacent existing Texas Eastern pipeline and not to the proposed TEAM 2014 Grantville East loop segment.

### 1.2.4 Bi-Directional Flow Modifications

To allow natural gas to flow in both directions, the Project will require modifications and maintenance work at 40 existing facilities along Texas Eastern's transmission system between Pennsylvania and Mississippi. The facility locations and the main modification components are listed in Table 1.2-4. The work will take place entirely within Texas Eastern's existing compressor stations, existing pig launcher and receiver sites along the pipeline ROW, and existing meter and regulating facilities. None of the changes to the compressor station piping will result in any increase in air emissions or in existing noise conditions. Plot plans of the existing sites depicting locations of facility modifications are found in Appendix B.

**Compressor Stations**

A variety of modifications will take place at the 18 compressor stations between Pennsylvania and Mississippi, as depicted on USGS quadrangles in Appendix A (see Table 1.2-4). For all but three of these compressor stations, the work will focus mainly on existing launcher/receiver assembly modifications. This work mainly involves the installation of pull-ports, equalizer lines, and bottom drains and is necessary to create bi-directional inspection capacity, as the current designs only allow inspections to run in one direction of a given pipeline segment.

Depending on the piping and facility configurations, other modifications to be undertaken at the compressor stations include:

- Removal of existing check valves (that prevent bi-directional flow);
- Modification of existing by-pass valves and instrumentation;
- Installation of valves and main gas piping to allow compression of gas in the new direction;
- Installation of gas chromatographs and over pressure protection devices; and
- Installation of a filter separator.

**Launcher and Receiver Sites**

Modifications also will take place at 20 existing launcher/receiver sites along the existing transmission ROW between compressor stations from Pennsylvania to Mississippi (see Appendix A). The modifications to each of these facilities will be the same as those described above for launcher and receiver assemblies located within the existing compressor stations sites.

**Meter Stations**

There are two meter stations, located in Tennessee, which will require modifications to facilitate the reversal of flow. At each site, heat trace tubing and sample probes will be installed.

TABLE 1.2-4
BI-DIRECTIONAL FLOW FACILITIES

| Facility | New/ Modified | Type | State | County | Latitude/ Longitude |
|---|---|---|---|---|---|
| Uniontown Compressor Station | Modified | Launcher/Receiver modifications | Pennsylvania | Fayette | 39º 55' 52.56" N 79º 40' 18.63" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Pennsylvania | Fayette | 39º 55' 09.03" N 79º 54' 42.06" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Pennsylvania | Greene | 39º 55' 04.11" N 79º 56' 03.51" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Pennsylvania | Greene | 39º 55'03.25" N 80º 07' 31.76" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Pennsylvania | Greene | 39º 54' 48.57" N 80º 13' 32.16" W |
| Holbrook Compressor Station | Modified | Launcher/Receiver modifications<br>Modify instrumentation on bypass valve | Pennsylvania | Greene | 39º 53' 28.00" N 80º 27' 06.32" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | West Virginia | Marshall | 39º 50' 17.01" N 80º 49' 04.45" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Ohio | Monroe | 39º 50' 09.62" N 80º 49' 43.68" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Ohio | Monroe | 39º 49' 24.94" N 80º 3' 41.40" W |
| Berne Compressor Station | Modified | Launcher/Receiver modifications<br>Remove check valve<br>Chromatograph addition<br>Station piping reversals<br>Filter separator addition | Ohio | Monroe | 39º 46' 26.03" N 81º 17' 29.66" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Ohio | Noble | 39º 45' 22.24" N 81º 22' 03.93" W |
| Athens Compressor Station | Modified | Launcher/Receiver modifications<br>Modify instrumentation on bypass valve | Ohio | Athens | 39º 14' 23.56" N 82º 07' 24.65" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Ohio | Meigs | 39º 09' 07.69" N 82º 14' 33.98" W |
| Summerfield Compressor Station | Modified | Station piping reversals<br>Over pressure protection addition | Ohio | Noble | 39º 48' 11.50" N 81º 20' 13.38" W |
| Somerset Compressor Station | Modified | Station piping reversals<br>Remove check valve | Ohio | Perry | 39º 46' 52.60" N 82º 17' 18.00" W |
| Five Points Compressor Station | Modified | Station piping reversals<br>Remove check valve | Ohio | Pickaway | 39º 38' 57.43" N 83º 10' 01.52" W |

TABLE 1.2-4
BI-DIRECTIONAL FLOW FACILITIES

| Facility | New/ Modified | Type | State | County | Latitude/ Longitude |
|---|---|---|---|---|---|
| Wheelersburg Compressor Station | Modified | Launcher/Receiver modifications<br>Station piping reversals<br>Over pressure protection addition | Ohio | Scioto | 38º 41' 59.71" N<br>82º 50' 01.13" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Ohio | Scioto | 38º 40' 52.20" N<br>82º 52' 05.84" W |
| Owingsville Compressor Station | Modified | Launcher/Receiver modifications<br>Chromatograph addition | Kentucky | Bath | 38º 13' 47.34" N<br>83º 42' 16.94" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Kentucky | Madison | 37º 49' 5095" N<br>84º 21' 04.01" W |
| Danville Compressor Station | Modified | Launcher/Receiver modifications<br>Station piping reversals<br>Filter separator modification | Kentucky | Lincoln | 37º 34' 48.59" N<br>84º 45' 02.01" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Kentucky | Casey | 37º 18' 53.57" N<br>85º 08' 14.02" W |
| Tompkinsville Compressor Station | Modified | Launcher/Receiver modifications<br>Chromatograph addition | Kentucky | Monroe | 36º 49' 51.61" N<br>85º 40' 05.37" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Tennessee | Trousdale | 36º 21' 06.66" N<br>86º 12' 29.26" W |
| Gladeville Compressor Station | Modified | Launcher/Receiver modifications<br>Chromatograph addition | Tennessee | Wilson | 36º 08' 11.77" N<br>86º 24' 26.22" W |
| M&R 70315 | Modified | Chromatograph addition | Tennessee | Rutherford | 36º 01' 18.20" N<br>86º 32' 08.19" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Tennessee | Rutherford | 35º 55' 18.34" N<br>86º 36' 44.00" W |
| M&R 73025 | Modified | Chromatograph addition | Tennessee | Williamson | 35º 52' 10.25" N<br>86º 40' 00.12" W |
| Mt. Pleasant Compressor Station | Modified | Launcher/Receiver modifications<br>Chromatograph addition<br>Station piping reversals<br>Remove check valve | Tennessee | Giles | 35º 25' 44.48" N<br>87º 06' 25.38" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Tennessee | Lawrence | 35º 00' 56.97" N<br>87º 32' 14.04" W |

TABLE 1.2-4
BI-DIRECTIONAL FLOW FACILITIES

| Facility | New/ Modified | Type | State | County | Latitude/ Longitude |
|---|---|---|---|---|---|
| Barton Compressor Station | Modified | Launcher/Receiver modifications<br>Station piping reversals<br>Remove check valve | Alabama | Colber | 34º 38' 53.80" N<br>87º 54' 45.99" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Mississippi | Itawamba | 34º 16' 16.35" N<br>88º 18' 26.13" W |
| Egypt Compressor Station | Modified | Launcher/Receiver modifications<br>Station piping reversals<br>Remove check valve | Mississippi | Monroe | 33º 52' 12.27" N<br>88º 41' 33.69" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Mississippi | Oktibbeha | 33º 32' 47.20" N<br>89º 00' 07.82" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Mississippi | Oktibbeha | 33º 26' 46.24" N<br>89º 05' 15.84' W |
| Kosciusko Compressor Station | Modified | Launcher/Receiver modifications<br>Station piping reversals<br>Over pressure protection addition | Mississippi | Attala | 32º 59' 24.52" N<br>89º 33' 05.31" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Mississippi | Madison | 32º 48' 56.97" N<br>89º 45' 13.99" W |
| Clinton Compressor Station | Modified | Launcher/Receiver modifications<br>Chromatograph addition | Mississippi | Hinds | 32º 24' 26.56" N<br>90º 15' 32.44" W |
| Existing Mainline Launcher/Receiver Site | Modified | Launcher/Receiver modifications | Mississippi | Hinds | 32º 05' 07.40" N<br>90º 26' 08.95" W |
| Union Church Compressor Station | Modified | Launcher/Receiver modifications<br>Chromatograph addition | Mississippi | Jefferson | 31º 37' 39.61" N<br>90º 45' 21.31" W |

### 1.2.5 Location Maps, Detailed Site Maps, and Plot and Site Maps

Volumes II-B and IV of this ER contain the appendices referenced herein. As noted above, Appendix A includes 1:24,000 scale full-size USGS topographic quadrangles depicting all of the proposed facilities and 8.5 x 11-inch USGS quadrangle map excerpts of the proposed facilities. Appendix B (Volume IV) contains plot plans for the aboveground facilities associated with the Project. Appendix C provides aerial photo imagery, taken in 2012, of the facilities. Appendix D provides 1:24,000-scale U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps for the proposed area.

