

**NARRATIVE REPORT IN SUPPORT OF  
HIGHLANDS APPLICABILITY DETERMINATION -  
HIGHLANDS EXEMPTION REQUEST**

*for the*

**300 LINE PROJECT - PLANNING AREA**

*Submitted to the*

**New Jersey Department of Environmental Protection**

*Submitted by*

**TENNESSEE GAS PIPELINE COMPANY**

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**September 10, 2009**

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## 1.0 INTRODUCTION

Tennessee Gas Pipeline Company (“Tennessee”), a subsidiary of El Paso Corporation and a major supplier of natural gas to utilities and power generators in the Northeast and Mid-Atlantic regions, plans to upgrade its existing natural gas delivery facilities in the Northeast (which it has operated for over 50 years) by constructing the 300 Line Project (“Project”) in northern Pennsylvania and northwestern New Jersey.<sup>1</sup> As detailed below, the portion of the Project to be located in northern New Jersey will consist of approximately 17.27 miles of underground natural gas pipeline, of which 16.02 miles will be located in the Highlands Region, with approximately 5.07 miles located within the Highlands Planning Area and 10.95 miles located within the Highlands Preservation Area.<sup>2</sup> Tennessee requests a determination by the Highlands Council that the Planning Area portion of the Project is exempt from the Highlands Water Protection and Planning Act, N.J.S.A. 13:20-1 et seq. (the “Highlands Act”).<sup>3</sup> The Highlands Act provides that certain activities in the Highlands Region “are exempt from the provisions of this [A]ct, the regional master plan, any rules or regulations adopted by the [NJDEP] pursuant to this [A]ct, or any amendments to a master plan, development regulations, or other regulations adopted by a local government unit to specifically conform them with the regional master plan.” N.J.S.A. 13:20-28.a. Among the various exempt activities is “the routine maintenance and operations, rehabilitation, preservation, reconstruction, repair, or upgrade of public utility lines, rights of way, or systems, by a public utility, provided that the activity is consistent with the goals and purposes of this [A]ct.” N.J.S.A. 13:20-28.a(11).

The Project constitutes “the routine maintenance and operations, rehabilitation, preservation, reconstruction, repair, or upgrade of public utility lines, rights of way, or systems, by a public utility.” N.J.S.A. 13:20-28.a(11). Although Tennessee is a natural gas company regulated by the Federal Energy Regulatory Commission (“FERC”) under the Natural Gas Act authority, for purposes of this exemption request Tennessee should be treated as a public utility as that term is defined under the

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<sup>1</sup> For purposes of this narrative, the term “Project” may also be used to refer the portion of the Project that will be located in the Highlands Planning Area.

<sup>2</sup> A list of the various blocks and lots of the parcels in the Highlands Planning and Preservation Areas where the Project will be located is attached as Attachment A. The applicable blocks and lots are also depicted on the routing maps submitted with this exemption request entitled “300 Line Project Loop 325, Proposed 30” Natural Gas Pipeline”, which also depict the proposed 325 Loop Segment within the Highlands Region.

<sup>3</sup> This exemption request is specifically limited to that portion of the Project located in the Planning Area of the Highlands Region. Tennessee previously submitted a Highlands Applicability - Exemption Request application to the New Jersey Department of Environmental Protection for the Preservation Area portion of the Project. That application is assigned Program Interest Nos. 435442 and 4343459 and Activity Nos. CSD090016 and CSD090002 and is currently pending (“Preservation Area Application”). Tennessee has requested that the Council take action on both applications at Council’s October 15, 2009 meeting. For convenience, and consistent with our discussions with the Council Staff, we have utilized the application forms and documents submitted to NJDEP for the Preservation Area Application, and have incorporated information regarding the Planning Area portion of the Project into those documents. Therefore, this narrative report and the related application materials submitted herewith include information applicable to the entire Project including both the Planning and Preservation Areas.

