300 LINE PROJECT

DRAFT
ENVIRONMENTAL REPORT

RESOURCE REPORT NO. 1

GENERAL PROJECT DESCRIPTION

PUBLIC

Tennessee Gas Pipeline Company
1001 Louisiana Street
Houston, Texas 77002

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RESOURCE REPORT 1 – GENERAL PROJECT DESCRIPTION
SUMMARY OF COMMISSION FILING INFORMATION

INFORMATION	FOUND IN
Provide a detailed description and location map of the Project facilities (§ 380.12 (c)(1)).	Sections 1.0 and 1.1.2 Figures 1.1-1, 1.1-2a, and 1.1-2l (located in Attachment A) Appendix L Appendix O
Describe any non-jurisdictional facilities that would be built in association with the Project (§ 380.12 (c)(2)).	Section 1.7
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 L
Provide aerial images or photographs or alignment sheets based on these sources with mileposts showing the Project facilities (§ 380.12 (c)(3)).	Appendix O
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 P
Describe construction and restoration methods (§ 380.12 (c)(6)).	Section 1.3
Identify the permits required for construction across surface waters (§ 380.12 (c)(9)).	Section 1.6 Table 1.6-1
Provide the names and addresses of all affected landowners and certify that all affected landowners will be notified as required in §157.6(d) (§ 380.12 (c)(10)).	Appendix Q Section 1.8

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF TABLES

TABLE OF CONTENTS (Continued)

LIST OF FIGURES

(See Attachment A)

1.0 INTRODUCTION

Tennessee Gas Pipeline Company ("Tennessee") is filing an application for a certificate of public convenience and necessity with the Federal Energy Regulatory Commission ("Commission" or "FERC") for the 300 Line Project (the "Project") in northern Pennsylvania and northwestern New Jersey. The proposed Project will include construction of approximately 128.7 miles of 30-inch pipeline consisting of seven separate pipeline loops in northern Pennsylvania, totaling approximately 111 miles, and one pipeline loop in northwestern New Jersey totaling approximately 17 miles. To the extent that it is practicable and feasible, Tennessee proposes to locate the pipeline loops within and adjacent to the right-of-way ("ROW") associated with its existing 24-inch pipeline designated as the 300 Line. Additionally, as part of the Project, Tennessee proposes to construct two new compressor stations near its existing 300 Line ROW in northwestern Pennsylvania, as well as make improvements and modifications at seven of its existing compressor station facilities in Pennsylvania and New Jersey. Tennessee proposes to begin construction of the Project facilities in the second half of 2010 and to place the facilities in-service by November 2011.

This Resource Report provides a general description of the Project in eight sections. Section 1.1 provides an overview of the Project. Section 1.2 describes the land requirements for construction and operation. Section 1.3 describes construction and restoration procedures and variance requests. Section 1.4 provides information on operation and maintenance procedures for the Project facilities. Section 1.5 describes future plans and abandonment. Section 1.6 identifies agencies contacted and required permits. Section 1.7 describes non-jurisdictional facilities, and Section 1.8 provides information relative to affected landowners. The landowners whose properties will be crossed or affected by the Project are identified in Volume IV, Appendix Q of this Environmental Report.

The Project facilities are described geographically in a general west-to-east direction and by category, addressing pipeline facilities first and aboveground facilities second. Milepost ("MP") notations are used throughout this Environmental Report ("ER") to identify resources and facilities along the proposed pipeline loop segments and are included on the alignment sheets. The pipeline loops have been assigned separate numbers by Tennessee to provide for easy identification of the loop segments. The Project facilities are summarized in Table 1.1-1. To the extent practicable, the existing 300 Line 24-inch diameter pipeline will be referred to as the "existing 300 Line" or simply "300 Line" while the proposed loop pipeline segments will be discussed using the assigned numeric designations identified in Table 1.1-1 below.

Tennessee's existing pipeline infrastructure consists of approximately 13,400 miles of pipeline designated as the 100, 200, 300, 500, and 800 Lines based on the region they serve. The proposed Project focuses on the existing 300 Line, which consists of a 24-inch diameter pipeline which starts at the discharge of Compressor Station 219 in Mercer County, Pennsylvania, travels east through Pennsylvania, New Jersey, New York, Connecticut and ends at the discharge of Compressor Station 261 in Hampden County, Massachusetts. The Project involves that section of the existing 300 Line from Compressor Station 219 in Mercer County, Pennsylvania, to Main Line Valve ("MLV") 335 located in Westchester County, New York. There are eight existing compressor stations along the 300 Line from Compressor Station 219 to MLV 335.

TABLE 1.0-1
EXISTING COMPRESSOR STATIONS ON THE 300 LINE AND ASSOCIATED NATURAL GAS CAPACITIES

Station ID	Natural Gas Capacity (mscfd)
307	926,648
313	814,465
315	653,557
317	642,794
319	624,441
321	703,908
323	657,608
325	626,198

Portions of the existing 300 Line have been previously looped. The 132-mile length of the 24-inch 300 Line from Compressor Station 219 in Mercer County, Pennsylvania to Compressor Station 313 in Potter County, Pennsylvania, has been looped with a 30-inch diameter loop line. From Compressor Station 313 to Main Line Valve 335 located in Westchester County, New York, the 24-inch 300 Line has four distinct 30-inch diameter loops that total 33.2-miles. None of the loops proposed for this Project are located in an area with existing loop.

Figure 1.1-1 provides a graphical overview of the Project. Additionally, U.S. Geological Survey ("USGS") topographic map excerpts are included within Attachment L to this Resource Report for each of the proposed looping pipeline segments and the new and modified compressor station facilities. All of the detailed maps provided with this ER identify major MPs along the proposed pipeline looping segments.

TABLE 1.1-1
SUMMARY OF 300 LINE PROJECT FACILITIES

Facility ID	Facility Type	New/Modified[a]	Length (miles)[b]	County	State
Pipeline Facilities					
Loop 313	30-inch Diameter Loop Pipeline	New	16.92	Potter & Tioga	PA
Loop 315			16.99	Tioga	
Loop 317			22.47	Bradford	
Loop 319A			1.15	Bradford	
Loop 319			16.75	Bradford & Susquehanna	
Loop 321			22.28	Susquehanna & Wayne	
Loop 323			14.89	Pike	
Loop 325			17.27	Sussex & Passaic	NJ
Pipeline Total			**128.72**	-	-
Aboveground Facilities					
Station 303	Compressor Station	New	Not Applicable	Venango	PA
Station 310				McKean	
Station 313		Modified		Potter	
Station 315				Tioga	
Station 317				Bradford	
Station 319				Bradford	
Station 321				Susquehanna	
Station 323				Pike	
Station 325				Sussex	NJ

a: "New" refers to pipeline infrastructure facilities not currently existing that require new land development; "Modified" refers to existing pipeline infrastructure facilities proposed for modification that do not require new land development.
b: Loop segment lengths are approximate.

1.1 PROPOSED FACILITIES

1.1.1 Purpose and Need

Tennessee proposes to construct, install, and operate the Project facilities to increase pipeline capacity to provide additional firm natural gas transportation service into northeast markets, as well as to provide for general system upgrades. The Project, as described further herein, includes the construction, installation, and operation of the following expansion facilities in the states of New Jersey and Pennsylvania: (i) seven pipeline looping segments, (ii) two new compressor stations, and (iii) modifications and/or horsepower expansions to seven existing compressor stations (Stations 313, 315, and 325 (additional horsepower to be installed); Stations 319 and 321 (compressor units to be restaged); Station 317 (compressor unit to be replaced with an upgraded unit), and Station 323 (filter separator added)).

In addition to the upgrades and/or horsepower expansions that are proposed for seven existing compressor stations, Tennessee is proposing to include general system upgrades at four of these stations: Stations 313, 315, 321, and 325. At these four stations, existing compressor units will be replaced with new, larger, more efficient compressor units and certain older units will be retired. The general system upgrades that Tennessee is proposing to include in the Project will increase system reliability by replacing older compressor units that often require more maintenance downtime with new compressor units that will require less maintenance downtime, which should make the new compressor units available to run for a higher percentage of time throughout a year. Additionally, the proposed pipeline looping will reduce the runtime of all the compressor equipment on days of low flow, thereby extending the life of the compressor units. Tennessee anticipates that the new, more efficient compressor units will be used typically on days of low flow, with older, less efficient units throttled back or shut down. This should reduce fuel consumption and the volume of gas transported for internal consumption will thereby be reduced, making the system more reliable for all of Tennessee's shippers. The proposed general system upgrades, though, will not increase the firm transportation capacity available on Tennessee's 300 Line.

Since Tennessee will be installing the expansion facilities at four of the existing compressor stations where general system upgrades will be also installed, Tennessee is requesting authority to complete these general system upgrades as part of the Project to minimize impacts and disruptions to the environment, and to affected landowners and communities. Additionally, Tennessee will be able to achieve certain economies of scale and efficiencies since certain facilities to be installed as part of the Project will be shared between the expansion portion and the reliability portion of the Project.

Upon completion, the Project will increase natural gas delivery capacity to the northeast region of the United States by approximately 300,000 dekatherms per day ("Dth/d") and, with the proposed general system upgrades, also will improve system reliability. Tennessee has signed a binding precedent agreement with one shipper, Equitable Energy LLC ("Equitable"), for all of the additional firm transportation capacity resulting from the Project's expansion facilities, which demonstrates that the additional firm transportation capacity will be immediately utilized. Currently, there is approximately seven billion cubic feet per day ("Bcf/d") of pipeline capacity on four interstate pipelines, including Tennessee, to transport gas through Pennsylvania from upstream out-of-state sources into New Jersey. However, all four pipelines, including Tennessee, are currently fully subscribed in this region during the peak heating season. Therefore, unless Tennessee proceeds with the construction of the Project, it will be unable to satisfy Equitable's expressed need, as reflected in the executed precedent agreement, for additional capacity on Tennessee's system. Additionally, in late 2009, the Rockies Express pipeline is

scheduled to tie into the pipeline systems that serve the northeast, with the potential to add 1.8 Bcf/d of new gas supply from the Rocky Mountain producing areas to compete for capacity on the constrained pipelines in the northeast region. Increased regional demand in the northeast, along with the inherent geological conditions in New England, New Jersey and the eastern portions of New York and Pennsylvania which prevent underground storage of natural gas volumes in those areas, will further exacerbate the already constrained pipeline capacity situation in the northeast. Even when underground storage in northwestern Pennsylvania and New York is used to meet peak day requirements for the northeast region, pipeline capacity must still be used to reach market areas.

Construction of the Project, therefore, will help alleviate this situation by increasing pipeline capacity to the high-demand markets in the northeast, and will also assist with the Commission's goal of providing more natural gas to markets by providing access to diversified natural gas supplies from the Appalachian, Rockies, and Marcellus Shale supply areas with deliveries to points located across Tennessee's mainline system, to various interconnections with other pipelines in northern New Jersey, as well as deliveries into jointly-owned local distribution company facilities interconnects located in Mahwah and River Vale, New Jersey and White Plains, New York. The White Plains delivery point is an existing interconnect with Consolidated Edison and is one of the delivery points that is reflected in the executed binding precedent agreement supporting this Project. The Project, as designed, will provide the capacity needed to deliver 50,000 Dth/d to the White Plains delivery point, with no modification or new facilities required at that delivery point.

1.1.2 Location and Description of Facilities

1.1.2.1 Pipeline Facilities

The pipeline loops will consist of seven separate looping segments of 30-inch pipeline totaling approximately 128.7 miles in length and installed generally parallel to Tennessee's existing 300 Line pipeline at a typical offset of 25 feet. The pipeline loops will be located within and directly adjacent to the existing pipeline ROW, to the extent practicable. The seven looping segments vary in length from 14.9 miles to 22.5 miles, and each of the pipeline loops have been assigned separate number designations, as detailed in Table 1.1-1 above. Six of the pipeline looping segments are single discrete loops; however Loop 319 will be constructed in two sections consisting of (i) a 1.2-mile segment of loop pipeline located upstream of Compressor Station 319, and (ii) a 16.7 mile segment located downstream of Compressor Station 319. The maximum allowable operating pressure ("MAOP") of the existing 300 Line and new loop pipeline facilities varies from 844 to 1,170 pounds-per-square-inch-gauge ("psig"). Normal operating pressures for the existing 300 Line varies from 700 to 1,000 psig. Table 1.1-2 provides a summary of the individual pipeline loops and provides MP designations within each township, county, and state for each pipeline loop segment.

Project facility information is summarized in Table 1.1-1 above. Figure 1.1-1 provides regional location of Project components. Figures 1.1-2a through 1.1-2g depicts the pipeline route on 7.5-minute USGS topographic map excerpts. These are also shown on full-sized maps in Volume II, Appendix L.

TABLE 1.1-2
PROPOSED PIPELINE FACILITIES FOR THE 300 LINE PROJECT

Loop ID	Outside Diameter ("OD")	Milepost[a]		Length (miles)	Township	County	State
		Begin	End				
313	30-inches	0.0	0.14	0.14	Allegheny	Potter	PA
		0.14	6.58	6.44	Ulysses		
		6.58	12.95	6.37	Hector		
		12.95	16.92	3.97	Clymer	Tioga	
Loop 313 Subtotal				**16.92**	-	-	-
315	30-inches	0.0	3.47	3.47	Charleston	Tioga	PA
		3.47	12.03	8.56	Richmond		
		12.03	16.99	4.96	Sullivan		
Loop 315 Subtotal				**16.99**	-	-	-
317	30-inches	0.0	6.51	6.51	Granville	Bradford	PA
		6.51	8.10	1.59	West Burlington		
		8.10	12.29	4.19	Burlington		
		12.29	14.62	2.33	Towanda		
		14.62	18.18	3.55	Monroe		
		18.18	22.47	4.30	Asylum		
Loop 317 Subtotal				**22.47**	-	-	-
319A	30-inches	0.0	1.15	1.15	Wyalusing	Bradford	PA
319		0.0	2.84	2.84	Tuscarora		
		2.84	10.53	7.69	Auburn	Susquehanna	
		10.53	16.75	6.22	Springville		
Loop 319 Subtotal				**17.90**	-	-	-
321	30-inches	0.0	2.73	2.73	Herrick	Susquehanna	PA
		2.73	4.09	1.35	Uniondale		
		4.09	4.49	0.41	Clifford		
		4.49	6.46	1.97	Pleasant Mount	Wayne	
		6.46	12.43	5.97	Clinton		
		12.43	17.60	5.17	Dyberry		
		17.60	17.77	0.17	Bethany		
		17.77	19.95	2.18	Honesdale		
		19.95	22.28	2.33	Berlin		
Loop 321 Subtotal				**22.28**	-	-	-
323	30-inches	0.0	6.28	6.28	Lackawaxen	Pike	PA
		6.28	13.69	7.41	Shohola		
		13.69	14.89	1.20	Milford		
Loop 323 Subtotal				**14.89**	-	-	-
325	30-inches	0.0	1.25	1.25	Wantage	Sussex	NJ
		1.25	9.98	8.73	Vernon		
		9.98	16.71	6.73	West Milford	Passaic	
		16.71	17.27	0.56	Ringwood		
Loop 325 Subtotal				**17.27**	-	-	-
PROJECT TOTAL				**128.72**	-	-	-

a: Milepost designations measured against the individual proposed loop pipeline facility.