## 1.3 Land Requirements

### 1.3.1 Pipeline Facilities

Texas Eastern will require a nominal 100-foot-wide construction corridor based on a detailed evaluation of conditions experienced during the construction and installation of other pipeline systems across Pennsylvania. The spoil side of the construction ROW is designed to be 35 feet wide, from the

center of the ditch, and will be used for spoil. The working side of the construction ROW is designed to be 65 feet wide, from the center of the ditch, to accommodate trench excavation, trench bank sloping, topsoil segregation and safe equipment mobility. Some of the conditions evaluated include proximity to existing roads, railroads, residences, topography, soils, bedrock, boulders, wetlands, and waterbodies. Texas Eastern has considered these factors in combination with the size of the equipment necessary to safely install the proposed pipeline, concrete coating requirements, and associated pipeline support facilities. In some locations, additional workspace may be needed outside the nominal 100-foot corridor to manage these conditions. Table 1.3-1 identifies the estimated land requirements for pipeline construction and O&M.

TABLE 1.3-1
LAND REQUIREMENTS FOR PIPELINE FACILITIES

| Facility[1] | Approximate Length/No. of Sites | Temporary Workspace for Construction (acres) | Permanent Easement for Construction and Operation (acres) | |
|---|---|---|---|---|
| | | | Existing[2] | New |
| Holbrook Loop | 6.6 miles | 43.7 | 32.9 | 20.1 |
| Perulack West Loop | 2.7 miles | 22.3 | 12.8 | 8.1 |
| Perulack East Loop | 5.3 miles | 38.8 | 37.8 | 16.7 |
| Shermans Dale Loop | 7.1 miles | 66.9 | 47.2 | 20.7 |
| Grantville West Loop | 2.4 miles | 32.5 | 24.4 | 7.1 |
| Grantville East Loop | 3.8 miles | 27.9 | 20.0 | 11.5 |
| Bernville Loop | 5.5 miles | 51.3 | 38.8 | 15.5 |
| Totals | 33.4 | 283.4 | 213.9 | 98.7 |
| Other Facilities | | | | |
| Access Roads | 11.9 miles | ---[3] | TBD | |
| Pipeyards/Wareyards | 8 sites | 148.8 | 0.0 | |

1 This table does not specify valves and launcher/receivers that will be constructed on the pipeline segments since the land requirements for these facilities are within the land requirements for the pipeline segments.

2 Only includes existing permanent ROW within limits of construction.

3 Included in the Temporary Workspace for Construction for each facility above.

## Loop Pipeline

Figures 1A, 1B, 1C, 2A, and 2B in the Erosion and Sedimentation Control Plan (E&SCP) (Appendix E) show typical construction and operation ROW widths for pipeline loops built adjacent to existing Texas Eastern pipelines. The construction ROW width for each pipeline loop will be a nominal 100 feet but will vary depending on site-specific conditions. The general construction ROW width will be 100 feet consisting of the existing permanent easement, 25 feet of new permanent ROW, and temporary workspace. The loop will be installed parallel to an existing Texas Eastern pipeline. In residential areas and wetland areas, the construction ROW width will be reduced as necessary. The construction ROW width will be expanded at road crossings, staging areas, steep slope areas, stream and river crossings, areas where excavated rock is stored, and in areas where topsoil segregation is proposed, as indicated on the alignment sheets. Associated facilities constructed to support the expansion of the pipeline system will occur within

the permanent ROW. The land requirements for the temporary construction workspace and associated facilities are included as part of the pipeline loop assessment.

**Access Roads**

To the extent feasible, existing public and private road crossings along the various pipeline loop segments will be used as the primary means of accessing the ROW. In addition to the access available by use of existing roads, Texas Eastern has identified 48 access roads measuring a total length of 11.9 miles for use during construction of the Project. Table 1.3-2 lists all proposed roads by pipeline segment. The Holbrook Loop in Fayette County, Pennsylvania contains 10 proposed access roads (nine temporary access roads [TARs] and three permanent access roads [PARs]). The Perulack West Loop in Perry County, Pennsylvania contains three proposed access roads (two TARs and one PAR). The Perulack East Loop in Perry County, Pennsylvania contains nine proposed access roads (seven TARs and two PARs). The Shermans Dale Loop in Dauphin County, Pennsylvania contains 13 access roads (10 TARs and 3 PARs). The Grantville West Loop in Lebanon County, Pennsylvania contains two proposed PARs. The Grantville East Loop in Lebanon County, Pennsylvania contains four proposed access roads (three TARs and one PAR). The Bernville Loop in Berks County, Pennsylvania contains seven proposed access roads (four TARs and three PARs).

All access roads may require improvements that may include tree clearing, gravel placement, or path widening. Table 1.3-1 includes the total land use impacts resulting from the proposed access roads. All TARs roads utilized for construction will be restored in accordance with landowner agreements.

TABLE 1.3-2
ACCESS ROADS

| Facility | County, State | Milepost | Length (feet) |
|---|---|---|---|
| **Holbrook Loop** | | | |
| PAR-0.0 | Fayette, PA | 0.0 | 243 |
| TAR-0.4 | Fayette, PA | 0.4 | 3,512 |
| TAR-1.6 | Fayette, PA | 1.6 | 176 |
| PAR-2.4 | Fayette, PA | 2.4 | 79 |
| TAR-2.7 | Fayette, PA | 2.7 | 288 |
| TAR-4.4 | Fayette, PA | 4.4 | 1,089 |
| TAR-4.8 | Fayette, PA | 4.8 | 672 |
| TAR-5.3 | Fayette, PA | 5.3 | 259 |
| TAR-5.8 | Fayette, PA | 5.8 | 300 |
| PAR-6.6 | Fayette, PA | 6.6 | 2,199 |
| **Perulack West Loop** | | | |
| TAR-0.1 | Perry, PA | 0.1 | 173 |
| TAR-2.2 | Perry, PA | 2.2 | 1,705 |
| PAR-2.7 | Perry, PA | 2.7 | 1,176 |
| **Perulack East Loop** | | | |
| TAR-0.5 | Perry, PA | 0.5 | 2,303 |
| TAR-0.7 | Perry, PA | 0.7 | 423 |

TABLE 1.3-2
ACCESS ROADS

| Facility | County, State | Milepost | Length (feet) |
|---|---|---|---|
| TAR-1.6 | Perry, PA | 1.6 | 1,983 |
| TAR-1.9 | Perry, PA | 1.9 | 309 |
| TAR-2.2 | Perry, PA | 2.2 | 74 |
| PAR-3.4 | Perry, PA | 3.4 | 538 |
| TAR-3.6 | Perry, PA | 3.6 / 3.9 | 2,161 |
| TAR-4.2 | Perry, PA | 4.2 | 487 |
| PAR-5.3 | Perry, PA | 5.3 | 398 |
| **Shermans Dale Loop** | | | |
| PAR-0.0 | Dauphin, PA | 0.0 | 2,434 |
| PAR-0.8 | Dauphin, PA | 0.8 | 2,065 |
| TAR-1.6 | Dauphin, PA | 1.6 | 678 |
| TAR-1.6 | Dauphin, PA | 1.6 | 912 |
| TAR-2.0 | Dauphin, PA | 2.0 | 1,075 |
| TAR-3.2 | Dauphin, PA | 3.2 | 3,141 |
| TAR-3.9 | Dauphin, PA | 3.9 | 2,407 |
| TAR-4.5 | Dauphin, PA | 4.5 | 549 |
| TAR-4.8 | Dauphin, PA | 4.8 | 597 |
| TAR-5.8 | Dauphin, PA | 5.8 | 2,291 |
| TAR-6.3 | Dauphin, PA | 6.3 | 2,997 |
| TAR-6.6 | Dauphin, PA | 6.6 | 4,232 |
| PAR-7.1 | Dauphin, PA | 7.1 | 6,745 |
| **Grantville West Loop** | | | |
| PAR-0.0 | Lebanon, PA | 0.0 | 2,700 |
| PAR-2.4 | Lebanon, PA | 2.4 | 893 |
| **Grantville East Loop** | | | |
| PAR 0.0 | Lebanon, PA | 0.0 | 231 |
| TAR-1.4 | Lebanon, PA | 1.4 | 459 |
| TAR-1.7 | Lebanon, PA | 1.7 | 673 |
| TAR-2.8 | Lebanon, PA | 2.8 | 1,006 |
| **Bernville Loop** | | | |
| PAR 0.0 | Berks, PA | 0.0 | 580 |
| TAR 2.5 | Berks, PA | 2.5 | 918 |
| PAR 2.7 | Berks, PA | 2.7 | 1,568 |
| TAR 3.2 | Berks, PA | 3.2 | 1,221 |
| TAR 5.2 | Berks, PA | 5.2 | 297 |
| TAR 5.3 | Berks, PA | 5.3 | 392 |

TABLE 1.3-2
ACCESS ROADS

| Facility | County, State | Milepost | Length (feet) |
|---|---|---|---|
| PAR 5.5 | Berks, PA | 5.5 | 1,028 |

**Pipeyards and Wareyards**

Eight pipeyards/wareyards are currently under consideration for the Project. The locations are currently being evaluated for environmental impacts. The land requirements for these pipeyards/wareyards are included in Table 1.3-1. No permanent land use impacts will result from use of these pipeyards/wareyards.