Highlands Act, N.J.S.A.13:20-3, and NJDEP's regulations adopted pursuant thereto, N.J.A.C. 7:38-1.4.<sup>4</sup>

Furthermore, the Project is consistent with the goals and purposes of the Highlands Act. There is no specific section of the Highlands Act entitled "goals and purposes". However, the prefatory language of the Highlands Act included in the Legislative Findings section, N.J.S.A. 13:20-2, identifies the broad based goals and purposes of the Highlands Act. Therefore, this narrative analyzes the consistency of the Project with the "goals and purposes" of the Highlands Act based upon those goals and purposes identified in the Legislative Findings section. This exemption request does not address the provisions or any substantive requirements that may be a part of the Highlands Regional Master Plan ("RMP"), NJDEP regulations, or local master plan amendments or regulations. The Highlands Water Protection and Planning Council ("Council") Staff asserts that the RMP effectuates the goals and purposes of the Highlands Act, and to demonstrate consistency with the goals and purposes of the Highlands Act an applicant for a utility line exemption pursuant to N.J.S.A.13:20-28.a(11) must demonstrate consistency with the RMP. However, nothing in the Highlands Act or the legislative history to the Act supports the Staff's position.

The Highlands Act plainly provides that public utility line maintenance, upgrades and other similar activities are exempt "provided that the activity **is consistent with the goals and purposes of this [A]ct.**" N.J.S.A.13:20-28.a(11) (emphasis added). Significantly absent from the exemption language is any mention of a requirement for consistency with the RMP. The Legislature, which created a distinct section of the Highlands Act entitled "Goals of the regional master plan" (N.J.S.A.13:20-10), undoubtedly could have included language in the exemption provision to create an express requirement for consistency with the RMP, but did not.

Moreover, the Exemption Section of the Act confirms that activities which qualify for an exemption are exempt not only from the Highlands Act, but also from "**the regional master plan, any rules or regulations adopted by the [NJDEP] pursuant to this [A]ct, or any amendments to a master plan, development regulations, or other regulations adopted by a local government unit to specifically conform them with the regional master plan.**" N.J.S.A. 13:20-28.a (emphasis added). The Staff's position that compliance with the provisions of the RMP is necessary to qualify for a public utility line exemption constitutes circular reasoning because the Highlands Act specifically provides that if you qualify for the exemption you are exempt from the RMP. Therefore, given that the public utility exemption language does not expressly require that a project demonstrate compliance with the provisions of the RMP to qualify for the exemption, it would contravene the Highlands Act to require Tennessee to demonstrate compliance with the provisions of the RMP. Imputing such a requirement into the exemption provisions of the Highlands Act would vitiate the very purpose of the exemption sought by Tennessee.

Accordingly, the Project is exempt from the Highlands Act as well as from the RMP, NJDEP regulations implementing the Highlands Act, and any local master plan amendments or regulations adopted to conform with the RMP.

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<sup>4</sup> As detailed in Section 1.2 below, NJDEP's Highlands Rules adoption document set forth at 38 N.J.R. at 504 (Attachment B of this Narrative) confirms that "infrastructure systems such as natural gas or electric transmission that . . . serve to deliver or provide gas and electricity to public systems" "are considered a public utility and, therefore, eligible for the exemption". Accordingly, Tennessee, which is regulated by FERC as an interstate natural gas pipeline company, constitutes a public utility under the Highlands Act and NJDEP's regulations for purposes of this exemption request.