1.1.2.2 Aboveground Facilities

This section details information related to all of the associated aboveground facilities required for the Project. These facilities include new and modified compressor stations, new main line valves ("MLVs"), and other pipeline appurtenances. Table 1.1-3 provides a summary, by location, of all new and modified compressor station facilities associated with the Project. Table 1.1-4 provides a summary and location of all new appurtenant aboveground facilities including MLVs, and internal inspection facilities (e.g., pig launchers and receivers). These facility locations are shown on 7.5-minute USGS topographic map excerpts designated as Figures 1.1-2h through 1.1-2p located in Attachment A to the resource report and as full-sized maps in Volume IIB, Appendix L.

TABLE 1.1-3
PROPOSED COMPRESSOR STATIONS AND MODIFICATIONS FOR THE 300 LINE PROJECT

Facility	New / Modified	Horsepower (ISO)				Township	County / State
		Current	New	Replaced	Total		
Station 303	New	-	16,000	-	16,000	Cranberry	Venango / PA
Station 310		-	16,000	-	16,000	Sergeant	McKean / PA
Station 313	Modified	24,120	5,180	1,320	29,300	Hebron	Potter / PA
Station 315		9,300	6,700	9,300	16,000	Charleston	Tioga / PA
Station 317		13,400	Upgrade compressor on existing unit		13,400	Troy	Bradford / PA
Station 319		9,000	Restage two existing compressor units		9,000	Tuscarora	Bradford / PA
Station 321		10,000	4,100	10,000	14,100	Clifford	Susquehanna / PA
Station 323		13,400	Add filter separator (new)		13,400	Lackawaxen	Pike / PA
Station 325		9,442	11,220	9,400	20,620	Wantage	Sussex / NJ
PROJECT TOTAL		**85,112**	**59,200**	**30,020**	**147,820**	-	-

TABLE 1.1-4
PROPOSED APPURTENANT ABOVEGROUND FACILITIES FOR THE 300 LINE PROJECT

Loop ID[b]	Facility	New / Modified	Approximate Milepost[a]	Township	County / State
313	Pig Launcher	New	0.0	Allegany	Potter / PA
	MLV 314-2	New	10.5	Hector	Potter / PA
315	MLV 316-2	New	8.5	Richmond	Tioga / PA
	Pig Receiver	New	16.9	Sullivan	Tioga / PA
317	MLV 318-2	New	14.6	Towanda	Bradford / PA
	Pig Receiver	New	22.5	Asylum	Bradford / PA
319	Pig Launcher	New	0.0	Tuscarora	Bradford / PA
	MLV 320-2	New	7.1	Springville	Susquehanna / PA
321	MLV 322-2	New	11.5	Clinton	Wayne / PA
	Pig Receiver	New	22.2	Berlin	Wayne / PA
323	Pig Launcher	New	0.0	Lackawaxen	Pike / PA
	MLV 324-2A	New	9.8	Shohola	Pike / PA
	Pig Receiver	New	14.9	Milford	Pike / PA
325	MLV 326-2	New	4.2	Vernon	Sussex / NJ
	MLV 327-2	New	11.4	West Milford	Passaic / NJ
	MLV 327-2A	New	14.7	West Milford	Passaic / NJ
	Pig Receiver	New	17.26	Ringwood	Passaic / NJ

a: Milepost designations measured against the individual proposed loop pipeline facility.
b: No new aboveground facilities are associated with Loop 319A.

1.1.2.2.1 Compressor Stations

As part of the Project, Tennessee proposes to construct two new compressor stations in northwestern Pennsylvania and to modify facilities at seven existing compressor station facilities located along the 300 Line. The two new compressor stations and the modifications to the seven existing compressor stations will add a total of approximately 59,200 horsepower ("hp") to Tennessee's system.

Each of the two new compressor station facilities located in Pennsylvania will be capable of providing approximately 16,000 hp of compression to Tennessee's 300 Line system (for a total of 32,000 hp), with the remaining approximately 27,200 hp being attained through equipment additions, expansions, modifications, re-staging, and/or replacement at existing compressor stations. The replacement of selected gas engines(s) and turbine drivers is proposed to meet additional gas demand, improve reliability and efficiency, and to reduce environmental impact. Table 1.1-3 provides information on the new compressor stations and modifications to existing compressor stations.

The replacement of selected gas engines and turbine drivers will reduce environmental impacts by limiting additional land development. The increased hp needed to provide the additional system capacity will be achieved by replacing existing compressor units with larger compressor units within existing buildings. This will eliminate the need for installing additional buildings to house the new compressor units, thereby minimizing the amount of ground disturbance within the existing compressor station sites. Additionally, combustion and emission reduction technology, particularly nitrogen oxide ("NOx") reduction, has advanced significantly in the past 20 to 30 year period, which is the time period when several of the existing compressor units were installed that Tennessee is now proposing to replace as part of the Project. The new compressor units that will replace existing engine and turbine drivers units will be equipped with the latest combustion and emission technology, which will result in an overall reduction in emission rates.

Tennessee proposes to design and operate the proposed new compressor stations using the same or similar techniques that have been applied successfully on its existing compressor stations in Pennsylvania and New Jersey. Key elements of the new Station 303 and Station 310 compressor unit designs are the installation of gas turbines incorporating Best Available Control Technology ("BACT"). The new compressor stations will be stand-alone facilities capable of full-time operation and occupancy. The stations will also be designed for unattended operation via remote control. Each station will have secured access with all-weather roads. The new compressor stations will require municipal electric service and domestic water and/or water wells with necessary equipment to provide potable and non-potable service where water is not readily available (See individual compressor station discussions below for additional detail on existing and required utilities). Emergency generators and uninterruptible power supplies for critical services will also be included. Each site will be designed to manage hazardous waste containment and disposal. An emergency shutdown system ("ESD") and blow-down silencer will also be installed at each new station. Table 1.1-3 provides a summary of the proposed new and modified compressor station facilities associated with the Project. Compressor station locations are depicted on 7.5-minute USGS topographic map excerpts (Figures 1.1-2h through 1.1-2p in Attachment A of this resource report) and on full-sized maps in Volume IIB, Appendix L.

Station 303 (New)

Tennessee proposes to install one 16,000 (iso) hp turbine driven centrifugal compressor at a new compressor station to be located in Cranberry Township, Venango County, Pennsylvania. The driver for this compressor unit will be fueled with natural gas and will be equipped with a "lean pre-mix" dry, low NOx combustors to limit NOx, carbon monoxide ("CO"), and particulate matter ("PM") emissions to BACT levels. The auxiliary facilities will include the compressor building and valve shed, each of which will be constructed of a rigid steel frame with sheet metal roofs and walls. A controls building and auxiliary building will house station controls and communications equipment as well as an emergency electrical power generator. The proposed facilities will also include parking and access areas, and a fence enclosure. Utilities that will be supplied from local utility companies are electric power and communications circuits. These utilities will require minor construction to bring the services into the station property. No new utility right-of-way is anticipated to be needed. The station site work will include a self-contained on-site water well and sanitary sewer system (e.g., on-site septic). The site for Compressor Station 303 has several hundred feet of frontage on Meadow Church Road; however, the facility will be set back from the road far enough so that the grade of the terrain provides adequate visual screening for the facility from the road. Additionally, Tennessee will plant trees along the road frontage for added visual screening. The outdoor lighting for the new compressor station will be limited during un-manned night time operation to the minimum amount required for security. The station security system incorporates outdoor video cameras that must have sufficient outdoor lighting in order to record clear images at night. The station main gate along with the station yard and all building entry and exit doors will have lighting for security. These lights will have directional control or they will be positioned in a manner that minimizes their visibility in the direction of local residences. Figure 1.1-2h provides a USGS topographic map excerpt of the location of the new Station 303 compressor facility.

Station 310 (New)

Tennessee proposes to install one 16,000 (iso) hp, turbine driven centrifugal compressor at a new compressor station to be located in Sergeant Township, McKean County, Pennsylvania. The driver for this compressor unit will be fueled with natural gas and will be equipped with a "lean pre-mix" dry, low NOx combustors to limit NOx, CO, and PM emissions to BACT levels. The auxiliary facilities will include the compressor building and valve shed, each of which will be constructed of a rigid steel frame with sheet metal roofs and walls. A controls building and auxiliary building will house station controls and communications equipment as well as an emergency electrical power generator. The facilities will also include parking and access areas, and a fence enclosure. Utilities that will be supplied from local utility companies are electric power and communications circuits. These utilities will require construction along side an existing access road that is approximately 2 miles long in order to bring the services into the station property. New rights-of-way will be required for the utility construction and are discussed in Section 1.7 – Non-jurisdictional Facilities. The station site work will include a self-contained on-site water well and sanitary sewer system (e.g., on-site septic). The site for Compressor Station 310 is located over 1 mile off the public road in a heavily wooded area, so no additional visual screening will be necessary. The outdoor lighting for the new compressor station will be limited during un-manned night time operation to the minimum amount required for security. The station security system incorporates outdoor video cameras that must have sufficient outdoor lighting in order to record clear images at night. The station main gate along with the station yard and all building entry and exit doors will have lighting for security. These lights will have directional control or they will be positioned in a manner that minimizes their visibility in the direction of local residences. Figure 1.1-2i provides a USGS topographic map excerpt of the location of the new Station 310 compressor facility.

Station 313 (Modified)

Tennessee proposes to install one 6,500 hp electric motor driven reciprocating compressor at its existing Station 313 located in Hebron Township in Potter County, Pennsylvania. A new building will be constructed to house the new compressor. This new compressor unit will replace an existing 1,320 hp compressor unit and will add 5,180 hp to the station. A new utility 115kV power transmission line will be constructed along new rights-of-way approximately 0.5 miles long to serve the new 6,500 horsepower electric motor driven compression to be installed at Station 313. No other new utilities are planned for this existing station. The new compressor building will have outdoor lighting at all building exit and entry doors for security and personnel safety. The station security system incorporates outdoor video cameras that must have sufficient outdoor lighting in order to record clear images at night. These lights will have directional control or they will be positioned in a manner that minimizes their visibility in the direction of local residences. Limited area lighting will be installed near major equipment that requires operator attention at a manned location. Figure 1.1-2j provides a USGS topographic map excerpt of the location of the Station 313 compressor facility.

Station 315 (Modified)

Tennessee proposes to install one 16,000 hp natural gas driven centrifugal compressor unit at its existing Station 315 located in Delmar Township, Tioga County, Pennsylvania. This new unit will replace an existing 9,300 hp unit and add 6,700 hp to the station. The new unit will be placed in the existing compressor building that currently houses the gas turbine-driven centrifugal compressor unit being replaced. The concrete foundation that supports the compression equipment inside the existing compressor building will be modified as necessary to provide structural support that will match the new compression equipment configuration. New auxiliary equipment will require new foundations outside the existing compressor building. The existing duct penetrations in the building walls will be modified as necessary to accommodate air inlet and exhaust ducts associated with the new equipment. Minor construction will be required to up-grade the existing electric power utility service into the station. No new rights-of-way are required for the upgrade. No additional visual screening is planned beyond existing on-site visual screening. The outdoor lighting for the existing compressor station is limited during un-manned night time operation to the minimum amount required for security. The station security system incorporates outdoor video cameras that must have sufficient outdoor lighting in order to record clear images at night. New outdoor lighting may be required in the area around the new filter-separator equipment. If new lights are installed, the lights will have directional control or they will be positioned in a manner that minimizes their visibility in the direction of local residences. Figure 1.1-2k provides a USGS topographic map excerpt of the location of Station 315 compressor facility.

Station 317 (Modified)

Tennessee proposes to replace a centrifugal compressor at its Station 317 located in Troy Township, Bradford County, Pennsylvania. The new compressor will use the existing electric motor drive for the compressor unit that is being retired. The existing unit is rated for 13,400 hp, and no increase in hp is proposed. No utility construction work is required for this station. No additional visual screening is planned beyond existing on-site visual screening. The outdoor lighting for the existing compressor station is limited during un-manned night time operation to the minimum amount required for security. The station security system incorporates outdoor video cameras that must have sufficient outdoor lighting in order to record clear images at night. New outdoor lighting may be required in the area around the new filter-separator equipment. If new lights are installed, the lights will have directional control or they will

be positioned in a manner that minimizes their visibility in the direction of local residences. Figure 1.1-2l provides a USGS topographic map excerpt of the location of Station 317 compressor facility.

Station 319 (Modified)

Tennessee proposes to re-stage two existing centrifugal compressor units at its Station 319 located in Tuscarora Township, Bradford County, Pennsylvania. Minor construction will be required to up-grade the existing electric power utility service into the station. No new rights-of-way are required for the upgrade. No additional visual screening is planned beyond existing on-site visual screening. The outdoor lighting for the existing compressor station is limited during un-manned night time operation to the minimum amount required for security. The station security system incorporates outdoor video cameras that must have sufficient outdoor lighting in order to record clear images at night. New outdoor lighting may be required in the area around the new filter-separator equipment. If new lights are installed, the lights will have directional control or they will be positioned in a manner that minimizes their visibility in the direction of local residences. Figure 1.1-2m provides a USGS topographic map excerpt of the location of Station 319 compressor facility.