### 1.3.2 Aboveground Facilities

Aboveground facilities associated with the Project will include horsepower additions and modifications at the Uniontown, Delmont, Armagh, and Entriken Compressor Stations (including the modification of ancillary piping). Construction will occur within the existing facilities boundaries. Table 1.3-3 summarizes the land requirements for construction and operation of the compressor stations associated with the Project. Appendix B (Volume IV) provides preliminary site-specific plot plans for aboveground facilities proposed by Texas Eastern.

TABLE 1.3-3
LAND REQUIREMENTS FOR ABOVEGROUND FACILITIES

| Facility | Property Size (acres) | Land Disturbed Temporarily During Construction (acres) | Land Required Permanently for Operation (acres) |
|---|---|---|---|
| Uniontown Compressor Station | 58 | TBD | TBD |
| Delmont Compressor Station | 35 | TBD | TBD |
| Armagh Compressor Station | 25 | TBD | TBD |
| Entriken Compressor Station | 24 | TBD | TBD |

### 1.3.3 Bi-Directional Flow Modifications

As previously discussed, modifications and maintenance of existing facilities are proposed within existing compressor station sites, meter station sites, and pig launcher and receiver sites along Texas Eastern's pipeline system between Pennsylvania and Mississippi to accommodate bi-directional flow of natural gas. Activities will take place entirely within company property and within existing facility sites. Further, no new or additional land use impacts will result from operation of these modified facilities.

Access to all existing Texas Eastern facilities for flow reversal modifications will be made via existing company access roads and access points. No modifications or upgrades to existing access roads and access points will be necessary.

## 1.4 Cumulative Impacts

The purpose of this cumulative impact analysis is to identify and describe cumulative impacts that would potentially result from the proposed Project. This cumulative impact analysis addresses the Council on Environmental Quality (CEQ) guidelines (CEQ, 1979). An action must meet the following three criteria to be included in the cumulative impacts analysis:

- Impact a resource area identified as a potentially affected area by the proposed Project;
- Cause this impact to occur within all, or part of, the Project geography; and

- Cause this impact to occur within all, or part of, the time span for the proposed Project.

For the purposes of this cumulative impact analysis, the Project geography was considered to be the counties traversed by the proposed Project, including:

- Greene, Fayette, Westmoreland, Indiana, Huntington, Perry, Dauphin, Lebanon, and Berks Counties, Pennsylvania;
- Marshall County, West Virginia;
- Monroe, Noble, Athens, Meigs, and Scioto Counties, Ohio;
- Bath, Madison, Lincoln, Casey, and Monroe Counties, Kentucky;
- Trousdale, Wilson, Rutherford, Williamson, Giles, and Lawrence Counties, Tennessee;
- Colbert County, Alabama; and
- Itawamba, Monroe, Oktibbeha, Attala, Madison, Hinds, and Jefferson Counties, Mississippi.

The anticipated cumulative impacts of the proposed Project, as well as any pertinent mitigation actions, are discussed in each of the applicable resource reports. The anticipated cumulative impacts were based on impact assessment, input from federal, state, and county agencies, and public input received at Open Houses.

This Project primarily involves the looping of existing parallel pipeline and additions/ modifications to existing compressor stations that have been in operation for over 50 years. Therefore, the overall impacts to the environment will be consistent with existing conditions and the cumulative impacts will be minimized.

## 1.5 Construction and Restoration

### 1.5.1 Standard Construction Methods

The proposed Project will be constructed in compliance with applicable Texas Eastern specifications, federal regulations and guidelines, and the specific requirements of the necessary permits (see Section 1.6).

Construction and restoration will be conducted utilizing typical cross-country and residential construction techniques. The E&SCP contained in Appendix E describes in detail the typical cross-country construction and restoration techniques and mitigation measures to be utilized for this Project. In addition, the Spill Prevention, Control, and Countermeasure (SPCC) Plan to be utilized during construction is included in Appendix H.

Texas Eastern's E&SCP is consistent with the FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (*Plan;* January 17, 2003 version) and *Wetland and Waterbody Construction and Mitigation Procedures* (*Procedures;* January 17, 2003 version).

Texas Eastern will implement dust mitigation measures as necessary and at the discretion of the Contractor Supervisor, Environmental Inspector, and the onsite Chief Construction Inspector. Measures to minimize dust will primarily include the utilization of water trucks to dampen the work area under dry/dusty conditions. Special consideration will be given to roadway areas where clear visibility is required.

Pipeline construction typically involves numerous work crews working their way along the ROW in an assembly line fashion. For example, the survey crew begins by marking the pipeline centerline and construction work area (CWA) and moves down the ROW, followed by the clearing crew, the grading crew, the trenching crew, and other crews, until the finish cleanup crew completes the process. Typically, each crew follows relatively closely behind the preceding

crew to minimize the size of the active construction spread and begin the restoration as soon as possible.

Pipeline construction generally involves the following sequential operations performed in an assembly line fashion. These operations are summarized below and discussed in more detail in the E&SCP.

Typical sequential operations of pipeline construction include the following steps:

1. Survey and mark the route and approved workspace area.
2. Survey the centerline of the existing or proposed pipelines.
3. For in-service lines, evacuate the gas from the in-service pipelines and install isolation caps at the terminal points.
4. Remove vegetation within the CWA that impedes construction activities and install erosion and sediment controls where possible.
5. Provide additional protection for the existing adjacent pipeline within the same ROW, and re-grade the ROW to provide adequate and safe workspace and complete installation of erosion and sediment controls as needed.
6. Excavate a new trench to the proper depth for the pipeline.
7. Place the pipe joints, each approximately 40 to 60 feet long, along the ditch line within the ROW.
8. Bend the new pipe joints, as needed, to follow the pipeline route and contours of the terrain.
9. Weld the pipe together.
10. Visually inspect, and then perform non-destructive examination (NDE) of the weld to verify the integrity of the weld.
11. Coat the weld area with an approved coating to provide corrosion protection and a waterproof seal.
12. Place the new pipe section in the trench, tie into the previously laid section(s), and backfill.
13. Conduct hydrostatic testing to ensure the integrity of the new pipeline.
14. Perform in-line tool inspection of the new pipeline segment.
15. Tie-in into the existing pipeline, purge, and pack new section with gas.
16. Restore the grade of the work area to previous contours.
17. Conduct final clean-up, restoration, and seeding.

**Surveying**

Prior to the start of construction, a survey crew will stake the centerline of the proposed pipeline, foreign line crossings, the limits of the CWA, and the location of approved work access roads. Wetland boundaries and other environmentally sensitive areas will also be re-marked at this time.

**Clearing**

Clearing is the removal of all trees and brush from the CWA. Stumps are removed over the width of the permanent ROW, with the exception of stream buffers and wetlands. Alternately, stumps may be ground down with specialized equipment until they are below the surface, leaving the remainder of the root systems intact to aid soil stabilization. The stumps are disposed of by

burning, chipping and spreading, hauling to approved disposal areas, storing along the ROW with landowner approval, or other approved methods.

**Grading**

Grading is required to provide a relatively level surface to allow safe operation of the heavy equipment required to dig footings and foundations or excavate pipeline trench for the proposed Project.

**Trenching**

A trench is excavated that is wide enough to allow lowering in of the pipe without damage to the coating. In some rocky areas, blasting will be required. The excavated material is used to backfill the trench.

**Stringing**

The steel pipe sections or joints in 40-, 60-, or 80-foot lengths are trucked to the CWA and strung out along the route in the areas where they are to be welded together.

**Bending**

The pipe joints are bent to follow the route of the pipeline and contours of the ground. A specialized pipe-bending machine is used. The amount of the bend is limited to avoid damaging the pipe and coating.

**Welding Inspections and Non-Destructive Examinations**

Once the individual pipe joints are bent to fit the trench, they are welded together on the ditch bank into long continuous sections (up to 4,000 feet depending on terrain). The welding is highly controlled. Welders perform the welding using required, specified welding techniques. Each weld made on the line is inspected visually and subjected to NDE to ensure the integrity of every weld.

**Coating**

A specialized, approved coating is applied to each of the weld joint areas after the NDE is complete. The coating on the entire pipe section is electronically checked and repaired, if necessary.

**Lowering-In**

The long pipe sections are lowered into the trench by special pipe laying tractors called side booms. Care is taken not to damage the coating during this process. The pipe is placed in the trench on sandbag benches or approved equivalent structure to prevent damage to the pipe coating. The ends of the long pipe sections are welded together in the ditch to form a continuous pipeline.