Tennessee is an interstate pipeline company that is subject to the FERC's jurisdiction pursuant to the Natural Gas Act, and is also subject to the jurisdiction of the Department of Transportation ("DOT") pursuant to the Natural Gas Pipeline Safety Act of 1968. The FERC, among other things, is responsible for authorizing the siting and construction of interstate natural gas pipelines, and is the lead agency for environmental reviews under the National Environmental Policy Act for the construction of such pipelines. The FERC's authorization process includes an extensive outreach process, including notifications to affected landowners, state and local governmental jurisdictions, federal, state and local governmental agencies, and non-governmental agencies. The DOT's Pipeline and Hazardous Material Safety Administration ("PHMSA"), acting through the Office of Pipeline Safety ("OPS"), administers the DOT's natural gas regulatory program to assure the safe transportation of natural gas by pipeline. OPS is responsible for governing design, construction (integrity of the pipeline structure itself), inspection, testing, operation, and maintenance of interstate pipelines. Both the FERC and the OPS retain jurisdiction over an interstate natural gas pipeline for the entirety of the lifetime of such a pipeline.

The proposed upgrade of Tennessee's 300 Line will enable the transportation of new diversified natural gas supplies from Appalachia and various other supply basins through Pennsylvania, into New Jersey and the Northeast. The Project will include the construction of approximately 128.7 miles of 30-inch outside diameter ("OD") underground loop pipeline facilities consisting of six separate pipeline loops in northeastern Pennsylvania totaling approximately 111 miles and one pipeline loop facility in northern New Jersey totaling approximately 17.27 miles.<sup>5</sup> The pipeline loop facilities are proposed to be located within and adjacent to Tennessee's existing 300 Line right-of-way ("ROW") to the extent practicable. Additionally, as part of the Project, Tennessee proposes the construction of two new compressor stations along its existing 300 Line alignment in northwestern Pennsylvania, as well as system upgrades at seven of its existing compressor station facilities in Pennsylvania and New Jersey. Tennessee held a binding open season to solicit shipper participation in the Project and has executed a precedent agreement that provides arrangements for long-term transportation service to EQT Energy, LLC (formerly known as Equitable Energy LLC) ("Equitable") for all of the firm transportation capacity resulting from this Project.

The specific portion of the Project<sup>6</sup> proposed for construction within northern New Jersey includes upgrading the existing natural gas pipeline system through construction of approximately 17.27 miles of new 30-inch OD underground natural gas pipeline, of which 16.02 miles will be located within the Highlands Region. The proposed pipeline loop in New Jersey is known as "the 325 Loop Segment". The 325 Loop Segment commences in Vernon Township in Sussex County (MP 0.00) and extends through West Milford Township in Passaic County, terminating in Ringwood (MP 17.27) in Passaic County, New Jersey. Tennessee also proposes to construct general system upgrades at its existing Compressor Station 325 in Wantage Township, which is outside the Highlands area.

The pipeline looping will provide additional natural gas transmission capacity to shippers in downstream high-demand energy markets in the northeast United States including eastern New Jersey and Metro New York. The proposed upgrade facilities will be located within and adjacent to Tennessee's existing 300 Line ROW, to the extent practicable. Tennessee anticipates that, following receipt of all applicable regulatory certificates and permits and the acquisition of appropriate ROW for the Project, certain aspects of construction, including winter tree clearing may begin during the second half of 2010. Tennessee anticipates that it will place the facilities in-service by November 2011.

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<sup>5</sup> The term "loop" refers to a segment of pipeline installed adjacent to an existing pipeline and connected to it at both ends. A loop allows more gas to be moved through the system.

<sup>6</sup> In this request, the Project facilities are described geographically in a general west-to-east direction and by category, addressing underground pipeline facilities first and aboveground facilities second. Resources and facilities along the proposed pipeline loop segments are identified by Mileposts ("MP") throughout this narrative, and loop segment MPs are shown on the USGS Quad maps and route maps provided. MPs will be provided when describing the Project facilities locations in relation to Tennessee's overall existing 300 Line length, as well as MPs for facility locations relative to the individual loop segment's length. The pipeline loop facilities have been assigned separate numbers by Tennessee to allow for easy differentiation and identification of the loop segments.