Station 321 (Modified)[1]

Tennessee proposes to replace three compressor drivers and re-stage the associated compressor units at its existing Station 321 located in Clifford Township, Susquehanna County, Pennsylvania. The existing gas turbine engines will be replaced with three new gas turbines rated at 4,700 hp each. The new engines will result in a total installation of 14,100 hp within the existing facility footprint, which represents replacement of the existing 10,000 hp and a net increase of 4,100 hp for the station. The increased horsepower will result from the installation of the closest size of currently available, marketed and supported gas turbines. Three retrofitted compressor units will be installed inside the existing compressor building after the existing compression equipment is removed for replacement. The concrete foundation that supports the compression equipment inside the existing compressor building will be modified as necessary to provide structural support that will match the configuration of the retrofitted units. Auxiliary equipment will require new foundations outside the existing compressor building. The existing duct penetrations in the building walls will be modified as necessary to accommodate air inlet and exhaust ducts associated with the replacement compression equipment. Minor construction will be required to up-grade the existing electric power utility service into the station. No new rights-of-way are required for the upgrade. No additional visual screening is planned beyond existing on-site visual screening. The outdoor lighting for the existing compressor station is limited during un-manned night time operation to the minimum amount required for security. The station security system incorporates outdoor video cameras that must have sufficient outdoor lighting in order to record clear images at night. New outdoor lighting may be required in the area around the new filter-separator equipment. If new lights are installed, the lights will have directional control or they will be positioned in a manner that minimizes their visibility in

[1] In February 2009, Tennessee installed a temporary compressor unit in order to compensate for a failing unit at Station 321. Pursuant to Section 157.209 of the Commission's regulations, Tennessee will report the installation of the temporary unit in its annual report of blanket certificate activities for the calendar year 2009. Subsequent to performing the upgrades proposed by Tennessee as part of the Project, the temporary unit will be removed from service at this location. In compliance with Section 157.209, such removal shall be reported in the appropriate blanket certificate report.

the direction of local residences. Figure 1.1-2n provides a USGS topographic map excerpt of the location of Station 321 compressor facility.

Station 323 (Modified)

Tennessee proposes to install an inlet gas filter-separator at its Station 323 located in Lackawaxen Township, Pike County, Pennsylvania. No utility construction work is required for this station. No additional visual screening is planned beyond existing on-site visual screening. Figure 1.1-2o provides a USGS topographic map excerpt of the location of Station 323 compressor facility.

Station 325 (Modified)

Tennessee proposes to replace two compressor units, totaling 9,442 hp, with two new 10,310 hp natural gas driven turbine compressor units at its Station 325 located in Sussex County, NJ. The new compressor units will be installed in the existing compressor building. The installation of these units replaces existing hp and increases station power by 11,220 hp. New compression equipment will be installed inside the existing compressor building after the existing compression equipment is removed for replacement. The concrete foundation that supports the compression equipment inside the existing compressor building will be modified as necessary to provide structural support that will match the new compression equipment configuration. New auxiliary equipment will require new foundations outside the existing compressor building. The existing duct penetrations in the building walls will be modified as necessary to accommodate air inlet and exhaust ducts associated with the new equipment. The existing building crane will be modified for a larger lifting capacity. Minor construction will be required to up-grade the existing electric power utility service into the station. No new rights-of-way are required for the upgrade. No additional visual screening is planned beyond existing on-site visual screening. The outdoor lighting for the existing compressor station is limited during un-manned night time operation to the minimum amount required for security. The station security system incorporates outdoor video cameras that must have sufficient outdoor lighting in order to record clear images at night. New outdoor lighting may be required in the area around the new filter-separator equipment. If new lights are installed, the lights will have directional control or they will be positioned in a manner that minimizes their visibility in the direction of local residences. Figure 1.1-2p provides a USGS topographic map excerpt of the location of Station 325 compressor facility.

1.1.2.2.2 Main Line Valves

Each pipeline looping segment with the exception of Loop 319A will require the installation of new 30-inch main line valve assemblies. The MLV assemblies will be sited adjacent to existing MLV sites located along the existing 300 Line 24-inch pipeline to the extent practicable. This will allow for both valve assemblies to be located within a singled fenced enclosure. Workspace associated with the MLVs on the loop segments will be located within the workspace designated for the pipeline construction. A blow-down valve is incorporated in the design of each MLV assembly. Each blow-down valve will be equipped with a silencer. Table 1.1-4 provides a summary and location of all appurtenant aboveground facilities associated with the Project. Additionally, all appurtenant aboveground facilities, including MLV locations, have been identified on the applicable loop segment USGS topographic map excerpt.

1.1.2.2.3 Pig Launchers / Receivers

To comply with Tennessee's integrity management program, the Project has been designed to incorporate aboveground facilities to accommodate internal inspection of the proposed pipeline loops. The seven main loop segments will be installed with either a launcher or receiver, as appropriate. The 1.2-mile loop segment associated with Loop 319A will not have a launcher or receiver installed based on its short length and lack of high consequence areas. The launcher/receiver facilities will consist of aboveground 36-inch trap barrels with 30-inch trap valves, 24-inch side valves, and 8-inch kicker valves, and other miscellaneous safety and isolation piping and valves. The launcher and receiver facilities will consist of discrete aboveground enclosures installed within or immediately adjacent to Tennessee's existing ROW and will include a gravel or grassed base, site access, chain-link fence enclosure for security purposes, and identification and emergency signage. A blow-down valve is incorporated in the design of each launcher or receiver. Each blow-down valve will be equipped with a silencer. Table 1.1-4 provides a summary including location of all appurtenant aboveground facilities associated with the Project. All appurtenant aboveground facilities, including pig launcher and receiver locations, have been identified on the applicable loop segment USGS topographic map excerpt.

1.1.3 Location Maps, Detailed Site Maps, and Plot/Site Maps

The regional location of the Project is illustrated in Figure 1.1-1. The Project facilities, including pipeline looping facilities, compressor stations, staging yards/pipe yards, and access roads, are shown on the full-sized USGS 7.5-minute topographic quadrangle maps located in Volume IIB – Appendix L. Also, 11 x 17-inch topographic map excerpts with site locations are provided in Figures 1.1-2a through 1.1-2p of Attachment A to this Resource Report. Plot plans for compressor station facilities are provided in Volume III - Appendix P. Aerial alignment sheets are provided as full-sized drawings in Volume IIB – Appendix O.

1.2 LAND REQUIREMENTS

The construction workspace (including additional temporary workspace ("ATWS"), permanent ROW, access roads, cathodic protection, and staging areas) for the Project will total approximately 2,742.46 acres (See Table 1.2-1). Operation of the Project facilities will require approximately 907.57 acres that will be maintained as permanent ROW (or fee property as it pertains to Compressor Station facilities; See Table 1.2-1). See Table 1.2-1 for a summary of all Project-related land requirements including temporary access roads and staging areas. The photo-based alignment sheets in Volume IIB – Appendix O depict the location and configuration of all temporary and permanent construction workspace and access roads required for the Project. Typical Construction Workspace Configurations are also provided in Volume IIA – Appendix C.

TABLE 1.2-1
SUMMARY OF LAND REQUIREMENTS FOR THE
300 LINE PROJECT

Facility	Land Affected During Construction (acres)		Land Affected During Operation (acres)		Total
	Within Existing Permanent Easement [b]	Outside Existing Permanent Easement	Within Existing Permanent Easement	New Permanent Easement	
Pipeline	922.7 [c]	175.3 [c]	630.75 [d]	149.25 [d]	1878
Add'l Temp. Work Space	21.84	413.16	0	0	435
Aboveground Facilities[a]	44.4	9.6	2.9	21.6	78.5
Access Roads	0	4.89	0	103.07	107.96
Staging Areas/ Pipe Yards	0	243	0	0	243
PROJECT TOTAL	**988.94**	**845.95**	**633.65**	**273.92**	**2742.46**
	1834.89		**907.57**		

a: Impact calculations are for Compressor Station facilities only. All appurtenant ancillary aboveground facilities, including main line valves, and pig launcher/receivers will be constructed and operated within areas of existing or new permanent easement associated with the pipeline loop facilities.
b: Permanent easement associated with existing 300 Line (variable width).
c: Temporary workspace only.
d: Permanent easement associated with new pipeline loops.

1.2.1 Pipeline Facilities

The temporary construction work area for the pipeline facilities is estimated at 1,780.89 acres. The construction work area consists of temporary workspace ("TWS"), additional temporary workspace ("ATWS"), access roads, staging areas, pipe yards and contractor yards, and existing permanent ROW required for the approximately 128.7 miles of new pipeline loops. The land required for the ongoing operation of the Project (permanent ROW) is approximately 883.07 acres. Typically, pipeline construction will require up to 100 feet of workspace (equivalent to the Land Affected During Construction column in Table 1.2-1) abutting the existing ROW. Tables 1.2-2 through 1.2-8 summarize land acreage requirements by loop segment for construction and operation of the Project facilities. A detailed discussion of construction and operational (permanent) acreage requirements by land use type is presented in Resource Report 8. Pipeline ROW workspace configurations and dimensions are indicated

on the aerial alignment sheets in Volume IIB – Appendix O and in the Typical Construction Workspace Configurations in Volume IIA – Appendix C.

Tennessee proposes to use the typical construction ROW configurations listed in Tables 1.2-2 through 1.2-8 below. The construction workspace consists of the combinations of existing permanent ROW, proposed permanent ROW, and proposed TWS shown in the tables below (please also refer to typical ROW configuration drawings – Volume IIA – Appendix C).

Vegetation within the permanent ROW will be maintained in an herbaceous state, except in wetlands and adjacent to perennial streams, where maintenance clearing of woody vegetation will be limited to a ten-foot-wide strip centered directly over the pipeline. Here, the remaining temporary and permanent corridor will revert to its pre-construction land use/land cover once construction is complete. Crop production will be allowed to continue in agricultural areas. Typical cross sections for pipeline construction/operation and topsoil segregation are shown in Volume IIA – Appendix C.

TABLE 1.2-2
LAND REQUIREMENTS FOR THE 300 LINE PROJECT
LOOP 313 PIPELINE FACILITIES

Loop ID	Facility	ROW Cross-Section[a]		Length (Linear Feet) / Number of Sites	Land Affected During Construction (acres)		Land Affected During Operation (acres)		Total
		Drawing Number	Mileposts		Within Existing Permanent Easement[b]	Outside Existing Permanent Easement	Within Existing Permanent Easement	New Permanent Easement	
313	Pipeline	Figure 1-1-ROW Figure 1-2-ROW		89,361 feet	119.17[c]	62.83[c]	81.83[d]	21.17[d]	285
	Add'l Temp. Workspace	N/A	N/A[e]	81 sites	3.33	82.67	0	0	86
	Cathodic Protection System[f]	N/A	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined
	Pipe Yards/ Contractor Yards	N/A	N/A	1 site	0	40	0	0	40
	Access Roads	N/A	N/A[e]	18 roads	0	0	0	35.63	35.63
LOOP 313 TOTAL					**122.50**	**185.5**	**81.83**	**56.80**	**446.63**
					308		**138.63**		

a: See Volume IIA - Appendix C for Typical ROW Configurations.
b: Permanent easement associated with existing 300 Line (variable width).
c: Temporary workspace only.
d: Permanent easement associated with new pipeline loops.
e: See Resource Report 8 for detailed locational information of Additional Temporary Workspace areas and Access Roads.
f: Land requirements for cathodic protection systems will be included in the Final Environmental Report.

TABLE 1.2-3
LAND REQUIREMENTS FOR THE 300 LINE PROJECT
LOOP 315 PIPELINE FACILITIES

Loop ID	Facility	ROW Cross-Section[a]		Length (Linear Feet) / Number of Sites	Land Affected During Construction (acres)		Land Affected During Operation[c] (acres)		Total
		Drawing Number	Mileposts		Within Existing Permanent Easement [b]	Outside Existing Permanent Easement	Within Existing Permanent Easement	New Permanent Easement	
315	Pipeline	Figure 1-1-ROW Figure 1-2-ROW		89,686 feet	155.31 [c]	2.69 [c]	99.93 [d]	2.07 [d]	260
	Add'l Temp. Workspace	N/A	N/A[e]	86 sites	2.76	59.24	0	0	62
	Cathodic Protection System[f]	N/A	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined
	Pipe Yards/ Contractor Yards	N/A	N/A	2 site	0	40	0	0	40
	Access Roads	N/A	N/A[e]	11 roads	0	4.32	0	11.32	15.64
LOOP 315 TOTAL					**158.07**	**106.25**	**99.93**	**13.39**	**377.64**
					264.32		**113.32**		

a: See Volume IIA - Appendix C for Typical ROW Configurations.
b: Permanent easement associated with existing 300 Line (variable width).
c: Temporary workspace only.
d: Permanent easement associated with new pipeline loops.
e: See Resource Report 8 for detailed locational information of Additional Temporary Workspace areas and Access Roads.
f: Land requirements for cathodic protection systems will be included in the Final Environmental Report.

TABLE 1.2-4
LAND REQUIREMENTS FOR THE 300 LINE PROJECT
LOOP 317 PIPELINE FACILITIES

Loop ID	Facility	ROW Cross-Section[a]		Length (Linear Feet) / Number of Sites	Land Affected During Construction (acres)		Land Affected During Operation (acres)		Total
		Drawing Number	Mileposts		Within Existing Permanent Easement[b]	Outside Existing Permanent Easement	Within Existing Permanent Easement	New Permanent Easement	
317	Pipeline	Figure 1-1-ROW Figure 1-2-ROW		118,657 feet	171.92[c]	25.08[c]	116.54[d]	19.46[d]	333
	Add'l Temp. Workspace	N/A	N/A[e]	141 sites	5.73	62.27	0	0	68
	Cathodic Protection System[f]	N/A	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined
	Pipe Yards/ Contractor Yards	N/A	N/A	2 site	0	38	0	0	38
	Access Roads	N/A	N/A[e]	6 roads	0	0.3	0	5.22	5.52
LOOP 317 TOTAL					**177.65**	**125.65**	**116.54**	**24.68**	**444.52**
					303.3		**141.22**		

a: See Volume IIA - Appendix C for Typical ROW Configurations.
b: Permanent easement associated with existing 300 Line (variable width).
c: Temporary workspace only.
d: Permanent easement associated with new pipeline loops.
e: See Resource Report 8 for detailed locational information of Additional Temporary Workspace areas and Access Roads.
f: Land requirements for cathodic protection systems will be included in the Final Environmental Report.