**Backfill**

Once long sections of pipe are completely in the ditch, the material excavated from the trench is replaced over the pipeline. A layer of rock-free pad dirt is placed all around the pipe to protect the coating.

**Hydrostatic Testing**

As various long sections of pipe are completed and backfilled, they are filled with water and pressurized to a point higher than the pipeline's maximum operating pressure. In compliance with U.S. Department of Transportation (USDOT) regulations, this test pressure is held for a minimum of eight continuous hours to test the structural integrity of the pipeline.

**Waterbody Crossings**

A variety of methods may be used to cross streams and rivers. These are described in Section 1.5.2 and Appendices C and E.

**Cleanup and Restoration**

This process starts as soon as practicable upon the completion of backfilling and continues until the CWA is restored and revegetated, weather permitting. All grade cuts are replaced to their original contours and the work area is seeded, fertilized, and mulched to restore ground cover and to minimize erosion. Temporary workspaces will be allowed to return to their previous state.

### 1.5.2 Specialized Construction Methods

**Streams and Rivers**

Texas Eastern is currently evaluating available construction methods to perform the pipeline construction for the Project effectively. The work will traverse numerous waterbodies throughout each region, which are summarized in Resource Report 2. This evaluation will include consultations with the Pennsylvania Department of Environmental Protection (PADEP), and the U.S. Army Corps of Engineers (USACE). At this time, Texas Eastern proposes to cross all waterbodies, except for three major waterbody crossings, utilizing a dry-crossing method as described below. The construction methods for the three major waterbody crossings are discussed in further detail below.

In general, the construction ROW width will be required on both sides of waterbodies to stage construction, fabricate the pipeline, and store materials. Extra temporary construction workspace will be located in upland areas a minimum of 50 feet from the waterbody edge. However, some locations will likely exist where extra workspaces will need to be situated less than 50 feet from or even within a waterbody.

Equipment

During clearing and grading activities, temporary bridges will be constructed across all waterbodies to allow construction equipment to cross. Construction equipment will be required to use the bridges, except the clearing crew who will be allowed one pass through the waterbodies before the bridges are installed. Bridges and supports will be removed after restoration is complete. If bridges are not installed at state-designated fishery streams, equipment will be required to move around the waterbodies to gain access to the other side.

In general, equipment refueling and lubricating will take place in upland areas that are more than 100 feet from the edges of streams and rivers and their associated wetlands. There may be certain instances where equipment refueling and lubrication may be necessary in or near streams and rivers. For example, stationary equipment, such as water pumps for hydrostatic test water, may need to be operated continuously on the banks of waterbodies and may require refueling in place. Texas Eastern has prepared a SPCC Plan to address the handling of fuel and other materials in or within 100 feet of waterbodies. The SPCC Plan to be utilized during construction is included in Appendix H.

Clearing

Clearing will involve the removal of trees and brush from the construction ROW and temporary construction workspace. Woody vegetation will be cleared to the edge of the waterbodies, but a 10-foot-long herbaceous strip will be left on the approaches until immediately before construction to provide a natural sediment filter and minimize the potential for erosion immediately adjacent to the waterbodies. Initial grading of the herbaceous strip will be limited to the extent needed to install bridges and in areas that are needed to construct the pipeline safely where large grade cuts are necessary.

During clearing where possible and during grading, sediment barriers will be installed and maintained adjacent to waterbodies and within temporary construction workspaces, where needed, to minimize the potential for sediment runoff. Drivable berms may be installed and maintained across the ROW in lieu of silt fence or straw bales.

Construction

Texas Eastern will follow the timing restrictions identified by the Pennsylvania Fish and Boat Commission (PFBC). There is a March 1 to June 15 timing restriction for PFBC approved trout waters, and an October 1 to December 31 timing restriction for PFBC designated wild trout waters. The Chapter 93 "TSF" designation does not carry any timing restrictions. The approved trout water timing restrictions only apply to the stocked portions of the waterbody and any unnamed tributaries within 0.5 mile of the stocked portions. These timing restrictions do not apply to unnamed tributaries outside of the 0.5 mile of the stocked streams. The timing restriction for PFBC wild trout waters applies to the entire reach of any stream within the designated watershed.

The PFBC considers **"**in-stream construction" to consist of any impacts to the streambed/bank or flowing water below the top of bank, which would include the installation of a utility line dry crossing. The PFBC has confirmed that the installation of a temporary equipment bridge that spans from bank to bank, or any pre-blasting required outside of the top of banks, would not be subject to the timing restrictions.

Pre-Blasting In Streams

Texas Eastern is proposing that during the ditching activities, all streams that contain solid rock be drilled and blasted. An application for a Permit for Use of Explosives in Commonwealth Waters will be filed with the PFBC. The ditch crew will drill the stream banks with a rock drill to determine if rock will be encountered. Should the test holes determine, the area will need to be shot or blasted the crew will continue to prepare the ditch line area for blasting. Once the blasting is complete, the crew will ensure that the stream bottom is restored as not to interfere with the flow. Once the mainline tie-in crews move to the area the stream will be excavated and installed in accordance with the E&SCP. The stream pre-blasting activities will reduce the duration of stream disturbance and enable the contractor to meet the timing restrictions for in-stream disturbance.

Flume Crossing Method

Texas Eastern may choose to cross specific waterbodies by using the flume crossing method. The flume crossing method involves diverting the flow of the stream across the construction site through one or more flume pipes placed in the stream (see E&SCP). The first step in the flume crossing method involves placing a sufficient number of adequately sized flume pipes in the stream to accommodate the highest anticipated flow during construction. After placing the pipes in the stream, sand or pea gravel bags will be placed in the stream upstream and downstream of the proposed trench. The bags serve to dam the stream and divert the stream flow through the flume pipes, thereby isolating the stream flow from the construction area.

Backhoes located on both banks of the stream will excavate a trench under the flume pipe in the isolated streambed. Spoil excavated from the stream trench will be placed or stored a minimum of 10 feet from the edge of the waterbody for temporary storage. Once the trench is excavated, a pre-fabricated segment of pipe will be installed beneath the flume pipes. The trench will then be backfilled with native spoil from the streambed. Clean gravel or native cobbles will be used to backfill the top 12 inches of the trench in coldwater fisheries.

If trench dewatering is necessary near waterbodies, the trench water will be discharged into an energy dissipation/sediment filtration device, such as geotextile filter bag or straw bale structure, away from the water's edge to prevent heavily silt-laden water from flowing into the waterbody.

Dam and Pump Crossing Method

Texas Eastern may choose to cross specific waterbodies by using the dam and pump crossing method. The dam and pump crossing method involves constructing temporary sand or pea gravel bag dams upstream and downstream of the proposed crossing site while using a high capacity pump to divert water from the upstream side around the construction area to the downstream side (see E&SCP). Energy dissipation devices, such as steel plates will be placed on the downstream side at the discharge point to prevent streambed scour.

After installing the dams and commencing pumping, a portable pump (separate from that pumping the stream flow around the construction area) may be used to pump standing water from between the dams into a dewatering structure consisting of straw bales/silt fence or into a filter bag located away from the stream banks, thereby creating a dry construction area.

Once the area between the dams is stable, backhoes located on both banks will excavate a trench across the stream. Spoil excavated from the trench may be stored in the dry streambed adjacent to the trench if the stream crossing is major or in a straw bale/silt fence containment area located a minimum of 10 feet from the edge of the stream banks. Leakage from the dam, or subsurface flow from below the streambed, may cause water to accumulate in the trench. As water accumulates in the trench, it may be periodically pumped out and discharged into a dewatering structure located away from the stream banks.

After trenching across the streambed is complete, a prefabricated segment of pipe will be installed in the trench. The streambed portion of the trench is immediately backfilled with streambed spoil. Once restoration of the streambed is complete, the dams are removed and normal flow is re-established in the stream.

Restoration

Completed stream crossings using the flume or dam and pump methods will be stabilized before returning flow to the channel. Original streambed and bank contours will be re-established, and mulch, jute thatching, or bonded fiber blankets will be installed on the stream banks. Where the flume technique is used, stream banks will be stabilized before removing the flume pipes and returning flow to the waterbody channel.

Seeding of disturbed stream approaches will be completed in accordance with FERC's *Plan* and *Procedures* after final grading, weather and soil conditions permitting. Where necessary, slope breakers will be installed adjacent to stream banks to minimize the potential for erosion. Sediment barriers, such as silt fence and/or straw bales will be maintained across the ROW until permanent vegetation is established. Temporary equipment bridges will be removed following construction.

## Major Waterbody Crossings

There are three major waterbody crossings associated with the Project: the Schuylkill River crossing (Bernville Loop) and two crossings of Swatara Creek (Grantville West Loop). The crossings are being analyzed to determine the appropriate crossing method; methods are described below. A site-specific construction plan will be provided to the Commission staff once a preferred crossing method has been selected.