The Project, as described above, is consistent with the goals and purposes of the Highlands Act. As detailed at length in Section 5.0 of this request, impacts on surface or groundwater resources associated with Project construction activities will be minimized to the maximum extent practicable. The Project involves no wastewater flow and impacts on water resources will also be minimized. The Project will not result in sprawl development and, by primarily utilizing the existing ROW, will advance the goal of encouraging appropriate patterns of compatible development and economic growth in or adjacent to areas already utilized for such purposes. Impacts to environmentally sensitive and agricultural lands will be minimized to the maximum extent practicable through Project design minimization and implementation of appropriate construction Best Management Practices (“BMPs”). As the Project primarily involves the installation of underground facilities, the majority of impacts will be temporary construction related impacts. Permanent easement areas will be restored, revegetated (excluding trees) and maintained in accordance with the FERC-approved Plan and Procedures (defined below in Section 4.0). Temporary workspace areas needed for construction activities will be allowed to return to their pre-existing vegetated state after restoration. The natural beauty of the Highlands will be preserved based on the primarily underground nature of the Project facilities. Moreover, the Project is consistent with and will advance the Highlands Act’s goal of ensuring economic vitality, particularly in or adjacent to areas already utilized for such purposes. To ensure the consistency of the Project with the goals and purposes of the Highlands Act, Tennessee has prepared a Comprehensive Mitigation Plan (“CMP”) which is attached as an appendix to this application.

For all of these reasons, Tennessee submits that pursuant to N.J.S.A. 13:20-28.a(11) and NJDEP’s regulations, N.J.A.C. 7:38-2.3(a)11, the Project qualifies for exemption from the Highlands Act, the RMP, NJDEP regulations implementing the Highlands Act, and any local master plan amendments or regulations adopted to conform with the RMP.

## 1.1 PURPOSE AND NEED

Tennessee plans to construct the Project to meet increased demand for interstate natural gas transportation services in the northeastern United States by increasing the natural gas delivery capacity in the region by approximately 350,000 dekatherms per day. The proposed 325 Loop Segment in New Jersey is a necessary component of the overall Project to meet this increased demand for natural gas transportation service. Additionally, the Project will also provide access to diversified natural gas supplies from the Gulf Coast, Appalachian, Rockies, and Marcellus Shale supply areas with deliveries to points located across Tennessee’s mainline system and various interconnections with other pipelines for further transportation to other markets downstream of the Highlands area in northeastern New Jersey, as well as deliveries into utility-owned distribution facilities located in White Plains, New York serving New York City, New York and Westchester County, New York. As discussed above, Tennessee has executed a binding precedent agreement with Equitable for all of the firm transportation capacity resulting from this Project. If certificated by the FERC, this Project will have been deemed to be in the Public Convenience and Necessity pursuant to Section 7(c) of the Natural Gas Act.

## 1.2 HIGHLANDS ACT EXEMPT STATUS

Tennessee asserts that construction and operation of the components of the Project within New Jersey’s Highlands Region are exempt activities and structures under Highlands Act (N.J.S.A. 13:20-1 et seq.) and its implementing regulations (the “Regulations”; N.J.A.C. 7:38), since upgrades of existing public utility lines, rights-of-way, and systems are exempt, provided the activity is consistent with the goals and purposes of the Highlands Act. See Section 5.0 below for



a detailed discussion of the Project's consistency with the goals and purposes of the Highlands Act.

While Tennessee is ultimately regulated by the FERC as an interstate natural gas pipeline transmission company (see Section 1.0), for the purpose of this request, Tennessee should be considered a public utility as defined in N.J.S.A. 48:2-13, the New Jersey Public Utility Act. Under the Public Utility Act, "public utility" shall include "every entity that may own, operate, manage or control within this State any . . . pipeline . . . under privileges granted or hereafter to be granted by this State or any political subdivision hereof". N.J.A.C. 7:38-1.4. In its response to Tennessee's comments regarding the Highlands Rules (see Attachment B to this Narrative), set forth at 38 N.J.R. at 5054, Response to Comment 296 (Dec. 4, 2006), NJDEP clarified that "infrastructure systems such as natural gas or electric transmission that . . . serves to deliver or provide gas and electricity to public systems" "are considered a public utility and, therefore, eligible for the exemption." Accordingly, Tennessee, which operates natural gas infrastructure systems for supply to utilities and power generators, constitutes a public utility under NJDEP's Highland's regulations.