TABLE 1.2-5
LAND REQUIREMENTS FOR THE 300 LINE PROJECT
LOOP 319 PIPELINE FACILITIES

Loop ID	Facility	ROW Cross-Section[a]		Length (Linear Feet) / Number of Sites	Land Affected During Construction (acres)		Land Affected During Operation (acres)		Total
		Drawing Number	Mileposts		Within Existing Permanent Easement [b]	Outside Existing Permanent Easement	Within Existing Permanent Easement	New Permanent Easement	
319	Pipeline	Figure 1-1-ROW Figure 1-2-ROW		94,518 feet	157 [c]	0 [c]	101.97 [d]	7.03 [d]	267.03
	Add'l Temp. Workspace	N/A	N/A[e]	102 sites	3	55	0	0	58
	Cathodic Protection System[f]	N/A	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined
	Pipe Yards/ Contractor Yards	N/A	N/A	1 site	0	40	0	0	40
	Access Roads	N/A	N/A[e]	8 roads	0	0	0	3.90	3.90
LOOP 319 TOTAL					**161.03**	**95**	**101.97**	**10.93**	**368.93**
					256.03		**112.9**		

a: See Volume IIA - Appendix C for Typical ROW Configurations.
b: Permanent easement associated with existing 300 Line (variable width).
c: Temporary workspace only.
d: Permanent easement associated with new pipeline loops.
e: See Resource Report 8 for detailed locational information of Additional Temporary Workspace areas and Access Roads.
f: Land requirements for cathodic protection systems will be included in the Final Environmental Report.

TABLE 1.2-6
LAND REQUIREMENTS FOR THE 300 LINE PROJECT
LOOP 321 PIPELINE FACILITIES

Loop ID	Facility	ROW Cross-Section[a]		Length (Linear Feet) / Number of Sites	Land Affected During Construction (acres)		Land Affected During Operation (acres)		Total
		Drawing Number	Mileposts		Within Existing Permanent Easement [b]	Outside Existing Permanent Easement	Within Existing Permanent Easement	New Permanent Easement	
321	Pipeline	Figure 1-1-ROW Figure 1-2-ROW		117,653 feet	179.36 [c]	8.64 [c]	120.02 [d]	14.98 [d]	323
	Add'l Temp. Workspace	N/A	N/A[e]	139 sites	5.48	54.52	0	0	60
	Cathodic Protection System[f]	N/A	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined
	Pipe Yards/ Contractor Yards	N/A	N/A	1 site	0	40	0		40
	Access Roads	N/A	N/A[e]	14 roads	0	0.27	0	15.64	15.91
LOOP 321 TOTAL					**184.84**	**103.43**	**120.02**	**30.62**	**438.91**
					288.27		**150.64**		

a: See Volume IIA - Appendix C for Typical ROW Configurations.
b: Permanent easement associated with existing 300 Line (variable width).
c: Temporary workspace only.
d: Permanent easement associated with new pipeline loops.
e: See Resource Report 8 for detailed locational information of Additional Temporary Workspace areas and Access Roads.
f: Land requirements for cathodic protection systems will be included in the Final Environmental Report.

TABLE 1.2-7
LAND REQUIREMENTS FOR THE 300 LINE PROJECT
LOOP 323 PIPELINE FACILITIES

Loop ID	Facility	ROW Cross-Section[a]		Length (Linear Feet) / Number of Sites	Land Affected During Construction (acres)		Land Affected During Operation (acres)		Total
		Drawing Number	Mileposts		Within Existing Permanent Easement [b]	Outside Existing Permanent Easement	Within Existing Permanent Easement	New Permanent Easement	
323	Pipeline	Figure 1-1-ROW Figure 1-2-ROW		78,643 feet	75 [c]	0.22 [c]	56.15 [d]	33.85 [d]	165
	Add'l Temp. Workspace	N/A	N/A[e]	67 sites	0.42	46.58	0	0	47
	Cathodic Protection System[f]	N/A	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined
	Pipe Yards/ Contractor Yards	N/A	N/A	1 site	0	5	0	0	5
	Access Roads	N/A	N/A[e]	12 roads	0	0	0	23	23
LOOP 323 TOTAL					**75.42**	**51.58**	**56.15**	**56.85**	**240**
					127		**113**		

a: See Volume IIA - Appendix C for Typical ROW Configurations.
b: Permanent easement associated with existing 300 Line (variable width).
c: Temporary workspace only.
d: Permanent easement associated with new pipeline loops.
e: See Resource Report 8 for detailed locational information of Additional Temporary Workspace areas and Access Roads.
f: Land requirements for cathodic protection systems will be included in the Final Environmental Report.

TABLE 1.2-8
LAND REQUIREMENTS FOR THE 300 LINE PROJECT
LOOP 325 PIPELINE FACILITIES

Loop ID	Facility	ROW Cross-Section[a]		Length (Linear Feet) / Number of Sites	Land Affected During Construction (acres)		Land Affected During Operation (acres)		Total
		Drawing Number	Mileposts		Within Existing Permanent Easement [b]	Outside Existing Permanent Easement	Within Existing Permanent Easement	New Permanent Easement	
325	Pipeline	Figure 1-1-ROW Figure 1-2-ROW		91,202 feet	64.94 [c]	76.06 [c]	54.31 [d]	50.69 [d]	246
	Add'l Temp. Workspace	N/A	N/A[e]	110 sites	1.12	52.88	0	0	54
	Cathodic Protection System[f]	N/A	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined	To be Determined
	Pipe Yards/ Contractor Yards	N/A	N/A	1 site	0	40	0	0	40
	Access Roads	N/A	N/A[e]	7 roads	0	0	0	8.36	8.36
LOOP 325 TOTAL					**66.06**	**168.94**	**54.31**	**59.06**	**348.36**
					235		**113.36**		

a: See Volume IIA - Appendix C for Typical ROW Configurations.
b: Permanent easement associated with existing 300 Line (variable width).
c: Temporary workspace only.
d: Permanent easement associated with new pipeline loops.
e: See Resource Report 8 for detailed locational information of Additional Temporary Workspace areas and Access Roads.
f: Land requirements for cathodic protection systems will be included in the Final Environmental Report.

1.2.2 Aboveground Facilities

The aboveground facilities proposed for the Project include both minor aboveground piping associated with valve sites and internal inspection, and major aboveground facilities, including new and modified existing compressor stations. The two new compressor stations are located in Venango and McKean Counties, Pennsylvania. Land sites adjacent to the existing 300 Line ROW are being acquired for installation of the two new compressor stations. The proposed modifications to the seven existing compressor stations will be made either in the existing compressor station buildings or within the developed footprint at the compressor station properties. These major facilities require larger areas to accommodate not only the physical structure of each facility but also to facilitate construction of the facilities, including equipment and materials storage and lay-down areas. The land requirements for each new and modified compressor station facility are summarized in Table 1.2-9.

The minor aboveground facilities proposed for the Project, including new main line valves and internal inspection facilities, require smaller areas for development and can typically be constructed within the existing ROW limits. Where the existing ROW area would not accommodate installation of the minor aboveground facilities associated with the Project, Tennessee shall either negotiate an easement for additional land adjacent to the existing ROW or shall purchase property traversed by the existing pipeline ROW for construction of the facilities. Table 1.2-10 provides a summary of the land requirements for construction and operation of minor appurtenant aboveground facilities for the Project.

TABLE 1.2-9
LAND REQUIREMENTS FOR THE 300 LINE PROJECT
COMPRESSOR STATION FACILITIES

Facility	New / Modified	Approximate Milepost	Township	County / State	Land Affected During Construction[a] (acres)	Land Affected During Operation[b] (acres)
Station 303	New	Not Applicable	Cranberry	Venango / PA	7.0	14.0
Station 310		Not Applicable	Sergeant	McKean / PA	2.6	7.6
Station 313	Modified[c]	Not Applicable	Hebron	Potter / PA	15.2	2.5
Station 315		Not Applicable	Delmar	Tioga / PA	4.5	0.07
Station 317		Not Applicable	Troy	Bradford / PA	4.7	0.04
Station 319		Not Applicable	Tuscarora	Bradford / PA	2.5	0.03
Station 321		Not Applicable	Clifford	Susquehanna / PA	10.6	0.04
Station 323		Not Applicable	Lackawaxen	Pike / PA	1.4	0.04
Station 325		Not Applicable	Wantage	Sussex / NJ	5.5	0.18
Project Total					**54.0**	**24.5**

a: Land Affected During Construction is based on the extent of temporary workspace and additional temporary workspace.
b: Land Affected During Operation is based on the extent of the land that will be maintained during operation of the aboveground facilities.
c: The land identified for construction and operation of the existing compressor station modifications is currently owned by Tennessee. No new land acquisition will be required for the existing compressor stations.

TABLE 1.2-10
LAND REQUIREMENTS FOR THE 300 LINE PROJECT
APPURTENANT ABOVEGROUND FACILITIES[a]

Loop ID[d]	Facility	Approximate Milepost	Township	County / State	Land Affected During Construction[b] (acres)	Land Affected During Operation[c] (acres)
313	Pig Launcher	0.0	Allegany	Potter / PA	1.87	0.26
	MLV 314-2	10.5	Hector	Potter / PA	0.23	0.03
315	MLV 316-2	8.5	Richmond	Tioga / PA	0.9	0.23
	Pig Receiver	16.9	Sullivan	Tioga / PA	1.95	0.3
317	MLV 318-2	14.6	Towanda	Bradford / PA	0.23	0.03
	Pig Receiver	22.5	Asylum	Bradford / PA	0.6	0.3
319	Pig Launcher	0.0	Tuscarora	Bradford / PA	0.6	0.26
	MLV 320-2	7.1	Springville	Susquehanna / PA	0.46	0.02
321	MLV 322-2	11.5	Clinton	Wayne / PA	0.29	0.03
	Pig Receiver	22.2	Berlin	Wayne / PA	0.6	0.3
323	Pig Launcher	0.0	Lackawaxen	Pike / PA	0.6	0.26
	MLV 324-2A	9.8	Shohola	Pike / PA	0.1	0.03
	Pig Receiver	14.9	Milford	Pike / PA	0.9	0.26
325	MLV 326-2	4.2	Vernon	Sussex / NJ	0.1	0.03
	MLV 327-2	11.4	West Milford	Passaic / NJ	0.1	0.03
	MLV 327-2A	14.7	West Milford	Passaic / NJ	0.1	0.03
	Pig Receiver	17.26	Ringwood	Passaic / NJ	0.6	0.3
Project Total					**10.23**	**2.70**

a: The acreage of land affected during construction and operation of the proposed appurtenant aboveground facilities is included within the impacts associated with each pipeline loop within Tables 1.2-2 through 1.2-8.
b: Land Affected During Construction is based on the extent of temporary workspace, additional temporary workspace, and permanent right-of-way.
c: Land Affected During Operation is based on the extent of the land that will be maintained during operation of the aboveground facilities.
d: No new aboveground facilities are associated with Loop 319A.

1.2.3 Staging Areas and Pipe Yards

Locations in the vicinity of the pipeline loops have been identified for potential use as staging areas, pipeyards, and/or contractor yards during construction of the Project, however the site selection process is on-going and has not been completed. Tennessee has determined and identified the approximate acreage necessary for use as staging areas and pipe yards for each of the pipeline loops, and has included these acreages in the overall land requirements for the Project detailed in Tables 1.2-1 through 1.2-8. These areas will be used for equipment, pipe, and material storage, as well as temporary field offices and pipe preparation/field assembly areas. Tennessee is currently negotiating with landowners to secure access to some of these locations for use during Project construction; site selection and acquisition will continue throughout the planning and permitting stages of the Project. Please refer to Resource Report 8 for

additional information regarding the pipeyards/staging areas associated with the Project. Locations of proposed staging areas, pipeyards, and contractor yards are included on both the USGS topographic map excerpts included as Attachment A to the resource report as well as the full-size USGS topographic maps in Volume IIB – Appendix L of this ER.

1.2.4 Access Roads

Tennessee anticipates using existing public and private roadways to access the construction ROW. The identification of locations, configurations, and acquisition of the access roads for each of the pipeline loop segments will continue throughout the planning and permitting stages of the Project. The access roads to be utilized during Project construction are identified in Table 1.2-11, below. Please refer to Resource Report 8 for summary tables providing a description of each access road including information on milepost location and length. Locations of proposed access roads are included on both the USGS topographic map excerpts as well as the full-size USGS topographic maps located in Volume IIB– Appendix L of this ER.

1.2.5 Additional Temporary Workspace

ATWS areas are typically required at road, railroad, wetlands, and waterbody crossing locations and for areas requiring specialized construction techniques, including steep slopes. The configuration of ATWS areas are based upon site-specific conditions and will vary in accordance with the construction methodology and crossing type. ATWS land requirements are summarized for each pipeline loop in Tables 1.2-2 to 1.2-8. A complete list of ATWS locations by milepost is provided in Resource Report 8.

1.3 CONSTRUCTION PROCEDURES

The Project facilities will be designed, constructed, tested, operated, and maintained to conform with federal, state, and local requirements including 49 CFR Part 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards" and 18 CFR Section 380.15, "Siting and Maintenance Requirements". In addition, unless otherwise authorized through a variance granted by FERC, Tennessee will comply with the Commission's Upland Erosion Control, Revegetation and Maintenance Plan (the "Plan", January 17, 2003 version) and the Commission's Wetland and Waterbody Construction and Mitigation Procedures (the "Procedures", January 17, 2003 version) through implementation of Tennessee's project-specific construction, restoration, and mitigation plan developed for the 300 Line Project. The document, entitled *Environmental Construction Plan – 300 Line Project, Pennsylvania and New Jersey* ("ECP"), incorporates Tennessee's Spill Prevention Control and Countermeasure ("SPCC") Plan, Unanticipated Discovery Plan for cultural resources, Waste Management Plan, and typical construction workspace layout drawings. This document has been included in Volume IIA Appendix E of this ER. Proposed Project-specific variances to the Plan and Procedures are detailed in Section 1.3.1.9.9 as well as Resource Report 8.

1.3.1 Pipeline Construction

The general procedures that will be followed for the Project are described in this section. Tennessee will use conventional techniques for buried pipeline construction and will follow the requirements set forth in Tennessee's ECP (See Volume IIA – Appendix D), to ensure safe, stable, and reliable transmission facilities consistent with Commission and U.S. Department of Transportation ("DOT") specifications. At a minimum, Tennessee will perform the following procedures:

- Marking the corridor;
- Clearing and grading;
- Trenching;
- Stringing;
- Pipe preparation (bending, welding, X-ray, weld coating and coating repair) and lowering in;
- Backfilling and grade restoration;
- Hydrostatic testing and tie-ins; and
- Cleanup and restoration.

The above-listed procedures will typically follow in the sequence listed. Areas requiring special construction techniques may include: road or utility crossings, waterbodies and wetlands, unusual topographies such as unstable soils and trench conditions, residential or urban areas, agricultural areas, areas requiring rock removal and permanent recreation facilities.