Horizontal Directional Drilling

Directional drilling is an advanced boring method that requires the drilling of a small diameter hole, or pilot hole, along a predetermined design path. The pilot hole is then gradually enlarged, sufficient to accommodate the pipeline to be installed. The pipeline may or may not be installed concurrently with the pilot hole enlargement depending upon the final diameter of the enlarged hole and the soil conditions encountered.

The following conditions also apply to directional drilling:

- Excavation of the drill entry and exit locations will be necessary to contain drilling fluids during all phases of the installation. These fluids and cuttings must be disposed of in an approved manner periodically or at the completion of the crossing installation.
- The crossing length and cross-sectional geometry are dependent upon the pipeline design parameters, the obstacle to be crossed, and the subsurface conditions.
- Additional temporary workspace, including pipe staging areas and storage areas for drilling mud and borehole cuttings, will be located in upland areas outside of wetlands and riparian zones wherever practicable.

This method requires a large amount of additional temporary workspace. It is only used in areas where boring and conventional open cut methods are not suitable.

The horizontal directional drilling technique is under consideration for the two Swatara Creek crossings on the Grantville West Loop segment and the Schuylkill River crossing on the Bernville Loop segment.

Wet Trench Crossing Method

The wet trench crossing method involves trenching through a stream while water continues to flow (see E&SCP). After clearing the stream approaches and installing sediment control measures, track hoes will excavate a trench in the flowing stream from both banks of the waterbody. Spoil excavated from the trench will be placed a minimum of 10 feet from the edge of the waterbody for temporary storage. Earthen trench plugs will be left in place on both banks of the waterbody until immediately before pipe installation to separate the river trench from the upland trench. Trench plugs prevent muddy water that accumulates in the upland trench from flowing into the stream trench.

Once the trench is excavated, a prefabricated segment of pipe will be installed in the trench. The trench will then be backfilled with native streambed spoil.

**Wetlands**

Wetland construction will be done in accordance with FERC's *Procedures*. In addition, Texas Eastern will follow the SPCC Plan, E&SCP, and best management practices proposed for this Project to minimize the potential for adverse effects to wetlands.

In general, the method of pipeline construction and the required construction ROW width in wetlands will depend upon the soil stability and existing conditions in the wetland. Stable temporary work surfaces may be constructed in wetlands where soils are saturated and unstable. Installing construction mats in the travel lane is the typical methods of stabilization. Typically, extra temporary workspaces are located a minimum of 50 feet from the edge of designated wetlands. If a riparian wetland is located adjacent to a waterbody, extra workspace may be requested and placed in the wetland. Within wetlands, vegetation will be cut to ground level except over the trench. Grading and stump removal will be performed over the trench except where safety conditions dictate additional removal on the working side of the ROW.

The construction procedures used to cross unsaturated wetlands will be similar to those used on dry land areas. Topsoil will be segregated in unsaturated wetlands over the trench line only. Temporary trench plugs may be left in the ditch line at the edge of the wetland if there is a significant possibility of water flowing down the ditch and into the wetland. The temporary trench plugs will minimize the discharge of sediment into the wetland from the upland ditch. Silt fences and/or straw bales will be installed at the edges of the construction ROW in wetlands where there is a possibility for spoil to flow into undisturbed areas of the wetlands. Original topographic conditions and contours will be restored after completion of construction.

**Other Utilities**

The preliminary surveys indicate that foreign pipelines and utilities are located in the pipeline looping portion of the Project. Texas Eastern will require its construction contractors to participate in Pennsylvania's One Call system prior to the start of construction to minimize the potential for damage to other buried facilities in the area.

**Rugged Topography**

Texas Eastern will cross areas of rugged topography construction on the Holbrook, Perulack West, Perulack East, Shermans Dale, and Bernville Loops of the Project. Rugged topography refers to a combination of vertical and side slopes. Table 1.5-1 identifies areas where rugged topography will be encountered along the Project.

TABLE 1.5-1
RUGGED TOPOGRAPHY

| Facility | Station Numbers |
|---|---|
| Holbrook Loop | 75+00 to 81+00 |
| Perulack West Loop | 0+00 to 90+00 |
| Perulack East Loop | 185+00 to 205+00 |
| Shermans Dale Loop | 5+00 to 10+00 |
| | 100+00 to 200+00 |
| | 325+00 to 370+00 |
| Grantville West Loop | N/A |
| Grantville East Loop | N/A |
| Bernville Loop | 100+00 to 120+00 |

Additional grading may be required in areas where the pipeline runs up and down steep slopes. Steep slopes often need to be graded to accommodate the bending limitations of the pipe. In such areas, the slopes will be cut away and after the pipeline is installed, the slopes will be reconstructed to their original contours during excavation.

In areas where the Project runs laterally along the side of a slope, additional grading may also be required. Generally, on steep side slopes, soil from the high side of the ROW will be moved to the low side of the ROW to create a safe and level terrace. After the pipeline is installed, the soil from the low side of the ROW will be returned to the high side, and the slope's original contours will be restored.

**Residential or Commercial**

A total of 53 residences and business establishments are located less than 50 feet from the edge of the construction ROW. Table 8.2-1 of Resource Report 8 provides more detailed information concerning the locations of any structures near the construction ROW. Table 8.2-1 lists, by MP, the residential or business structures within 50 feet of the CWA.

Texas Eastern will make every effort to ensure that construction activities minimize impacts to residences and residential areas and that cleanup is quick and thorough. Texas Eastern uses specialized methods such as stovepipe and drag section construction to minimize the impacts of construction in residential areas. The duration of an open trench will be minimized to the contractors working hours for a distance of 100 feet on either side of a nearby residence.

Drag section construction will be considered to reduce working space requirements. Drag section construction involves welding two or more joints of pipe together in an area away from residences and then carrying the joined pipe into place for installation. Drag section construction reduces both the amount of workspace needed near residences and the time residential property must be disturbed for construction. Drag section construction may be used in very sensitive areas.

Stovepipe construction involves installing one or two joints of pipe at a time. The pipeline ditch is dug just ahead of pipeline construction. One or two joints of pipe are carried into place, lowered into the ditch, and welded. The ditch is then immediately backfilled. Stovepipe construction significantly reduces the amount of property disturbed, but tends to be slower and more expensive than other construction techniques. It is generally best suited for situations where the available workspace is extremely limited.

Homeowners will be notified in advance of construction activities and any scheduled disruption of household utilities. The names and addresses of all landowners crossed by the Project have been filed in a confidential document with the FERC (see Appendix F). Disruptions will be minimized to the extent possible. Should any Project-related work activity in the residential area disrupt landowner ingress or egress to the affected residence, Texas Eastern will offer to temporarily relocate the landowner to other temporary accommodations and provide a meal allowance. In addition, Texas Eastern will attempt to leave mature trees and landscaping intact within the construction ROW unless the trees and landscaping interfere with the installation techniques or present unsafe working conditions. Fences, mailboxes, and other structures that have been removed will be restored. Sidewalks, driveways, and roads will be restored as soon as practical. After cleanup, a Texas Eastern representative will contact landowners to ensure that conditions of all agreements have been met. Section 4 of the E&SCP provides more details of the specialized construction methods to be utilized for the above-mentioned residences and/or business establishments.

**Active Croplands**

Table 8.1-1 provides an accumulated total of active croplands (agricultural lands) crossed by the Project. Active croplands include lands in active rotation requiring topsoiling construction procedures. Section 4 of the E&SCP discusses specialized construction methods to be utilized in active croplands.

**Road Crossings**

The Project will cross a total of 43 roadways. Table 1.5-2 provides the name, type, location by MP, and anticipated crossing method of these roadways.

TABLE 1.5-2
ROADWAYS CROSSED BY THE PROJECT

| Project Components | Station | Roadway Name | Roadway Type A, G, D, C[1] | Jurisdiction F, S, T, N[2] | Construction Method B, OC[3] |
|---|---|---|---|---|---|
| Holbrook Loop | 41+35 | Footdale Road | A | S | B |
| | 117+93 | New Salem Road | A | S | B |
| | 122+56 | Krulock Road | A | T | OC |
| | 164+32 | Stoney Point Road | A | T | OC |
| | 196+83 | Kaider Road | A | T | OC |
| | 237+41 | Squirek Lane | D | N | OC |
| | 246+73 | National Pike | A | S | B |
| | 276+90 | Misty Meadows Lane | A | N | OC |
| | 306+51 | Fan Hollow Road | A | T | OC |
| | 327+31 | Old Pittsburgh Road | A | T | OC |
| Perulack West Loop | 3+06 | Little Knob Road | A | N | OC |
| | 49+30 | Quarry Road | D | N | OC |
| | 131+26 | Blain Road | A | S | B |
| Perulack East Loop | 24+79 | Martin Lane | G | Unknown | OC |
| | 36+02 | Unnamed Road | G | Unknown | OC |
| | 69+85 | Emory Green Road | A | T | OC |
| | 86+63 | Unnamed Road | G | Unknown | OC |
| | 125+91 | Centre Road | A | T | OC |
| | 159+35 | Fort Robertson Road | A | S | B |
| | 175+93 | Rock Hollow Road | A | T | OC |
| | 229+01 | Shermans Valley Road | A | S | B |
| Shermans Dale Loop | 86+23 | Sunny Hill Lane | G | N | OC |
| | 91+31 | Stoney Creek Road | A | T | OC |
| | 102+51 | Linsey Lane | G | N | OC |
| | 255+74 | Fishing Creek Valley Road | A | S | B |
| | 284+36 | Blue Mountain Parkway | A | T | OC |
| Grantville West Loop | 41+90 | Swatara Drive | A | T | OC |
| | 50+16 | Ono Road | A | S | B |
| | 110+01 | Thompson Avenue | A | S | B |
| Grantville East Loop | 11+70 | Kenbrook Road | A | T | OC |
| | 34+13 | Hain Avenue | A | T | OC |
| | 66+79 | North 7th Street | A | S | B |
| | 121+65 | Morrissey Drive | A | T | OC |