## 2.0 EXISTING CONDITIONS

Tennessee's existing 300 Line is a 24-inch OD underground natural gas pipeline system that currently traverses the Highlands for a length of approximately 26.6 miles. The existing maintained ROW for the 300 Line is typically 50 feet in width in the New Jersey segment and has been operated by Tennessee for more than 50 years. A portion of that ROW was acquired through easements containing provisions which granted Tennessee the right to lay additional lines within those easements.

The 325 Loop Segment upgrade facilities will consist of approximately 17.27 miles of 30-inch OD looping pipeline sited parallel and within Tennessee's existing 300 Line pipeline ROW. This loop segment within the Highlands Region begins at MP 1.25 and continues through Vernon Township in Sussex and Passaic Counties (8.73 miles) to MP 9.98. The loop segment remains in Passaic County and continues through West Milford Township (6.73-miles) into Ringwood Borough (0.56-miles), ending at MP 17.27. Table 1 provides supplemental loop data for construction activities within the Highlands Region.

The proposed 325 Loop Segment will lie within the Valley and Ridge and Highlands Physiographic Provinces of the Appalachian Highlands (Dalton 2003). In New Jersey, the Valley and Ridge Physiographic Province occupies major portions of Sussex and Warren Counties. The province is characterized by steep sided, linear ridges and broad valleys underlain by folded and faulted Paleozoic sedimentary rocks and a minor amount of igneous rocks. The rugged topography of the Highlands Province consists of a series of discontinuous rounded ridges separated by deep narrow valleys (Dalton 2003). Elevations along the proposed 325 Loop Segment range from approximately 360 feet to 1,440 feet. Surficial geology within the proposed 325 Loop Segment alignment primarily consists of sandy ground moraine deposits of Netong Till. Late Wisconsinan glacial lake bottom and glacial delta deposits and alluvium underlie portions of the proposed 325 Loop Segment associated with stream valleys and waterbodies.

The proposed 325 Loop Segment will lie within two major river basins, the Hudson River Basin and the Passaic River Basin. Within the Hudson River Basin, the 325 Loop Segment will lie within the Wallkill River watershed. The watershed is about 208 square miles in area and flows approximately 27 miles through Sussex County, New Jersey, and into New York. Significant lakes within the watershed and 325 Loop Segment area include Upper Greenwood Lake, Lake Wawayanda, and Highland Lake.

The proposed 325 Loop Segment will enter into the Passaic River Basin at approximate MP 12.0 in West Milford Township. The Passaic River flows approximately 90 miles from Morris County, New Jersey to Newark Bay, flowing through seven counties and 45 municipalities along its route (Barnett 2001). The proposed 325 Loop Segment will lie within the upper reaches of this Basin, in the Pequannock and Wanaque River watersheds. The Pequannock River watershed encompasses 98 square miles in northwest New Jersey and includes three counties (Passaic, Morris, and Sussex) and 11 municipalities. The proposed 325 Loop Segment will cross Belcher Creek, an outlet of Greenwood Lake at approximate MP 13.75. The general cover types crossed by the proposed 325 Loop Segment include deciduous forested uplands, forested wetlands, emergent wetlands, pastures/agricultural land, and residential land.

### 3.0 PROPOSED ACTIVITIES

The proposed pipeline and other aboveground facilities associated with the Project's 325 Loop Segment within the Highlands Region are detailed in Table 1 below. A summary of land requirements for the proposed 325 Loop Segment within the Highlands Region is provided in Table 3 below. Although based on the best information available at the time of this submission, factors beyond Tennessee's control may influence actual facility design and locations and, therefore, all proposed facility design and locations are preliminary and are subject to final design and FERC approval. In the event that the facility design and location changes are necessitated by FERC approval and/or other factors beyond Tennessee's control, Tennessee will notify the Highlands Council accordingly.