1.3.1.1 Marking the Corridor

Land survey crews marked the centerline of Tennessee's existing 300 Line pipeline with stakes in the Fall of 2008. The center line has been marked at frequent intervals as well as at known crossings of foreign lines and utilities, at road crossings and at points of inflection ("PI"). Additionally, avoidance areas including wetland boundaries, cultural resource sites and rare species habitat, as applicable, will be marked with appropriate fencing, signage and/or flagging based on environmental and archaeology surveys and environmental permit conditions.

1.3.1.2 Clearing, Grading, and Fencing

The construction corridor will be cleared and graded to remove brush, trees, roots, and other obstructions such as large rocks and stumps. Non-woody vegetation may be mowed to ground level. Temporary fences and gates will be installed as needed. No cleared material will be placed within wetland areas.

Tennessee anticipates disposal of trees cleared from the ROW using several different methods. Trees, if suitable, may be taken off-site by the clearing contractor and used for timber. Trees may be chipped on-site and removed. Chipped material not removed may be spread across the ROW within upland areas in a manner that does not inhibit revegetation. No wood chips shall be spread directly in wetland areas or within fifty feet of wetland areas. In all other cases, trees and other woody vegetation will be properly disposed off-site. Tennessee does not plan to use timber stacks as wildlife habitat. In accordance with 18 CFR Section 380.15, all trees and vegetation cleared from the ROW will be disposed of according to the methods detailed above without undue delay.

Should individual landowners wish to utilize the trees cleared from the ROW, the trees will be stacked at the edge of the ROW in areas identified by the Environmental Inspector ("EI")prior to the commencement of clearing activities and directly accessible to the landowner in accordance with individual landowner agreements. Timber shall only be stacked along the ROW at the specific request of

a landowner, under the condition that it is out of public view and will be accessible to the landowner without disturbing the restored right of way.

Grading activities will be scheduled to minimize the time between initial clearing operations and the actual installation of pipe. Access to the construction corridor will normally be obtained via public roads that intersect the ROW. Permission will be obtained from landowners for the use / upgrade of access roads across their property to the construction corridor. At the request of a landowner, Tennessee shall erect temporary gates along access roads where necessary.

Immediately following clearing of the construction ROW, Tennessee will install appropriate temporary erosion controls. Typically, staked straw bales or silt fence barriers are positioned along the limit of wetland boundaries within the construction workspace. The EI will monitor field conditions daily to ensure that appropriate erosion and sedimentation control measures are maintained until the construction work space is fully stabilized.

Grading of the construction workspace will allow the movement of heavy equipment and the safe passage of work crews. Grading will include removing rock outcrops, tree stumps, ridges and topographic irregularities. Generally, machinery will operate on one side of the trench (working side) with excavated materials stockpiled on the other (non – working side).

As appropriate, the clearing and grading operations will incorporate special construction procedures to minimize the amount of vegetation removed from stream banks and slopes, prevent undue disturbance of the soil profile, restore the original contours of the natural ground and prevent topsoil erosion. To minimize impact to the soil profile on agricultural lands, topsoil will be segregated from subsoil across the entire width of the ROW during trenching and will remain segregated during construction to avoid loss due to mixing with subsoil material. Upon the completion of backfilling operations, the topsoil will be properly replaced over the graded area.

Grading activities will be scheduled to minimize the time between initial clearing operations and the actual installation of pipe. Access to the construction corridor will normally be obtained via public roads that intersect the ROW. Permission will be obtained from landowners for the use / upgrade of access roads across their property to the construction corridor and also for cutting trees and erecting temporary gates along access roads where necessary.

1.3.1.3 Trenching

In most areas characterized by normal soils, the trench for the pipeline is excavated by crawler-mounted, rotary wheel-type trenching machines or track–mounted excavators. The trench generally will be approximately 14 inches wider than the diameter of the pipe and of sufficient depth to allow for the minimum cover requirements to the top of the pipe in accordance with DOT regulations pursuant to the Natural Gas Pipeline Safety Act of 1968. Landowner requests or permitting requirements may dictate greater depth.

Crossing of foreign pipelines will generally require the pipeline to be buried at greater depths depending upon the depth of the foreign pipeline. A minimum of 12 inches of clearance will be maintained when crossing foreign pipelines, utilities or other structures. Pipeline burial depths in areas requiring special construction techniques through rock will be in accordance with DOT requirements, 49 CFR Part 192. Prior to the commencement of construction activities, the “Dig-Safe” call system for the states of

Pennsylvania and New Jersey, as well as the national "811" call system, will be contacted to have underground utilities and foreign pipelines identified and marked. Trenching in the vicinity of these foreign utilities will begin only after completing the appropriate notification procedures.

In accordance with the Tennessee's ECP, measures will be employed to minimize erosion during trenching operations and construction activities. Measures also will be taken to minimize the free flow of water into the trench and through the trench into waterbodies. Compacted earth for temporary trench breakers and sandbags for permanent trench breakers may be installed within the trench to reduce erosion.

1.3.1.4 Pipe Stringing

The stringing operation involves moving the pipe into position along the prepared ROW. Pipe will be delivered to the Project area's pipeline storage areas typically by truck and will then moved by truck from the pipeline storage areas to the construction zone, where it will be placed along the ROW in a continuous line in preparation for subsequent lineup and welding operations. Individual joints of pipe will be strung along the ROW parallel to the centerline and arranged so they are easily accessible to construction personnel. The amount of pipe necessary for stream or road crossings will be stockpiled in pipeline storage areas in the vicinity of each crossing. Stringing activities will be coordinated with the advance of the trenching and pipe laying crews to minimize the potential impact to the resources.

1.3.1.5 Pipe Preparation and Lowering-In

Each welder will be qualified in accordance with federal regulations using approved welding procedures. The pipe joints will be welded together using qualified welding procedures. Qualified inspectors will perform inspection of the pipe welding. Bending, welding and coating in the field will comply with DOT regulations, 49 CFR Part 192.

The pipe will be protected with an external coating designed to protect the pipe from corrosion. Except for a small area at both ends of each pipe joint, this coating is generally applied at the pipe mill before shipment to the site. The weld locations are coated in the field with similar or compatible materials. The pipe coating is inspected for defects and repaired, if necessary, prior to backfilling.

Once the pipeline has been welded together, coated and inspected, the pipe is lowered into the trench. If the bottom of the trench is rocky, methods to protect the pipe will be used, including the possible use of sandbags or support pillows at designated intervals along the trench. Trench dewatering may be required in certain locations to prevent the pipe from floating and also to perform certain limited activities in the trench. Trench dewatering will be performed in accordance with Tennessee's ECP.

1.3.1.6 Backfilling and Grade Restoration

After lowering the pipe into the trench, the trench will be backfilled. Backfill usually consists of the material originally excavated from the trench; however, in some cases, additional backfill from other sources may be required. Any excess excavated materials or materials unsuitable for backfill will be spread evenly over the construction corridor or disposed of in accordance with applicable regulations. In areas where topsoil has been segregated, the subsoil will be placed in the trench first and then the topsoil will be placed over the subsoil. Backfilling will occur to approximate grade. However, a soil crown may be placed above the trench at the discretion of the Tennessee inspector to accommodate any future soil settlement.

1.3.1.7 Clean-up and Restoration

After the completion of backfilling, disturbed areas will be graded, and any remaining trash and debris will be properly disposed of in compliance with federal, state, and local regulations. The construction corridor will be protected through the implementation of erosion control measures including site specific contouring, permanent slope breakers, mulching, and reseeding or sodding with soil-holding vegetation. Contouring will be accomplished using acceptable excess soils from construction. If sufficient soils are not available, additional soil will be obtained from approved sources.

Tennessee will restore the construction workspace in accordance with its ECP, applicable seed mix requirements from the National Resource Conservation Service or applicable state and county Soil and Water Conservation Districts and relevant landowner agreements (See Appendix D located in Volume IIA of this ER).

1.3.1.8 Hydrostatic Testing and Tie-Ins

Hydrostatic testing procedures are described in Section VII of the Commission's Procedures as well as Tennessee's ECP (See Appendix D Volume IIA of the ER). Tennessee will seek coverage under the Pennsylvania National Pollutant Discharge Elimination System ("PA NPDES") General Permit (PAG 10) and New Jersey Pollutant Discharge Elimination System ("NJ NPDES") General Permit (NJ0132993) for hydrostatic test water discharge. Hydrostatic test water will be discharged within an upland area through a filter structure. The pipeline will be tested hydrostatically in accordance with the Federal Safety Standards of the DOT, 49 CFR Part 192. The pipeline will be filled with water and maintained at a test pressure and duration in compliance with Tennessee's Manual of Engineering Standards and applicable federal regulations. After the completion of a satisfactory test, the water will be discharged via a filter fabric containment structure to a vegetated upland area. The discharge rate of the test water will be regulated using values and energy dissipation devices to prevent erosion. Tie-in locations will be cleaned and restored after hydrostatic testing. Please refer to Resource Report 2 for additional information regarding hydrostatic pressure testing of the pipeline, including anticipated water volumes for each loop.

1.3.1.9 Specialized Construction Procedures

Dependent upon site conditions, Tennessee may implement the following special pipeline construction methods in residential, agricultural, and environmentally sensitive areas.

1.3.1.9.1 Rugged Topography

Rugged topography is present along portions of several loop sections (See Table 1.3-1 below and Resource Report 6 for specific locations of shallow depth to bedrock). Permanent trench breakers consisting of sandbags or foam (though gravel or cement filled sacks can also be used) will be installed in the ditch over and around the pipe in areas of slope with high erosion potential. Trench breakers will be used to isolate wet areas and to minimize channeling of groundwater along the ditch line.

In areas along the ROW where steep, rugged topography is encountered, two tone cut and fill construction methods will be utilized for equipment and/ or personnel safety considerations. The need for ATWS at these locations is to accommodate excavated material from the temporary cut and fill areas while allowing for the temporary storage of trench spoil, excess rock material, cut timber, and in some cases

salvageable topsoil. In addition, previously existing rock that is currently stored on the ROW will have to be accounted for in this need for additional ATWS requirement.

When side slopes that require special construction are encountered, the following techniques will be used. During grading, the up-slope side of the pipeline ROW will be cut. The material removed from the cut will be used to fill the down-slope edge of the ROW to provide a safe and level surface from which to operate the heavy equipment. During grade restoration, the spoil is placed back in the cut and compacted. Any springs or seeps found in the cut will be carried down-slope through PVC pipe and / or gravel French drains installed as part of the cut restoration.

In the areas of construction where the slope exceeds 28 degrees or more, a special means of manipulating the construction equipment must be utilized. The preferred method will be "winching" the equipment. This process consists of placing and anchoring a tractor at the top of the slope and using a winch to manipulate the equipment up and down the slope. Table 1.3-1 identifies areas along the proposed pipeline loops where slopes greater than 28 degrees are encountered and the specialized construction techniques noted above may be implemented.

In areas of rugged topography, ROW restoration will begin within 10 days of final pipeline installation to minimize potential erosion and sedimentation control problems.

TABLE 1.3-1
STEEP SLOPES (>28%) CROSSED BY THE 300 LINE PROJECT

Loop ID	MP	Distance (feet)
313	2.97 – 3.26	1,520
	4.35 – 4.61	1,400
	6.53 – 6.80	1,420
	6.86 – 7.16	1,600
	7.48 – 7.76	1,450
	7.89 – 8.21	1,700
	8.33 – 8.41	400
	8.71 – 8.81	500
	11.14 – 11.19	300
	12.50 – 12.58	400
	12.85 – 13.03	950
	14.81 – 14.98	900
	15.15 – 15.42	1,420
Loop 313 Subtotal		**13,960**
315	5.07 – 5.20	700
	9.49 – 9.69	1,050
	9.73 – 9.87	750
	15.86 – 16.35	2,600
Loop 315 Subtotal		**5,100**
317	16.17 – 16.58	2,150
	20.31 – 20.49	950
	20.72 – 20.94	1,180
	21.06 – 21.27	1,100

	22.32 – 22.45	700
Loop 317 Subtotal		**6,080**
319A	0.31 – 0.58	1,430
319	1.26 – 1.49	1,230
	8.46 – 8.55	500
	9.02 – 9.10	450
	9.32 – 9.55	1,250
	15.36 – 15.58	1,150
	15.94 – 16.08	750
Loop 319 Subtotal		**5,330**
321	1.84 – 2.00	820
	4.07 – 4.30	1,200
	7.11 – 7.30	1,000
	17.08 – 17.24	850
	17.57 – 17.75	980
Loop 321 Subtotal		**4,850**
323	1.88 – 2.14	1,420
	2.63 – 3.13	2,620
Loop 323 Subtotal		**4,040**
325	4.62 – 4.98	1,900
	7.45 – 7.56	550
	8.07 – 8.15	450
	11.09 – 11.21	650
	11.52 – 11.74	1,200
	12.36 – 12.41	280
	12.44 – 12.52	440
	12.71 – 12.77	330
	15.29 – 15.39	520
	15.46 – 15.55	460
Loop 325 Subtotal		**6,780**
PROJECT TOTAL		**46,140**

1.3.1.9.2 Residential Areas

Detailed information relative to construction within residential areas, including techniques and mitigation measures to be implemented are discussed within Tennessee's ECP developed for the Project and include in Volume IIA – Appendix D. Additionally, site specific drawings have been developed for occupied residential buildings within 50 feet of the construction workspace (See Volume IIB – Appendix N) to inform affected landowners of proposed measures to minimize disruption and to maintain access to the residences located within 50 feet of the construction work area.

Temporary construction impacts on residential areas could include inconvenience caused by noise and dust generated by construction equipment, personnel, and trenching of roads or driveways; ground disturbance of lawns; removal of trees, landscaped shrubs, or other vegetative screening between residences; potential damage to existing septic systems or wells; and removal of aboveground structures such as fences, sheds, or trailers from within the ROW.

Construction through or near residential areas would be done in a manner to ensure that all construction activities minimize adverse impacts on residences and that cleanup is prompt and thorough. Affected landowners would be notified at least three to five days before construction commences, unless more advance notice is requested by the landowner during easement negotiations. Access to homes would be maintained, except for the brief periods essential for laying the new pipeline. Tennessee would implement general measures to minimize construction-related impacts on all residences and other structures located within 50 feet of the construction ROW, including:

- attempt to maintain a minimum distance of 25 feet between any residence and the edge of the construction work area;
- install a safety fence at the edge of the construction ROW for a distance of 100 feet on either side of the residence;
- fence the boundary of the construction work area to ensure that construction equipment and materials, including the spoil pile, remain within the construction work area;
- attempt to leave mature trees and landscaping intact within the construction work area unless the trees and landscaping interfere with the installation techniques or present unsafe working conditions;
- ensure piping is welded and installed as quickly as reasonably possible to minimize the amount of time a neighborhood is affected by construction;
- backfill the trench within 10 days after the pipe is laid or temporarily place steel plates over the trench; and
- complete final cleanup, grading, and installation of permanent erosion control devices within 10 days after backfilling the trench, weather permitting.