TABLE 1.5-2
ROADWAYS CROSSED BY THE PROJECT

| Project Components | Station | Roadway Name | Roadway Type A, G, D, C[1] | Jurisdiction F, S, T, N[2] | Construction Method B, OC[3] |
|---|---|---|---|---|---|
| Grantville East Loop (cont.) | 158+04 | Mount Zion Road | A | S | B |
| | 163+14 | Prescott Drive | A | S | B |
| Bernville Loop | 14+68 | Tube Road | A | N | OC |
| | 29+77 | Berkley Road | A | T | OC |
| | 31+53 | Pottsville Pike | A | S | B |
| | 51+93 | Lessport Avenue | A | Unknown | OC |
| | 80+83 | Interstate 222 | C | F | B |
| | 81+73 | Interstate 222 | C | F | B |
| | 88+83 | Willow Creek Road | A | T | OC |
| | 96+05 | Allentown Pike | A | S | B |
| | 201+34 | Irish Mountain Road | A | T | OC |
| | 230+99 | Hartz Road | A | T | OC |
| | 258+60 | Schmehl Road | A | T | OC |
| | 269+06 | Blandon Road | A | S | B |

1 A = Asphalt, G = Gravel, D = Dirt, and C = Concrete

2 F= Federal, S = State T = Township, and N = No Jurisdiction

3 B = Bore and OC = Open Cut

Prior to construction, the "Call Before You Dig" or "One Call" system will be contacted to verify and mark all utilities along the Project workspace areas. In locations where it is unclear where utilities, such as, water, cable, gas, and sewer lines are located, they will be located by field instrumentation and test pits.

During the open-cut method of roadway crossing, at least one lane of traffic will be kept open when constructing on or across residential streets. During the brief period when a road is completely cut, steel plates will be available onsite to cover the open area to permit travel by emergency vehicles. Traffic lanes and home access will be maintained except for the temporary periods essential for laying pipeline.

Generally, the boring method will be required under major roadways. Table 1-9 notes those roadways that Texas Eastern anticipates will require this method. Boring entails drilling a hole below travel roadways through which the pipe will pass. First, a bore pit is dug on one side of the artery and a receiving pit dug on the other. The bore pit is excavated to a depth equal to the depth of the ditch and is graded such that the bore will follow the grade of the pipe. A boring machine is lowered to the bottom of the bore pit and placed on supports. The machine cuts a shaft under the roadway using a cutting head mounted on an auger. The auger rotates in a casing, both of which are pushed forward as the hole is cut. The pipeline is then pushed through the casing. The casing is removed and the area between the pipeline and the shaft is grouted, as required by permits. Section 4 of the E&SCP also discusses specialized construction methods to be utilized at roadway crossings.

**Rock Removal and Blasting**

Rock encountered during trenching will be removed using one of the following techniques. The technique selected is dependent on relative hardness, fracture susceptibility, expected volume, and location.

Available rock removal techniques include:

- Conventional excavation with a backhoe;
- Ripping with a bulldozer followed by backhoe excavation;
- Hammering with a pointed backhoe attachment or a pneumatic rock hammer and followed by backhoe excavation;
- Blasting followed by backhoe excavation; and
- Blasting surface rock prior to excavation.

All blasting activity will be performed according to strict guidelines designed to control energy release. Proper safeguards will be taken to protect personnel and property in the area. Resource Report 6 contains more details of the blasting technique. Charges will be kept to the minimum required to break-up the rock and the release of charges will be delayed to stagger the blasts. Mats made of heavy steel mesh or other materials are effective in preventing scattering of rock and debris and will be used as necessary. These activities will strictly adhere to all federal, state, and local regulations applying to controlled-blasting and blast vibration limits with regard to structures and underground utilities. Special care will be taken to monitor and assess blasting within 150 feet of dwellings and private or public water supply wells. Preconstruction testing will be done on homes and businesses within 150 feet as approved by the landowner.

Large rock not suitable for use as backfill material will be stored along the edge of the ROW with landowner permission, buried on the ROW with landowner permission, or hauled off the ROW and disposed at an approved gravel operation, landfill, or recycling facility. The remaining rock will be mixed with the subsoil and used to backfill the trench to the original level of rock.

### 1.5.3 Aboveground Facilities

The proposed aboveground facilities will be constructed in accordance with industry standards. Appendix B (Volume IV) provides preliminary plans. The duration of construction for the aboveground facilities is approximately seven months. Approximately 300 to 400 workers including subcontractors will be required for construction of the aboveground facilities.

No permanent expansion of station property lines is proposed for any of the compressor station facilities.

Most construction activities will be similar to those at other commercial construction sites. An E&SCP will be developed and implemented. Limited clearing and grading will be performed for new facilities and workspaces. Where required, new foundations will be poured and the new equipment and buildings will be installed. New gas piping, conduit and electrical systems, and other utility piping will be integrated into existing compressor station systems. As with pipeline installation, NDE will be performed on all girth welds and all gas piping will be pressure tested before being placed into service. All compressor station systems, including the emergency shutdown (ESD) system, will be thoroughly tested before operation of new electric or gas motor and compressor units. As work is completed in an area of the site, the adjoining workspaces will be cleaned up and restored. Texas Eastern plans to begin construction of the Project as early as March 2014, subject to contractor selection and development of a detailed construction schedule.

### 1.5.4 Environmental Training for Construction

As required by FERC, environmental training will be given to both company and contractor personnel involved with construction. The level of training will be commensurate with the type of duties to be performed by Project personnel. All construction personnel from the chief inspector, environmental inspector, craft inspectors, and contractor's superintendent to equipment operators and laborers will participate in environmental training. The training will be provided before the start of construction and throughout the construction process, as needed. The training program will cover the FERC's *Plan* and *Procedures*(as amended), Texas Eastern's E&SCP, job-specific permit conditions, company policies, cultural resource procedures, threatened and endangered (T&E) species restrictions, National Pollutant Discharge Elimination System (NPDES), SPCC Plan, and any other pertinent information related to the job. In addition to the Environmental Inspector(s), all other construction personnel will serve an important role in maintaining strict compliance with all permit conditions to protect the environment during construction.

### 1.5.5 Construction Workforce

Texas Eastern anticipates three construction spreads for the new pipeline segments with a total peak workforce of approximately 300 to 400 personnel for the Project. Separate contractors are under consideration for the bi-directional flow facilities. Texas Eastern anticipates hiring local construction workers experienced with the installation of natural gas facilities, including surveyors, equipment operators, and general laborers. Environmental inspector(s) will be assigned to monitor environmental compliance during construction of the various facilities.

Construction contractor(s) employed by Texas Eastern will be required to observe and comply with all federal, state, and local laws, ordinances, and regulations that apply to the conduct of the work. During the performance of work, contractors will comply with, at least, the Minimum Federal Safety Standards adopted by the USDOT under the *Natural Gas Pipeline Safety Act of 1968*, as well as Texas Eastern's standards.

Other safety, design, and construction codes and regulations may be enacted or adopted by duly constituted governmental agencies and bodies having jurisdiction over the locations where the work is to be performed. The contractor(s) will be required to observe and abide by all applicable provisions.

### 1.5.6 Abandonment of Facilities

As part of the proposed Project, Texas Eastern intends to remove from service and leave in place one existing 18,500 hp gas turbine and six 1,100 hp reciprocating compressor units, totaling 25,100 hp, at the Delmont Compressor Station. In addition, any existing pipeline segments that will be removed and replaced in-kind during the loop installations will be handled in accordance with Texas Eastern's Environmental Standard Operating Procedures.

Potential hazardous substances issues that may be associated with the replacement of pipeline facilities include pipeline liquids with polychlorinated biphenyls at concentrations greater than 50 parts per million and potential asbestos in coal tar and asphalt pipe coating. If encountered, pipeline liquids, coal tar, and asphalt coating will be removed, sampled, and disposed of following Texas Eastern's Environmental Standard Operating Procedures.