TABLE 1  
PROPOSED PIPELINE AND ABOVEGROUND FACILITIES FOR THE LOOP 325 SEGMENT

Designation	Facility Type	Approximate Length (miles) / Area (acres) <sup>a</sup>	Milepost	Highlands Area	Town	County
300 Line	30-inch natural gas pipeline	1.25 miles	MP 0.0 to MP 1.25	None	Wantage	Sussex
		5.07 miles	MP 1.25 – MP 6.32	Planning	Vernon	Sussex
		3.66 miles	MP 6.32 – MP 9.98	Preservation	Vernon	Passaic
		6.73 miles	MP 9.98 – MP 16.71	Preservation	West Milford	Passaic
		0.56 miles	MP 16.71 – MP 17.27	Preservation	Ringwood	Passaic
MLV 326-2	Main line valve	0.02 acres	MP 4.2	Planning	Vernon	Sussex
MLV327-2	Main line valve	0.02 acres	MP 11.4	Preservation	West Milford	Passaic
MLV327-2A	Main line valve	0.02 acres	MP 14.7	Preservation	West Milford	Passaic
Pig Receiver	Internal inspection piping	0.30 acres	MP 17.27	Preservation	Ringwood	Passaic

a: Area is based on the extent of the land that will be maintained during operation of the facilities.

#### 3.1 PIPELINE FACILITIES

The proposed 325 Loop Segment will be located generally at a 25-foot offset from the existing 300 Line pipeline within the existing ROW where feasible. Some additional new permanent ROW will be required along with temporary workspace and additional temporary workspace to facilitate construction of the pipeline. The routing for the proposed 325 Loop Segment was selected to parallel the existing 24-inch line, which will in turn avoid new areas of residential development, minimize the number of newly affected landowners, and minimize environmental impacts.

### 3.2 EXISTING AND PROPOSED PERMANENT RIGHT-OF-WAY

The existing 300 Line pipeline is situated within a 50-foot (typical) permanent ROW. Tennessee plans to maintain a maximum 25-foot separation between the existing pipeline and the proposed 325 Loop Segment where feasible. By siting the Project in this manner, Tennessee will minimize the amount of new disturbance associated with the installation of the pipeline looping. Upon completion of construction, Tennessee will maintain an additional 25 feet of new permanent ROW. This will result in a 75-foot wide (typical) permanent easement that will include both the existing 24-inch 300 Line pipeline as well as the new 30-inch 325 Loop Segment pipeline to facilitate operation.

### 3.3 TEMPORARY CONSTRUCTION WORKSPACE

Tennessee is proposing a typical construction ROW width for the Project of 100 feet, which will generally consist of 25 feet of the existing permanently maintained ROW (25 feet will not be used in most cases to avoid working over the existing 24-inch line that will remain in-service during construction), 25 feet of new permanently maintained ROW, and 50 feet of temporary construction workspace. The construction ROW width will be reduced in wetland areas and in some residential areas to reduce impacts and may be extended to 125 feet in agricultural areas to facilitate topsoil segregation.

In addition to the typical 100-foot wide construction ROW, additional temporary workspace areas will be required to facilitate construction of wetlands, steep slopes, bedrock outcrops, and road, railroad, and utility crossings. These areas will also be required to support specialized construction techniques such as drilling or boring. Typical additional temporary workspace width will range from 25 and 100 feet, depending upon existing land use, geological and topographic conditions. In accordance with the FERC-approved Plan and Procedures (defined below in Section 4.0), disturbed areas will be restored upon completion of construction activities.