To ensure that the trench is backfilled within 10 days after pipeline installation, Tennessee will use a typical pipeline construction sequence in which the pipeline installation crew is followed by a separate backfill crew. Tennessee will require its contractor, by contractual agreement, to backfill trenches in residential areas as soon as practical after the installation of the pipeline. The minimal length of each construction spread will not require construction crews to be separated by significant distances during pipeline construction. Pipeline construction crews will be in close proximity to each other and will be able to efficiently communicate during the entire construction phase of the Project.

Topsoil in landscaped lawns will either be segregated or topsoil will be imported. Immediately after backfilling, residential areas will be restored and all construction debris will be removed. Compaction testing will be performed and soil compaction mitigation will be performed in severely compacted areas. Lawns will be raked, topsoil added as necessary, and restored per landowner agreements. Ornamental shrubs will be replaced, when possible.

Private property such as mailboxes, fences, gates, and other structures that have been removed will be restored. Sidewalks, driveways, and roads disturbed by pipeline construction would be restored to original or better condition upon completion of construction activities. Additionally, Tennessee will test water wells within 50 feet of the construction workspace, if any, both before and after construction. After cleanup, a Tennessee representative will contact landowners to ensure that conditions of all agreements have been met and that the landowner has been compensated for damage.

If the construction ROW crosses a road, Tennessee would maintain access so residents have ingress/egress to their homes, including the use of steel plates to maintain access. If the road is open cut,

one lane would remain open during construction or traffic would be detoured around the work area through the use of adjacent roadways. Traffic safety personnel would be present during construction periods, and signage and safety measures would be developed in compliance with applicable state and local roadway crossing permits. To the maximum extent practicable, Tennessee would schedule work within roadways to avoid commuter traffic and impacts on school bus schedules.

In general, Tennessee will implement the following practices during construction within residential areas:

Stove-pipe Construction Method

The stove-pipe construction method is typically used when the pipeline is to be installed in very close proximity to an existing structure and an open trench would have an adverse impact. The technique involves installing one joint of pipe at a time whereby the welding, weld inspection, and coating activities are all performed in the open trench, thereby reducing the width of the construction ROW. At the end of each day after the pipe is lowered-in, the trench is backfilled and/or covered with steel plates or timber mats. The length of excavation performed each day cannot exceed the amount of pipe installed.

Drag-section Method

The drag-section construction method is another method that reduces the width of the construction ROW and is normally preferred over the stove-pipe method. This technique involves the trenching, installation, and backfill of a prefabricated length of pipe containing several segments all in 1 day. As in the stove-pipe method, the trench is backfilled and/or covered with steel plates or timber mats at the end of each day after the pipe is lowered in.

1.3.1.9.3 Agricultural Lands

To preserve soil productivity in agricultural lands, topsoil will be segregated across the entire construction workspace and stored separately from subsoil during construction. During the backfilling and restoration phases, topsoil will be replaced, and any stones greater than four inches in diameter uncovered during construction will be removed or handled in accordance with individual landowner agreements. Any drain tiles damaged during construction will be repaired or replaced, and a crop-monitoring program will be implemented to ensure that crop productivity is restored to pre-construction conditions. Please refer to Resource Report 8 for additional information regarding agricultural land crossed by the Project.

1.3.1.9.4 Road and Railroad Crossings

Prior to construction, Tennessee will locate all existing underground utilities and make provisions for traffic management in work areas. The majority of road crossings will be completed using standard open cut or conventional boring methods. Conventional boring entails drilling a hole beneath travel arteries through which the pipe will pass. Additionally, any railroad alignments without rails will be open cut. Resource Report 8 provides additional information regarding the crossing of roadways and railroads associated with the Project.

1.3.1.9.5 Horizontal Directional Drill Technology

Tennessee may employ horizontal directional drill ("HDD") technology during construction of the Project to avoid sensitive resource areas and areas that present difficulties for conventional construction methodologies. Perhaps the greatest advantage of the HDD crossing technique is the fact that open cut trenching and other equipment disturbance within resource areas is not necessary, and, as a result, environmental impact to resource areas is minimized. However, a greater amount of equipment staging is required for HDD than the open cut crossing method. A minimum workspace footprint of 200 feet wide by 250 feet long is required at the entry and exit points to support the drilling operation. The rig side equipment and operations will typically include: the drilling rig and entry hole, control cab, drill string pipe storage, site office and tool storage trailers, power generators, bentonite storage, bentonite slurry mixing equipment, slurry pump, cuttings separation equipment, cuttings return/settlement pit, and the heavy construction equipment necessary to support the operation.

Pipe side equipment and operations will typically include: the exit point and slurry containment pit, cuttings return/settlement pit, cuttings separation and slurry reclamation equipment, drill string pipe storage, and the heavy construction equipment necessary to support the operation. In addition to the drilling operations to be conducted within this workspace footprint, additional temporary ROW width and length is required along the pipe side ROW (or adjacent to the ROW within ATWS in the case of PIs) in which to prefabricate the pipeline into one continuous section in preparation for the pull back. Once assembled, the pipeline is placed on pipe rollers so that it may be conveyed into the drill hole during the pull back operation. Table 1.3-1 provides information on proposed HDD crossings that may be implemented during Project construction.

Other potential negative impacts associated with HDDs involve cathodic protection, which is monitored by the DOT Pipeline and Hazardous Materials Safety Administration (PHMSA). Uneven cathodic protection across the pipeline segment may occur due to the effects of geologic strata changes and difficulty in identifying interference cathodic protection due to external forces. Also, due to the depth of the HDD pipe, pipeline anomalies, external pipeline coating, and direct assessments for stress corrosion cracking and external corrosion cannot be visually inspected or repaired.

Tennessee has developed a HDD Contingency Plan for the Project that establishes procedures for addressing potential impacts associated with a release of drilling fluid through hydraulically induced fractures during the HDD process. In addition, this document establishes the criteria by which Tennessee and the appropriate regulatory agencies would determine when a proposed HDD is unsuccessful and must be abandoned in favor of the approved alternate crossing method. The HDD Contingency Plan for the Project is included in Appendix G – Volume IIA. Additionally, site-specific plans for each proposed HDD have been developed by Tennessee and are included in Appendix N – Volume IIB.

Appropriate noise surveys for the proposed drilling activities have been included in Section 9.2.11 in Resource Report 9.

TABLE 1.3-2
HORIZONTAL DIRECTIONAL DRILL CROSSINGS FOR THE 300 LINE PROJECT

Loop ID	MP	Length[a] (feet)	Township	County / State	Comment
325	5.23 – 5.85	3,308	Vernon	Sussex / NJ	Wetlands & Roads
	5.88 – 6.50	3,242	Vernon	Sussex / NJ	Roads & Subdivision
	15.99 – 16.89	4,797	West Milford	Passaic / NJ	Monksville Reservoir
Project Total		**11,347**	-	-	-

1.3.1.9.6 Blasting

Rock encountered during trenching will be removed using one of the techniques detailed below. The technique selected is dependent on relative hardness, fracture susceptibility, expected volume and location. 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, followed by backhoe excavation;
- Blasting followed by backhoe excavation; or
- 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. Please refer to Resource Report 6, Geological Resources, for details relative to blasting. Mats made of heavy steel mesh or other materials will be used as necessary to prevent scattering of rock and debris. Tennessee will strictly adhere to all local, state, and federal regulations applicable to controlled-blasting and blast vibration limits with regard to structures and underground utilities while performing these activities. Special care will be taken to monitor and assess blasting within 150 feet of dwellings and private or public water supply wells.

Excess rock is defined as all rock that cannot be returned to the existing rock profile in the trench or graded cuts, or is not needed to restore the ROW surface to a condition comparable to that found adjacent to the ROW. Excess rock will be mixed with the subsoil and used to backfill the trench once the padding around the pipe has been installed, randomly distributed across the ROW, used in reclamation efforts, or used as slope stabilizing materials. Large rock not suitable for use as backfill material will either be windrowed along the edge of the ROW with landowner permission, buried on the ROW with landowner permission or hauled off the ROW and disposed of at an approved landfill or recycling facility.

Tennessee has developed a project-specific Blasting Plan for the Project that establishes procedures and safety measures that Tennessee's contractor will be required to adhere to while implementing blasting activities along the pipeline ROW during the Project. Tennessee's contractor will be required to submit a detailed Blasting Specification Plan to Tennessee that is consistent with the provisions of the Blasting Plan and El Paso Construction Specification for Land Pipeline Construction LP-6. The contractor's plan, when approved by Tennessee, will be incorporated into the contractor's scope of work. The Blasting Plan is included as Appendix I in Volume IIA.

1.3.1.9.7 Wetland Crossing Construction

Wetland locations along the pipeline loop segments are described in Resource Report 2 (Water Resources) and shown on the aerial alignment sheets. Pipeline construction across wetlands will be performed in accordance with Tennessee's ECP (see Volume IIA – Appendix D).

Tennessee will utilize one of the following methods for installing the pipeline within wetlands during construction. The wetland impact summary tables (see Resource Report 2) and alignment sheets (Volume IIB – Appendix O) identify the proposed crossing technique for each wetland. The construction methods are:

- Standard Pipeline Construction
- Conventional Wetland Construction
- Push-Pull Technique

These wetland crossing techniques are described in detail in Resource Report 2, Section 2.3.3. Typical drawings depicting these construction methods are located in Tennessee's ECP (see Volume IIA – Appendix D).

1.3.1.9.8 Waterbody Crossing Construction

Waterbody locations along the pipeline loop segments are described in Resource Report 2 (Water Resources) and shown on the aerial alignment sheets. Pipeline construction across waterbodies will be performed in accordance with Tennessee's ECP (see Volume IIA – Appendix D). It is not anticipated that any crossings will take place outside of the timeframes outlined in Tennessee's ECP. If any crossings need to take place outside of the specified timeframes, Tennessee will consult with the applicable state agencies for concurrence to proceed with construction outside of the specified timeframes. The waterbody tables (see Resource Report 2) and alignment sheets (Volume IIB Appendix O) identify the proposed crossing technique for each waterbody. Typical drawings depicting these crossing techniques are located in Tennessee's ECP (Volume IIA – Appendix D).

Tennessee will utilize one of the following methods for installing the pipeline across waterbodies during construction:

Horizontal Directional Drill

HDD technology is discussed in Section 1.3.1.9.5, above. Table 1.3-1 lists the locations for which HDD technology is proposed and the wetland/waterbody resources crossed. Tennessee will develop site-specific plans for each of the proposed HDD sites and these plans will identify failure criteria and include

contingency plans in the event of a frac-out or HDD failure. Site specific HDD plans are included as Appendix N in Volume IIB.

Open Cut Crossing

Minor waterbodies with no discernable flow at the time of construction may be crossed using the open-cut crossing method. A detailed description of this waterbody crossing method is located in Resource Report 2, Section 2.2.9.

Dry Flume Crossing

A flumed or dry crossing of a stream directs the flow of a stream through an alternate mechanism to allow for the trenching and pipe installation to occur in dry conditions. Where practical, this allows for drier trenching, pipe installation and restoration while maintaining continuous downstream flow. A detailed description of this waterbody crossing method is located in Resource Report 2, Section 2.2.9.

Dam and Pump Method

The dam and pump method may be used for crossings of waterbodies where pumps can adequately transfer stream flow volumes around the work area, and there are no concerns about sensitive species passage. A detailed description of this waterbody crossing method is located in Resource Report 2, Section 2.2.9.

All waterbody crossings will comply with the applicable state and local regulations. All applicable permits for construction within waterbodies will be obtained including Section 401 water quality certification from the PADEP Regional Bureaus of Watershed Management and the NJDEP Land Use Regulation Program. Additionally, water obstruction and encroachment permits and freshwater wetland and stream encroachment permits will be obtained from the PADEP and NJDEP, respectively. Erosion and Sediment Control Plans will be reviewed by the Pennsylvania County Soil Conservation Districts. If blasting within streams is necessary, Tennessee will follow the procedures outlined in its ECP and Blasting Plan (see Volume IIA– Appendix D), including securing permits from the Pennsylvania Fish and Boat Commission ("PA FBC").

1.3.1.9.9 Wallkill River National Wildlife Refuge

Standard pipeline construction methods will be utilized across the Wallkill River National Wildlife Refuge ("NWR"), including a dry waterbody crossing of the Wallkill River. Please see Resource Report 3 and Resource Report 8 for additional information on the Wallkill River NWR.

1.3.1.9.10 Project Specific Alternative Measures or Modifications to FERC Plan and Procedures

Below are the deviations from the Commission's Plan and Procedures that Tennessee is requesting for construction of the Project. These deviations are also detailed in Section 9.0 of Tennessee's ECP, included in Volume IIA – Appendix D.

Upland Erosion Control, Revegetation, and Maintenance Plan

1. Tennessee has internal procedures established where the EI is not responsible for developing a program to monitor the success of restoration. The responsibility for developing this program resides with Tennessee personnel. (Plan, at III.B.15.)
2. Tracked equipment may be used to crimp mulch to a depth of 2 to 3 inches. Tennessee may utilize tracked equipment already in use on the ROW in order to minimize the amount of equipment required to work safely on a slope. Minimizing the amount and type of equipment on the ROW after construction also helps protect previously installed erosion controls. In addition, if restoration construction occurs during cold weather, the natural use of thawing and freezing may be used to tack the mulch to the surface. (Plan, at V.F.3.g.)
3. The manufacturer's suggested amount of inoculant is proposed to be used with legume seeds. Tennessee is unaware of any studies that show the benefits of using 10 times the manufacturer's suggested amount of inoculant. (Plan, at VI.D.3.g.)
4. Tennessee proposes to conduct follow-up inspections along the ROW after the second growing season only if restoration is considered unsuccessful after the first growing season. A determination that restoration is successful after the first year's inspection will end further inspections. This alleviates the time, expense and effort associated with redundant monitoring. (Plan, at VIII.A.2.)
5. Tennessee proposes to file activity reports documenting post-construction problems only during quarters where problems have been identified. This alleviates the time, expense, effort and paperwork associated with reporting non-events. (Plan, at VIII.B.2.)