## 1.6 Operation and Maintenance Procedures

Texas Eastern will own, operate, and maintain the Project in its entirety. Texas Eastern will continue to operate and maintain the compressor stations associated with the Project in the same manner as they currently operate and Texas Eastern will maintain all of its major interstate facilities in accordance with the requirements of the USDOT. The stations will be routinely patrolled and personnel will be qualified to perform both emergency and routine maintenance.

The proposed facilities will be operated and maintained in a manner such that the facilities' integrity is maintained in the interest of ensuring that a safe, continuous supply of natural gas reaches its ultimate destination. Maintenance activities will include regularly scheduled gas leak surveys and measures necessary to repair any potential leaks. All fence posts, signs, marker posts, aerial markers, and decals will be painted or replaced to ensure that the pipeline locations will be visible from the air and ground.

The facilities will be patrolled from the air periodically. This will provide information on possible leaks, construction activities, erosion, population density, possible encroachment, and any other potential problems that may affect the safety and operation of the facility. In addition, Texas Eastern is a participant in the Dig Safe system. Under the Dig Safe system, anyone planning excavation activities may call a single number to alert all utility companies. Representatives of the utility companies that might be affected then visit the site and mark their facilities so that the excavation can proceed with relative certainty as to the location of all underground lines.

Other maintenance functions will include:

- Periodic seasonal mowing of the ROW in accordance with the timing restrictions outlined in FERC's *Plan* and *Procedures;*
- Terrace repair, backfill replacement, and drain tile repair as necessary;
- Periodic inspection of water crossings; and
- Maintenance of a supply of emergency pipe, leak repair clamps, sleeves, and other equipment needed for repair activities.

Texas Eastern will not use herbicides or pesticides within 100 feet of a wetland or waterbody unless approved by appropriate state and local agencies.

Cathodic protection of the pipeline and station will be conducted with impressed current systems that employ rectifier(s) and impressed current anode bed system(s). These anode beds may be installed along or perpendicular to the pipeline and aboveground test stations will be installed at various locations along the pipeline to gather accurate information to determine the level of cathodic protection. Exact locations for both the anode bed(s) and test stations will be determined as Texas Eastern finalizes the design and Texas Eastern will provide this information to the Commission when it is available during this proceeding.

In areas where the proposed pipeline parallels high-voltage electric transmission lines, an alternating current mitigation system will be implemented as necessary to reduce stray current, prevent possible shock to personnel during post-construction activities, and prevent interference with the cathodic protection system. This system will be primarily composed of zinc ribbon.

The Project will not require additional permanent staff, new operations offices, or district offices for O&M.

### 1.6.1 Cleared Areas

The full width of the post-construction permanent ROW, in non-wetland resource areas, will be maintained for all the pipeline loop locations. A permanent ROW of 10 feet will be maintained through wetland resource areas in accordance with FERC's *Plan* and *Procedures*, in accordance with the current practice on the existing ROW. Maintaining a cleared ROW is necessary for the following reasons:

- Access for routine pipeline patrols and corrosion surveys;
- Access in the event that emergency repairs of the pipeline are needed; and
- Visibility during aerial patrols.

### 1.6.2 Erosion Control

Erosion problems on the pipeline ROW will be reported to the local operations supervisor. These reports may originate from landowners or company personnel performing routine patrols. Corrective measures will be conducted as needed.

### 1.6.3 Periodic Pipeline and ROW Patrols

During these surveys, all permanent erosion control devices that are installed during construction will be inspected to ensure that they are functioning properly. In addition, attention will be given to the following:

- Existing stormwater outfalls;
- Erosion and washouts along the ROW;
- Water control devices such as diversions;
- Condition of banks at stream and river crossings;
- Fallen timber or other threats to the pipeline;
- Shrubs and other vegetation planted during construction; and
- Any other conditions that could endanger the pipeline.

The local operations supervisor will be notified of any conditions that need attention. Corrective measures will be performed as needed.

## 1.7 Agency and Public Consultations and Required Authorizations

Texas Eastern will obtain all necessary permits and licenses relating to the aboveground facilities across or under roads, drainage facilities, waterbodies, wetlands and through any other sites or places that a governmental license or permit may be required. Table 1.7-1 provides a list of permits and the applicable federal, state, and local agencies. Agency consultations letters to date are included in Appendix G. Texas Eastern will include copies of all relevant environmental permits and approvals in the construction bid packages and contracts. The contractor will be required to be familiar with all permits and licenses obtained by Texas Eastern. The contractor will be also required to comply with all the requirements related to the construction of the aboveground facilities and to the restoration of any areas disturbed by the construction of the certificated facilities.

TABLE 1.7-1
REQUIRED ENVIRONMENTAL PERMITS AND APPROVALS
PENNSYLVANIA EXPANSION FACILITIES

| Agency | Permit/Approval | Status |
|---|---|---|
| **FEDERAL** | | |
| Federal Energy Regulatory Commission | Section 7(c) Certificate of Public Convenience and Necessity | Anticipated submittal in February 2013 |
| U.S. Army Corps of Engineers - Pittsburgh District | Section 404/Section 10 Nationwide Permit(s) | Anticipated submittal in February 2013 |
| U.S. Army Corps of Engineers - Baltimore District | Section 404/Section 10 Nationwide Permit(s) | Anticipated submittal in February 2013 |
| U.S. Army Corps of Engineers - Philadelphia District | Section 404/Section 10 Nationwide Permit(s) | Anticipated submittal in February 2013 |

TABLE 1.7-1
REQUIRED ENVIRONMENTAL PERMITS AND APPROVALS
PENNSYLVANIA EXPANSION FACILITIES

| Agency | Permit/Approval | Status |
|---|---|---|
| U.S. Fish and Wildlife Service | Section 7 T&E Species Consultation and Clearance | Initial consultation letter submitted March 30, 2012; initial USFWS response letters received May 22, 2012 and May 23, 2012; additional consultation letter submitted September 28, 2012 |
| U.S. Department of Commerce National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS) | T&E Species Consultation and Clearance | Initial consultation letter submitted March 30, 2012; NMFS response received April 12, 2012. |
| **STATE** | | |
| Pennsylvania Game Commission | T&E Species Consultation and Clearance | Initial consultation letter submitted March 30, 2012; initial PGC response letter received August 22, 2012; additional consultation letter submitted September 28, 2012 |
| Pennsylvania Fish and Boat Commission | T&E Species Consultation and Clearance Application for Permit for Use of Explosives in Commonwealth Waters | Initial consultation letter submitted March 30, 2012; initial PFBC response letter received August 15, 2012; additional consultation letter submitted September 28, 2012 |
| Pennsylvania Department of Conservation and Natural Resources (PADCNR) | T&E Species Consultation and Clearance | Initial consultation letter submitted March 30, 2012; PADCNR response received May 21, 2012. |
| State Historic Preservation Office Pennsylvania Historical and Museum Commission (PHMC) | Section 106 of the National Historic Preservation Act Clearance | Initial consultation letter submitted April 10, 2012; Phase I survey request from PHMC received May 7, 2012; Unanticipated Discovery Plan submittal for approval July 12, 2012; UDP concurrence received from PHMC August 13, 2012; Phase 2 work plan submitted September 19, 2012 |

TABLE 1.7-1
REQUIRED ENVIRONMENTAL PERMITS AND APPROVALS
PENNSYLVANIA EXPANSION FACILITIES

| Agency | Permit/Approval | Status |
|---|---|---|
| Pennsylvania Department of Environmental Protection - Southwest Regional Office | General Permit (GP)-05 - Utility Line Stream Crossing<br>GP-08 - Temporary Road Crossings (for Stream Crossings)<br>Section 401 Water Quality Certification (covered under general permit approval)<br>Issuance of final Erosion and Sediment Control General Permit (ESCGP)-1<br>PAG-10 - Hydrostatic Testing Discharge Permit | Anticipated submittal in February 2013 |
| Pennsylvania Department of Environmental Protection - South Central Regional Office | GP-05 - Utility Line Stream Crossing<br>GP-08 - Temporary Road Crossings (for Stream Crossings)<br>Section 401 Water Quality Certification (covered under general permit approval)<br>Issuance of final ESCGP-1<br>PAG-10 - Hydrostatic Testing Discharge Permit<br>Submerged Lands License Agreement | Anticipated submittal in February 2013 |
| Pennsylvania Department of Environmental Protection - Bureau of Air Quality - Southwest Regional Office | Construction Plan Approval<br>Operating Permit Modification<br>Construction Request for Determination (RFD) | Anticipated submittal in February 2013 |
| **COUNTY** | | |
| Fayette County Conservation District | ESCGP-1 - Stormwater Permit - includes E&SCP, SPCC/Pollution Prevention and Control (PPC) Plan | Anticipated submittal in February 2013 |
| Westmoreland County Conservation District | ESCGP-1 - Stormwater Permit - includes E&SCP, SPCC/PPC Plan | Anticipated submittal in February 2013 |
| Indiana County Conservation District | ESCGP-1 - Stormwater Permit - includes E&SCP, SPCC/PPC Plan | Anticipated submittal in February 2013 |
| Huntingdon County Conservation District | ESCGP-1 - Stormwater Permit - includes E&SCP, SPCC/PPC Plan | Anticipated submittal in February 2013 |
| Perry County Conservation District | ESCGP-1 - Stormwater Permit - includes E&SCP, SPCC/PPC Plan | Anticipated submittal in February 2013 |
| Dauphin County Conservation District | ESCGP-1 - Stormwater Permit - includes E&SCP, SPCC/PPC Plan | Anticipated submittal in February 2013 |
| Lebanon County Conservation District | ESCGP-1 - Stormwater Permit - includes E&SCP, SPCC/PPC Plan | Anticipated submittal in February 2013 |
| Berks County Conservation District | ESCGP-1 - Stormwater Permit - includes E&SCP, SPCC/PPC Plan | Anticipated submittal in February 2013 |

Note: The type and number of permits/approvals that may be required for bi-directional flow facilities along the existing pipeline system between Pennsylvania and Mississippi have not yet been identified.