### 3.4 ACCESS ROADS

Access roads are required for construction so the contractor may move personnel, equipment, and material to the pipeline ROW. Tennessee is proposing to use existing public roadways and existing private access roads. The majority of the access roads would require minimal modification. A total of 6 private access roads have been preliminarily identified for use during construction of the 325 Loop Segment that are within the Highlands Region (See Table 2). All other roadways are public roadways and there are no improvements anticipated.

TABLE 2 SUMMARY OF PRIVATELY OWNED ACCESS ROADS WITHIN THE HIGHLANDS REGION PROPOSED FOR USE DURING CONSTRUCTION OF LOOP 325				
Access Road Number	Existing Use / Condition	Milepost at Entry of ROW	Planning / Preservation Area	Municipality/County
2	Dirt Road	5.09	Planning	Vernon / Sussex
2A	Dirt Road	5.26		
3	Residential Paved Driveway	5.84		
3A	Dirt Road	5.98		
4	Dirt / Grass Woods Road	6.52	Preservation	West Milford / Passaic County
5	Paved / Gravel Road	15.07		

### 3.5 PIPE AND EQUIPMENT STORAGE YARD

Tennessee and its contractors will utilize one area, approximately 15.67 acres in size, for pipe storage and contractor staging areas during construction. The proposed pipeyard and staging area is located within the Highlands Preservation Area off Burnt Meadow Road in West Milford, and is associated with a previously disturbed quarry. Upon completion of construction activities, the pipeyard will be restored to pre-construction conditions.

### 3.6 ABOVEGROUND FACILITIES

#### 3.6.1 Pig Receiver<sup>7</sup>

Tennessee proposes to construct a pig receiver at the Project terminus in Ringwood Borough, Passaic County, New Jersey. The pig receiver facilities have been sited in previously disturbed areas and will require a workspace area of approximately 0.25 acres.

#### 3.6.2 Main Line Valves

Tennessee will install tie-in valve assemblies at each end of the pipeline loop segment to integrate the loop sections into the existing system. The looping pipeline will have crossover valves at the beginning and ending sections of the pipeline that will be operated for isolation purposes as well as three additional main line valves ("MLV"). Emergency isolation of the looping sections will be accomplished via isolation and/or evacuation of the loop segment through the MLVs without affecting the MLVs on the existing 300 Line pipeline immediately upstream and

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<sup>7</sup> The term "pig receiver" refers to a pipeline component used for removing an inline inspection tool, cleaning pig, or other device from a pressurized pipeline. The device is inserted into the pipeline via a launcher.

downstream of the looping facilities. Periodically, the loop segment will be isolated from the existing mainline for inspection or maintenance purposes.

<b>TABLE 3 SUMMARY OF ESTIMATED LAND REQUIREMENTS FOR THE PROPOSED 325 LOOP SEGMENT AND OTHER ABOVEGROUND FACILITIES WITHIN THE HIGHLANDS REGION</b>			
<b>Facility</b>	<b>Highlands Jurisdictional Area</b>	<b>Land Affected During Construction<sup>a</sup> (acres)</b>	<b>Land Utilized During Operation<sup>b</sup> (acres)</b>
Pipeline	Planning Area	55.32	7.76
	Preservation Area	111.52	31.17
<b>Subtotal</b>		<b>166.84</b>	<b>38.93</b>
Aboveground Facilities	Planning Area	0.1	0.02
	Preservation Area	0.8	0.34
<b>Subtotal</b>		<b>0.9</b>	<b>0.36</b>
Access Roads <sup>c</sup>	Planning Area	7.81	0.00
	Preservation Area	1.17	0.00
<b>Subtotal</b>		<b>8.98</b>	<b>0.00</b>
Staging Areas/ Pipe Yards	Planning Area	0.00	0.00
	Preservation Area	15.67	0.00
<b>Subtotal</b>		<b>15.67</b>	<b>0.00</b>
<b>Total<sup>c</sup></b>		<b>191.49</b>	<b>38.93</b>

a: Land Affected During Construction is based on the extent of temporary work space and additional temporary work space.

b: Land Affected During Operation is based on the extent of the land that will be maintained during operation of the facilities.

c: Aboveground facilities are located within the designated workspace areas associated with the pipeline. Therefore, the total impact calculations are based on those associated with the pipeline, access road and staging area / pipeyard categories.