Wetland and Waterbody Construction and Mitigation Measures

1. Although pre-determined, the wetland or waterbody crossing method most suitable for a given location may be dependent upon site conditions at the time of construction. Tennessee proposes the CI, EI, EC, appropriate agency(s), and other Tennessee inspectors identify or approve the appropriate method from Section 5.11 or Section 5.12 of Tennessee's ECP for each location based on site-specific conditions at the time of construction. In all instances, the crossing method utilized will be in accordance with all federal, state and local permit requirements including specific measures listed within Tennessee's ECP for the selected method. (Procedures, at II.B.)
2. Tennessee proposes to reserve the ability to dam and pump streams greater than 10 feet wide on a case-by-case basis. This will also allow the CI, EI, EC, and Tennessee's contractor to determine the most efficient and least harmful crossing method at the time of construction in cooperation with the appropriate agency(s). (Procedures, at V.B.6.b.)
3. ATWS located 10 feet from streams is identified in Section 6.0. For ATWS not identified in Section 6.0 of Tennessee's ECP, the ATWS may be expanded up to 10 feet from the stream bank if, in cooperation with the appropriate agency(s), the CI and the EI determine, in their judgment, that site-specific conditions at the time of construction require additional space. (Procedures, at V.B.2.b.)
4. Tennessee proposes to minimize the construction ROW in wetlands to 75 feet, except in the areas identified in Section 6.0 of Tennessee's ECP due to specialized construction/engineering constraints. For wetlands not identified in Section 6.0, the 75-foot corridor may be widened to 100 feet if, in cooperation with the appropriate agency(s), the CI

and the EI believe, in their judgment, that site-specific conditions at the time of construction require additional space. (Procedures, at VI.B.3.)

5. If access to upland areas between wetlands is not available along construction access roads, an adequate travel way may be constructed that will support multiple trips through wetlands. The EI and the CI will determine the limit, type and frequency of equipment that will be allowed access to the travel way. If installed, the travel way will be completely removed during cleanup. (Procedures, at VI.C.2.d.)
6. No limits are placed on the number of layers of mats that can be used. Tennessee requires that its contractor remove all mats that are used for stabilization in wetlands. Requiring the contractor to remove all mats following construction provides the same level of protection as is required in the Commission's Procedures. (Procedures, at VI.C.2.m.)
7. Tennessee proposes that permanent slope breakers may not always be appropriate for installation at wetland boundaries. At the discretion of the EI, CI and Tennessee's contractor, permanent slope breakers that may alter the permanent overland flow characteristics consequently altering the wetland's characteristics will not be installed. Tennessee proposes the use of hay/straw bales as temporary slope breakers at the wetland boundaries until restoration is complete to ensure the wetland characteristics will remain intact in situations that permanent slope breakers are not used. This exception applies only to the use of a permanent slope breaker. (Procedures, at VI.D.2.)
8. Tennessee proposes to continue revegetation efforts until wetland revegetation is successful as indicated in Section VI.E.3. of the Procedures. However, Tennessee proposes to terminate monitoring upon a determination of successful revegetation. This eliminates the effort and expense associated with conducting redundant inspections. (Procedures, at VI.E.3.)

1.3.2 Aboveground Facilities

The aboveground facilities will be constructed in accordance with Tennessee's specifications and DOT requirements. Preliminary plot plans that detail the proposed aboveground facilities are provided within Volume III - Appendix P. The duration of construction for the aboveground facilities varies based upon the scope of the work required to construct each of the proposed facilities. Similarly, the number of workers required for construction of the aboveground facilities also varies based upon the scope of the work.

1.3.2.1 Clearing and Grading

The sites for the new and modified compressor stations and TWSs will be cleared of vegetation and graded as necessary to create level surfaces for the movement of construction vehicles on the sites and to prepare the areas for the building foundations. Tennessee will install silt fence and/or hay bales around disturbed areas, as appropriate to the land, soil, and weather conditions, to minimize the potential for erosion and for impacts to off-site wetlands and watercourses. Erosion and sediment controls will conform to Commission requirements and Tennessee's ECP. Blasting may be required to prepare a level site area. Such blasting, if required, will be conducted in accordance with appropriate state and local regulations.

1.3.2.2 Foundations

Where required, building foundations are likely to be constructed of poured reinforced concrete. Topsoil, if present, would be stripped from the area of the building foundations. Such soil may be used on-site either for landscaping or to provide soil cover for the septic system leach field, if acceptable. Additional soil or subsurface materials may be imported from approved sources to achieve the desired site/foundation grade.

1.3.2.3 Building Design and Construction

The valve shed building will have the same sized footprint with open walls and a sloping roof that will tie in to the compressor building roof line. Each compressor building will house the natural gas fueled turbo-compressor packages.

The proposed turbine exhaust stacks were initially designed with a stack height of 50 feet. Tennessee has performed air quality impact modeling to support its applications to the PADEP and the NJDEP for air permits to construct and operate the proposed turbo-compressors. Final stack heights will be determined through the applicable state-permit review process. Air quality modeling reports were submitted to the DEP in the respective states as part of Tennessee's air permit applications. The modeling reports document that the proposed stack heights and other design parameters achieve acceptable dispersion of turbine exhaust emissions to comply with ambient air quality regulations and standards. The compressor unit design will incorporate various safety features, discussed below in Section 1.4.2 of this Resource Report.

During a typical building construction sequence, the steel frames would be erected followed by the installation of the roof system, exterior wall sheathing, wall insulation, and interior wall sheathing, as specified by the building design plans. Cutouts for protrusions through the siding (e.g., inlet and exhaust vents) would be flashed to ensure that the buildings would be weather-tight.

1.3.2.4 High Pressure Piping

Tennessee proposes to design and construct the high pressure piping to meet the requirements of the DOT, 49 CFR Part 192. Tennessee proposes to design the high pressure gas piping in the station yards for a MAOP of 844 to 1,170 psig depending upon the prevailing system MAOP in the area. Tennessee proposes to coat the station piping for protection against corrosion. In addition, Tennessee anticipates the installation of a cathodic protection system to protect the buried piping.

1.3.2.5 Pressure Testing

Prior to placing each of the compressor stations (whether new or modified) in-service, Tennessee proposes to conduct pressure testing of the piping system. Tennessee proposes to conduct this test in accordance with applicable state and local code or regulatory requirements.

1.3.2.6 Infrastructure Facilities

The installation of the infrastructure facilities includes the various compressor and auxiliary equipment, piping, and other electrical and mechanical systems. These systems have been previously installed at the existing compressor station sites where modifications are planned. Tennessee anticipates installation of

new electric and communication utilities, in addition to domestic water service and sewer disposal systems in the form of on-site water wells and septic systems will be installed w for the proposed two new compressor station facilities (See Section 1.1.2.2.1 for additional detail on the compressor station facilities).

1.3.2.7 Control Checkout and Engine Startup

Before the new compressor units are put into service at the new and modified compressor stations, Tennessee shall develop and implement station commissioning plans. Tennessee anticipates that these plans would include the checking and testing of controls and safety features, including the emergency shutdown system, relief valves, gas and fire detection facilities, over-speed, vibration, and other on- and off-engine protection and safety devices.

1.3.2.8 Final Grading and Landscaping

Prior to construction, Tennessee will develop plans for the final grading and landscaping of the areas that will be disturbed during construction. These final grading and landscaping plans will be consistent with Tennessee's ECP for the restoration of uplands. New visual screening in the form of planted trees is planned for the Compressor Station 303 site along the station's property boundary adjacent to Meadow Church Road. Compressor Station 310 is set enough far back on a wooded parcel that additional visual screening will not be required to mitigate any visual impacts resulting from construction of the station. No new visual screening is proposed for the existing compressor station modifications.

1.3.2.9 Erosion Control Procedures

During the construction of the proposed new and modified compressor stations, Tennessee will adhere to its ECP developed for the Project, which incorporates the applicable provisions of the Commission's Plan and Procedures. A copy of Tennessee's ECP is provided in Volume IIA – Appendix D. As set forth in the above-referenced documents, Tennessee proposes to install appropriate erosion controls (e.g., silt fence and/or hay bales) to minimize the potential for erosion from construction of the facilities.

1.3.3 Timeframe for Construction

Construction of the Project will commence after all private ROWs and federal and state ROWs and permits have been acquired for the Project and Tennessee has obtained a certificate of public convenience and necessity for the Project and has accepted such certificate. Certain aspects of construction, including winter tree clearing to avoid Indiana bat breeding periods, installation of HDD segments, and sensitive commercial and/or residential areas may begin during the second half of 2010. Tennessee also anticipates that certain construction activities will occur at existing Compressor Stations 317, 321, and 325 beginning in the second half of 2010. The remaining construction activities for the Project are scheduled for 2011. All Project facilities are anticipated to go in-service no later than November 2011.

Tennessee estimates that each pipeline loop segment will require one (1) construction spread consisting of approximately 175 to 250 construction personnel depending upon the loop, and each segment will take approximately 3 to 15 weeks to complete, depending upon site-specific conditions for each loop.

Modifications to the existing compressor station facilities will require anywhere from approximately 20-40 construction workers, and each compressor station will take approximately six to ten months to

complete, depending upon the nature of the modifications. Construction of the proposed new compressor station facilities is anticipated to require approximately 100 construction workers per compressor station facility and is anticipated to require eight to twelve months to complete.

Tennessee does not anticipate the need for additional permanent staff for operation of the new Project facilities, and no new operations offices or district offices will be required for operation of the Project facilities.

1.3.4 Environmental Training for Construction

Tennessee would use at least one full-time EI for each pipeline loop section during Project construction, as well as one Chief Environmental Inspector to oversee the EI staff. Additionally, one dedicated EI would be assigned to each of the two new compressor station facilities proposed for the Project, while the EIs assigned to oversee construction for the individual pipeline loop sections will also oversee the construction for the modifications to the applicable compressor stations. The EIs will monitor construction activities to ensure compliance with Tennessee's ECP, all applicable federal, regional, state, and local environmental permits, site-specific construction and restoration plans or other mitigation measures, and landowner agreements. Additionally, Tennessee would conduct environmental training in advance of construction, and the EIs would perform all duties as specified in Tennessee's ECP (see Appendix D in Volume IIA). The level of training will be commensurate with the type of duties of the personnel.

1.4 OPERATION AND MAINTENANCE PROCEDURES

The Project will be owned, operated, and maintained by Tennessee. Tennessee will operate and maintain the newly constructed pipeline loop segments in the same manner as it currently operates and maintains its major interstate pipeline facilities in accordance with the requirements of the Commission, the DOT's Pipeline and Hazardous Materials Safety Administration ("PHMSA") in accordance with 49 CFR Part 192, and industry-proven practices and techniques. The facilities will be operated and maintained in a manner such that pipeline integrity is protected to ensure 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. The latter may include repair or replacement of pipe segments. 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 pipeline and aboveground facilities will be patrolled on a routine basis, and personnel well qualified to perform both emergency and routine maintenance on interstate pipeline facilities will handle maintenance.

1.4.1 Pipeline Facilities

The pipeline will be patrolled from the air on a periodic basis (See Section 1.4.1.3 below). This will provide information on possible leaks, construction activities, erosion, exposed pipe, population density, possible encroachment, and any other potential problems that may affect the safety and operation of the pipeline. In addition, Tennessee is a participant in the "Dig Safe" system for utility companies in Pennsylvania and New Jersey as well as the national "811" call 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: (1) periodic seasonal mowing of the ROW in accordance with the timing restrictions outlined in Tennessee's ECP; (2) terrace repair, backfill replacement, and drain tile repair as necessary; (3) periodic inspection of water crossings; and (4) maintenance of a supply of emergency pipe, leak repair clamps, sleeves, and other equipment needed for repair activities. Tennessee 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 will be conducted with impressed current systems that employ rectifier/groundbed systems. Units will be installed along the pipeline and aboveground test stations will be installed at various locations along the pipeline to gather accurate information for potential current adjustments. The cathodic protection system will be regularly monitored to maintain required pipe-to-soil potential and will be achieved in accordance with the specifications set forth by Tennessee that meet DOT regulations.

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

1.4.1.1 Cleared Areas

A typical post-construction permanent ROW of 75 feet will be maintained for the new pipeline loop segments in accordance with the Tennessee's ECP. This permanent ROW generally consists of 25 feet of new permanent ROW and 50 feet of existing permanent ROW associated with the existing 24-inch 300 Line pipeline. 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;
- Visibility during aerial patrols; and
- To serve as a visual indicator to the public of an underground pipeline utility and easement.

Operational vegetation maintenance of Tennessee's permanent ROW in uplands would be conducted on a frequency of approximately once every five to seven years to maintain in an herbaceous to low scrub-shrub cover state. Tennessee will annually maintain a 10-foot corridor centered over the pipeline within both uplands and wetlands to facilitate route patrols and emergency access.

Within wetlands, Tennessee will only maintain the 10-foot corridor centered over the pipeline, allowing the balance of Tennessee's permanent easement to revert back to its natural, pre-construction vegetated cover state. Additionally, within wetlands, Tennessee reserves the right to selectively cut and remove trees larger than 15 feet in height that are located within 15 feet of the pipeline.

Following construction of the pipeline facilities, areas used during for TWS and ATWS will be allowed to revert to its pre-construction land use/land cover with no further vegetation maintenance by Tennessee. Additionally, crop production would be allowed to continue in agricultural areas, immediately following construction or the following growing season.

1.4.1.2 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.

1.4.1.3 Periodic Pipeline and ROW Patrols

Aerial patrols are conducted one to two times per month with ground surveys conducted on an annual basis. Additional ground surveys are conducted on an as needed basis to respond to issues such as landowner concerns and third-party encroachments. During ROW patrols, all permanent erosion control devices that are installed during construction will be inspected to ensure that they are functioning properly. Additionally, attention will be given to:

- Existing stormwater outfalls along the alignment;
- Erosion and washouts along the ROW;
- Water control devices such as diversions;
- Condition of banks at drainage ditch 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.

1.4.2 Aboveground Facilities

Tennessee will operate and maintain the proposed aboveground facilities in accordance with standard procedures designed to ensure the integrity of the facilities and to provide its customers and the general public with a safe and dependable natural gas supply. The facilities will be designed, constructed, and operated in accordance with requirements of the Commission, DOT, industry-proven practices and techniques, and other federal, state, and local requirements as applicable.

Responsibilities of Tennessee will include: (1) operation and maintenance of pipeline and aboveground facilities safely to provide the required gas flow; (2) inspection and maintenance of the pipeline system; (3) regular monitoring of the ROW; (4) development and implementation of an ongoing program of safety and environmental compliance; (5) regulatory compliance maintenance inspections; (6) administration; and (7) landowner relations.