### 1.7.1 Agency Consultations

Texas Eastern has initiated consultation with federal, state, and local agencies, regarding the expansion facilities in Pennsylvania, to solicit input and provide guidance to ensure agency participation during the pre-filing process. At the Federal level, these consultations have included the USACE, USFWS, and National Marine Fisheries Service (NMFS). At the state level, these

consultations have included the PADEP, Pennsylvania Department of Conservation and Natural Resources (PADCNR), PFBC, and Pennsylvania Game Commission (PGC). At the local level, Conservation Districts for Fayette, Westmoreland, Indiana, Huntingdon, Perry, Dauphin, Lebanon, and Berks Counties have been contacted. Texas Eastern has contacted federal and state regulatory and resource agencies with respect to the relevant permitting requirements for the Project. Texas Eastern has provided preliminary information regarding the proposed facilities. Texas Eastern has advised the agencies with regulatory or resource review responsibility of Texas Eastern's intent to use the *National Environmental Policy Act of 1969* (NEPA) Pre-Filing Process and requested that each agency agree to participate in that process. An initial interagency meeting has been conducted at the PADEP office in Harrisburg, Pennsylvania.

In addition, Texas Eastern has contacted other federal, state, and county agency personnel, provided preliminary information regarding the Project, and requested they identify potential concerns. Texas Eastern has initiated informal consultations under the *Endangered Species Act of 1973* by sending to the appropriate agencies a letter requesting updated protected resource information along with current project descriptions and USGS 7.5-minute quad based location maps for all proposed and modified facilities. Consultations with the Pennsylvania Historical and Museum Commission have also been initiated per the *National Historic Preservation Act of 1966* (NHPA).

With respect to the bi-directional flow associated facilities at existing company locations in Pennsylvania, Ohio, West Virginia, Kentucky, Tennessee, Alabama, and Mississippi, the work will take place entirely within company sites and ROW segments. Texas Eastern will be contacting the federal, state, and local agencies when exact workspace requirements are finalized to initiate consultation, as applicable.

### 1.7.2 Public Participation and Outreach Program

Texas Eastern is making diligent efforts to inform the public about the proposed Project. Texas Eastern has initiated a comprehensive public participation and stakeholder outreach program to provide information to, respond to concerns of, and work together with landowners, public officials, nongovernmental organizations and other interested stakeholders. The program involves outreach and communications with stakeholders through letters, one-on-one discussions, face-to-face meetings, newsletters, a website, informational meetings and open houses as well as legal notices and media outreach.

Texas Eastern has proposed facilities that seek to balance landowner and community concerns, environmental resource issues, and system requirements. In accordance with the guidelines adopted by the FERC, Texas Eastern encourages landowners, municipal, county, state, and federal government officials; nongovernmental organizations and other stakeholders to discuss their concerns with Texas Eastern as well as FERC and to provide input on the most appropriate locations for the facilities. Texas Eastern will attempt to respond to all concerns raised by various stakeholders and, where it is not possible to modify facilities in the manner requested, to identify clearly the basis for that conclusion.

Texas Eastern began meeting with governmental stakeholders in advance of landowner notification starting in February 2012. Texas Eastern contacted state, county, and municipal officials, state legislators representing areas affected by the Project, and congressional delegation members and/or their staff to apprise them of the Project's scope and continues to keep them informed.

Open houses have been conducted as outlined in the following table. Invitation letters were sent to landowners, public officials, and other interested stakeholders. The public meetings were advertised in area newspapers, advisories were sent to local media, and notices were provided to municipal offices for posting. Approximately 121 landowners, concerned citizens, and public officials attended these six open houses.

| Date and Time | Community | Number of Invitees | Meeting Location |
|---|---|---|---|
| Monday, June 4th<br>5:00p.m – 7:30p.m. | Holbrook | 208 | Uniontown Holiday Inn |
| Tuesday, June 5th<br>5:00p.m – 7:30p.m. | Delmont | 64 | Delmont Route 66 Fire Hall |
| Wednesday, June 6th<br>5:30p.m – 8:00p.m. | Grantville/Shermans Dale | 113 | Grantville Holiday Inn |
| Thursday, June 7th<br>5:00p.m – 7:30p.m. | Bernville | 53 | Muhlenberg Recreation Center |
| Monday, June 11th<br>5:00p.m – 7:30p.m. | Armagh | 19 | Clyde Volunteer Fire Co. of West Wheatfield Twp |
| Tuesday, June 12th<br>5:00p.m – 7:30p.m. | Perulack | 30 | Blain Fire Company |

## 1.8 Landowner Names and Addresses

The proposed new Project facilities will affect limited portions of nine counties in Pennsylvania. Facilities at existing Texas Eastern sites will be modified in one county in West Virginia, eight counties in Ohio, five counties in Kentucky, six counties in Tennessee, one county in Alabama and seven counties in Mississippi. In accordance with Texas Eastern's Public and Agency Participation Plan, Texas Eastern will notify and engage affected stakeholders. These stakeholders include landowners located along the affected pipeline corridor for the proposed pipeline loops and abutting the compressor stations.

The proposed Project will directly affect 214 landowners. To date these landowners have received multiple contacts from Texas Eastern including introduction letters, request for survey permission letters, and individual discussions with Texas Eastern representatives. The names and addresses of all landowners whose land will be crossed by the Project facilities has been provided in a confidential document filed with FERC (see Appendix F).

## 1.9 Future Expansion

As various shale plays located near the Texas Eastern pipeline system continue their rapid development, Texas Eastern expects to pursue facility modifications that continue to transition segments of its system to bi-directional flow and expects that this will provide opportunities for other projects. Some of these facility modifications may involve construction activities to ensure that Texas Eastern can continue to satisfy existing and future firm delivery commitments as its system transitions to bi-directional flow. While these activities are expected to occur largely in the future, some activities could occur at the same time as, and assume completion of, the Project construction, although any such activities are not anticipated to occur in any locations where the Project construction occurs or in any resource area identified as a potentially affected area by the Project. However, Texas Eastern has not identified any current or reasonably foreseeable plans for future expansion of the facilities proposed in this docket. To the extent that expansion of facilities is required due to additional demand for natural gas service, this expansion could involve other pipeline segments not proposed in this docket. Any new facilities will be designed to be compatible with existing or proposed facilities.

## 1.10 Proposed Non-Jurisdictional Facilities

Non-jurisdictional facilities associated with the Project include enhancement of the electric grid serving the Delmont Compressor Station, which will involve a reactive load addition. The non-jurisdictional facilities electric grid enhancement will be constructed and owned by West Penn Power. All permitting for the construction and operation of the electric grid enhancement will be the responsibility of West Penn.

FERC uses a four-factor test to determine whether to include non-jurisdictional facilities in the environmental analysis of a jurisdictional project. The first factor is if the regulated activity comprises "merely a link" in a corridor type project (such as the enhancement of the stability of the electric grid that serves the Delmont Compressor Station). The Project is not a "link" in a transportation or utility transmission corridor project. The second factor is whether there are aspects of the non-jurisdictional facility in the immediate vicinity of the regulated activity that affect the location and configuration of the regulated activity. There is no aspect of the electric grid enhancement that will affect the location and configuration of the Project. The third factor takes into account the extent to which the entire project will be within the FERC's jurisdiction. The Project is within FERC's jurisdiction, but the electric grid enhancement is non-jurisdictional and will not be regulated by the FERC. The fourth factor takes into account the extent of cumulative federal control and responsibility. The electric grid enhancement will not be federally controlled or regulated; nor are any federal permits required for construction of the electric grid enhancement.

Therefore, based on the evaluation under the four-factor test, the electric grid enhancement involving the reactive load addition is not a facility that the FERC must include in its environmental evaluation of the Project.

## 1.11 References

Council on Environmental Quality (CEQ). 1979. Memorandum for NEPA Liaisons. *Agency Implementing Procedures Under CEQ's NEPA Regulations*. Washington, DC. January 19, 1979.