In accordance with DOT regulations, 49 CFR Part 192, the facilities will be regularly inspected for leakage as part of scheduled operations and maintenance. Tennessee proposes to follow various routine maintenance and operations procedures to ensure that the stations operate safely. Standard Tennessee operations at existing compressor stations include activities such as the calibration, maintenance, and inspection of equipment, as well as the monitoring of pressure, temperature, and vibration data, and

traditional landscape maintenance such as mowing and application of fertilizer. Tennessee's standard operations currently also include the periodic checking of safety and emergency equipment and cathodic protection systems.

Project facilities will be marked and identified in accordance with applicable regulations. Liaison will be maintained with the public as well as with government agencies regulating activities at compressor stations. Overall, maintenance activities will be in compliance with requirements of the Commission's Plan and/or Tennessee's ECP, as well as other applicable regulatory requirements. The compressor stations will be remotely linked to Tennessee's information and data software networks and infrastructure which monitors the pipeline system on a 24-hour per day basis.

1.5 FUTURE PLANS AND ABANDONMENT

The addition of pipeline loop segments and two new compressor stations, as well as the modifications to existing compressor stations, that comprise the Project are designed to efficiently meet market needs, as demonstrated by the execution of a binding precedent agreement for the entire amount of additional capacity resulting from the Project. Any future expansion of the facilities proposed as part of this Project will be dependent upon a showing of additional demand for natural gas services.

Tennessee has held preliminary discussions with producers in the Marcellus Shale production area regarding the connection of new gas supplies from that production area to Tennessee's system for transportation to northeast markets. Tennessee conducted a non-binding open season for its Northeast Supply Diversification Project ("NSD Project") from November 4 to December 4, 2008 to determine the need for additional gas pipeline capacity to transport gas from multiple existing and proposed new receipt points along Tennessee's system in the Gulf Coast, Rockies (via an interconnection with the Rockies Express pipeline system), and Appalachian production regions, including Marcellus Shale, to existing and proposed new delivery points across Tennessee's market area in upstate New York and New England, as well as Connecticut and New York City markets via the Iroquois Gas Transmission ("Iroquois") system. The anticipated in-service date for such a project is expected to be November 2012 or later.

Although interest in the NSD Project from the market was significant, Tennessee has not yet had the opportunity to meet with most of the open season participants to more fully explore the extent and seriousness of the expressed interest. It is anticipated that these discussions will take place in the first half of 2009. After those discussions, Tennessee will be in a better position to evaluate the viability, economic justification, and timing of the NSD Project, including the proposed scope and needed facilities. Recognizing the changes that have occurred in the economic markets since the open season was conducted, including changes in natural gas pricing and the availability of credit to support drilling and construction activities, Tennessee is unable to determine at this time the outcome of the discussions with open season participants. Changes to the proposed NSD Project scope or timing may develop during those discussions. In the event, though, that there is any interest in the NSD Project for a November 2012 in-service date, Tennessee anticipates that it would its application for a certificate of public convenience and necessity during the second half of 2010.

Preliminary design considerations by Tennessee for the potential NSD Project include the possibility of extending the partial loop segments that are proposed to be constructed as part of the Project. Completion of those loops to become a second line is one method to efficiently create any needed incremental capacity. Similarly, if deemed necessary to meet the needs of shippers participating in the open season

for the NSD Project, Tennessee may consider the addition of horsepower at existing compressor stations, including compressor stations that are proposed to be modified as part of the Project. Tennessee will design any facilities (which may consist of pipeline looping, compression, and/or cooling facilities) needed for a future expansion project, including the NSD Project, to be compatible with Tennessee's existing facilities, including the Project facilities. Tennessee believes that any future expansion would be supplemental to the currently proposed facilities of the Project, and will undergo the applicable federal, state, and local regulatory review (including the filing of a separate application for a certificate of public convenience and necessity from the Commission) for any such future expansion.

As an open access pipeline, Tennessee's FERC Gas Tariff, consistent with Commission policy, provides a process by which shippers may request an interconnection with Tennessee's pipeline system. Tennessee has had numerous requests from producers in the Marcellus Shale area for interconnections on Tennessee's system. Several of these interconnections have already been completed, while other requests are being processed. This effort is on-going and Tennessee expects additional interconnection requests from Marcellus producers. The producers that have connected to Tennessee have the opportunity to transport gas production using interruptible capacity, backhaul capacity, or firm released capacity, or may sell gas production to existing capacity holders on Tennessee's system. The requests for interconnections on Tennessee's 300 Line are being processed separately from the proposed system expansions, including the Project, as no Marcellus Shale producers participated in the open season for the Project. Certain Marcellus Shale producers expressed an interest in firm capacity on Tennessee by participating in the NSD Project open season, but, as noted above, Tennessee has not yet engaged in substantive discussions with such producers to determine the seriousness of that interest.

1.6 PERMITS AND APPROVALS

All construction, operation, and maintenance of the Project will be conducted in accordance with Tennessee's specifications and all applicable federal, state, and local permit requirements. The environmental permits, reviews, and clearances that have been or will be sought for the Project are identified in Table 1.6-1. Tennessee and its agents have consulted federal, state, and local regulatory officials and government agencies regarding this Project. Volume IIA – Appendix B contains agency correspondence for the Project and includes a summary table of correspondence for reference.

TABLE 1.6-1
PERMITS, LICENCES, APPROVALS, AND CERTIFICATES REQUIRED FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF THE 300 LINE PROJECT

Permit/Approval	Administering Agency	Status
Federal		
Section 404 Individual Permit	Army Corps of Engineers Baltimore District	Applications to be submitted June 2009
	Army Corps of Engineers New York District	
	Army Corps of Engineers Philadelphia District	
	Army Corps of Engineers Pittsburg District	
Clearance	USFWS Pennsylvania Field Office	Field surveys scheduled for Spring 2009
	USFWS New Jersey Field Office	
Finding of Appropriateness and Compatibility Determination	USFWS Wallkill River NWR	Application to be submitted June 2009
SF 299 Application for Transportation and Utility Systems on Federal Lands	National Park Service	Application to be submitted June 2009
Pennsylvania State		
401 Water Quality Certification	PADEP Regional Bureaus of Watershed Management	Applications to be submitted June 2009
Water Obstruction and Encroachment Permits		
NPDES – Hydrostatic Testing General Permit (PAG 10)	PADEP Bureau of Water Quality Protection	Application to be submitted 4th quarter 2009
Plan Approval (Air Quality Permit) for Station 321	PADEP Bureau of Air Quality—Northeast Region	Application to be submitted March 2009
Plan Approval (Air Quality Permit) for Stations 315 & 313	PADEP Bureau of Air Quality—Northcentral Region	Application to be submitted December 2009
Plan Approval (Air Quality Permit) for Station 303 & 310	PADEP Bureau of Air Quality—Northwest Region	Application to be submitted December 2009

TABLE 1.6-1
PERMITS, LICENCES, APPROVALS, AND CERTIFICATES REQUIRED FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF THE 300 LINE PROJECT

Permit/Approval	Administering Agency	Status
Highway Occupancy Permit	PennDOT	Applications to be submitted 1st quarter 2010
Application for ROW on State Game Lands	PA Fish and Boat Commission	Application to be submitted 2nd Quarter 2009
Clearance (Rare Species)	PA Dept. of Conservation and Natural Resources	Field surveys scheduled for Spring 2009
Clearance (Cultural Resources)	PA Historic Preservation Office	Final report to be submitted in June 2009
Surface Water Withdrawal Application	Susquehanna River Basin Commission	Application to be submitted 4th quarter 2009
Surface Water Withdrawal Application	Delaware River Basin Commission	Application to be submitted 4th quarter 2009
Pennsylvania Local and County		
NPDES and GP Review	PADEP / County Soil Conservation Districts	Application to be submitted June 2009
Erosion & Sediment Control Plan Review	County Soil Conservation Districts	
New Jersey State		
Highlands Applicability and Water Quality Management Plan Consistency Determination Application Form (Highlands Applicability Determination)	NJDEP Land Use Regulation Program	Application submitted March 2009
401 Water Quality Certification	NJDEP Land Use Regulation Program	Applications to be submitted June 2009
Freshwater Wetlands and Stream Encroachment Permits	NJDEP Land Use Regulation Program	Applications to be submitted June 2009
Transition Area Waivers		
SPDES General Construction Stormwater Permit		

TABLE 1.6-1
PERMITS, LICENCES, APPROVALS, AND CERTIFICATES REQUIRED FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF THE 300 LINE PROJECT

Permit/Approval	Administering Agency	Status
Short Term Water Use Permit By Rule	NJDEP Bureau of Water Allocation	
NJPDES Hydrostatic Test Water Discharge GP (NJG0132993)	NJDEP Division of Water Quality	Application to be submitted 4th quarter 2009
Clean Water Assurance Form	NJDEP	Application to be submitted June 2009
Minor/Major Disposal or Diversions of Parkland	NJDEP Green Acres Program	Application to be submitted 4th quarter 2009
Pre-Construction and Title V Operating Permit	NJDEP Air Quality Control Program	March 2009
Air Permit Application Certificate		
Application for Banking and/or Verifying Creditable Emission Reductions		
Air Pollution Control Permit		
Clearance	NJ Natural Heritage Program	Field surveys scheduled for Spring 2009
Clearance	NJ State Historic Preservation Office	Final report to be submitted in June 2009
New Jersey Local / County		
NJDES GP – Stormwater Discharge (NJG0088323)	Soil Conservation Districts	Application to be submitted June 2009

1.7 NON-JURISDICTIONAL FACILITIES

In addition to the auxiliary Section 2.55(a) facilities (valves, pig launchers and receivers, and other appurtenant equipment) already described above as part of this Project, Tennessee is proposing the installation of minor new utilities and associated ROW to connect existing electrical and communications utilities in the vicinity of its new Compressor Station 310 and existing Compressor Station 313. Compressor Station 310 will require utilities' construction alongside an existing access road that is approximately 2 miles in length in order to bring the services into the station property. Compressor Station 313 will require a new 115kV power transmission line to be constructed along new utility ROW

approximately 0.5 miles in length to serve the new 6,500 hp electric motor driven compression to be installed at that station.

Tennessee is not aware of any other non-jurisdictional facilities being constructed by others as a direct result of the proposed Project.

1.8 LANDOWNER INFORMATION

The names and addresses of landowners whose property would be crossed by the Project are included in Appendix Q in Volume IV. These landowners were contacted beginning in July 2008 to request access for environmental surveys (wetland/waterbody delineation, habitat evaluations, cultural resources) on the pipeline routes, access roads, staging/pipe yards, and aboveground facility sites. Surveys have been completed or are underway for properties along the Project area where access permission has been granted.

In accordance with 18 CFR § 157.6(d), Tennessee will provide notification of the Project to affected and abutting landowners within three business days following the date that the Commission issues a notice of the certificate application. In addition, within three business days of the date that the Commission assigns a docket number to the certificate application, a copy of the certificate application will be placed in public libraries across the Project area. Tennessee will also have a public notice of the filing of the certificate application published in a daily or weekly newspaper of general circulation (see Table 1.8-1 below) across the Project area no later than 14 days after the Commission assigns a docket number to the certificate application.

Tennessee has prepared a Public Participation Plan for the Project, which was filed with the Commission on October 7, 2008 with Tennessee's request to use the Commission's pre-filing procedures for the Project. The Public Participation Plan is also included as Appendix K in Volume IIA. The Public Participation Plan includes publicly-noticed open houses, presentations, and the publishing of information on El Paso Corporation's Project website. Open houses were held in the Project area in December 2008 and January 2009 to provide information to the community and to receive comments from the residents. In addition to 14 published notices in local area newspapers, Tennessee mailed out 1,063 open house invitations to affected landowners and stakeholder groups in the Project area. As part of the open house process, Tennessee provided information regarding the Commission's regulatory process. The following provides a schedule of the open houses conducted for the Project:

- December 2, 2008 – McKean County, Pennsylvania
- December 3, 2008 – Potter County, Pennsylvania
- December 4, 2008 – Venango County, Pennsylvania
- December 8, 2008 – Tioga County, Pennsylvania
- December 9, 2008 – Bradford County, Pennsylvania
- December 10, 2008 – Susquehanna County, Pennsylvania
- December 11, 2008 – Pike / Wayne Counties, Pennsylvania (**Cancelled due to inclement weather)**
- January 6, 2009 – Pike /Wayne Counties, Pennsylvania (**Rescheduled**)
- January 5, 2009 – Sussex County, New Jersey
- January 7, 2009 – Passaic County, New Jersey

In addition to the community outreach meetings and the open houses, Tennessee's community outreach program includes the following elements:

- Flyers announcing open houses mailed to affected parties;
- Newspaper advertisements of open houses placed in newspapers of general circulation in the affected area;
- Newspaper advertisement prior to commencement of construction, which will be placed in those same publications;
- Notification to businesses potentially affected by construction;
- Designation of a point of contact for stakeholder communication;
- A Project "800" telephone number for public inquiries; and
- A Project website with periodic updates of relevant information.

Tennessee will implement a Landowner Complaint Resolution Procedure for construction-related landowner complaints. This procedure will be filed with the Commission as part of Tennessee's final ER submitted with the certificate application for the Project.

TABLE 1.8-1
LIBRARIES AND NEWSPAPERS WITHIN THE
300 LINE PROJECT AREA

Project Component	Libraries	Newspapers
Compressor Station 303	Bradford Area Public Library	The Bradford Era The Kane Republican
Compressor Station 310	Franklin Public Library	The Derrick
Loop 313 and Compressor Station 313	Coudersport Public Library	Cameron County Endeavor Potter Leader Enterprise
Loop 315 and Compressor Station 315	Green Free Library	Wellsboro Gazette
Loop 317 and Compressor Station 317	Towanda Public Library	Towanda Daily Review Wyalusing Rocket Courier Troy Penny Saver
Loop 319 and Compressor Station 319	Towanda Public Library Susquehanna County Free Library	Towanda Daily Review Wyalusing Rocket Courier Troy Penny Saver Susquehanna Independent Weekender
Loop 321 and Compressor Station 321	Susquehanna County Free Library Wayne County Library	Susquehanna Independent Weekender Wayne Independent
Loop 323 and Compressor Station 323	Pike County Public Library	Pike County Courier
Loop 325 and Compressor Station 325	Sussex County Library - Main Branch West Milford Township Library	The Record New Jersey Herald