### 3.7 LONG-TERM MAINTENANCE

There is a pervasive federal statutory and regulatory scheme that occupies, to the exclusion of state regulation, the field of interstate natural gas pipeline maintenance and repairs. Included in that federal scheme are the following federal statutes and regulations:

- The Natural Gas Act, 15 USC Sec. 717 et seq.
- The Natural Gas Policy Act, 15 USC Sec. 3301 et seq.
- The National Environmental Policy Act, 42 USC Sec 4321 et seq
- The Natural Gas Pipeline Safety Act, 49 USC Sec 60101 et seq.
- Regulations promulgated by the FERC, located at 18 CFR Parts 154, 157, 284, and 380
- Regulations promulgated by the United States Department of Transportation, located at 49 CFR arts 190-199.

Tennessee, as a federally regulated interstate natural gas pipeline company, is legally bound to comply with these statutes and regulations. To further assist the Highlands Council staff in understanding some of the federal regulation to which Tennessee's maintenance and repair activities are subject, Tennessee is identifying below, for informational purposes only, maintenance and repair activities that may be required for interstate natural gas pipeline facilities and the environmental compliance required for by the FERC for such activities.

#### 3.7.1 Interstate Natural Gas Pipeline Maintenance and Repair Activities

After initial construction activities of interstate natural gas pipeline facilities (performed pursuant to the conditions of the specific certificate order for the Project, the FERC-approved Implementation Plan, and applicable regulations), post-construction and restoration pipeline maintenance and repair activities will take place as needed. These activities include but are not necessarily limited to:

- Testing pipeline facilities including activities such as:
  - pigging the pipeline (i.e. running cleaning and instrumentation tools through the pipeline);
  - hydrostatic testing (i.e. isolating a pipeline segment and testing strength by filling and pressuring the pipeline segment with water); and
  - excavating the pipeline for direct inspection.
- Anomaly remediation (corrective action taken as a result of pipeline inspections) such as:
  - repairing pipeline coating;
  - replacing pipeline coating;
  - adding steel sleeves to reinforce a pipeline segment; and
  - replacing pipeline segment.
- Mowing and clearing right-of-way.
- Controlling erosion and maintaining cover over pipeline.
- Installing signage (e.g., "Do not dig" and "One Call").
- Installation, modification, or replacement of appurtenant equipment such as:
  - pig launchers and receivers,

- cathodic protection equipment,
- drips,
- ball valves,
- check valves,
- blowdown valves,
- relief valves,
- valve guards,
- valve operators,
- concrete saddles and pads to protect pipe,
- communication equipment,
- electronic gas measurement equipment,
- transducer,
- flanges,
- gas sampler,
- flow control equipment,
- flow computer,
- check meters,
- jumper pipeline,
- yard piping, and
- pressure regulation.

### 3.7.2 Maintenance and Repair Activities Pursuant to Original Certificate Order

Although routine post-construction maintenance and repair activities may be done without any further authorization from the FERC beyond the certificate order authorizing the initial construction and operation of the facilities (if such activities can be accomplished within the original footprint of construction), interstate natural gas pipelines are required to adhere to the FERC's maintenance requirements in Section 380.15 of the FERC's regulations, 18 C.F.R § 380.15 (2008). These requirements include the following:

- Avoid or minimize effect on scenic, historic, wildlife, and recreational values.
- The requirements of Section 380.15 of the FERC's regulations do not affect a pipeline's statutory obligations to comply with the safety regulations of the U.S. Department of Transportation.
- The desires of the landowners should be taken into account so long as the result is consistent with applicable requirements of law, including laws relating to land-use and any requirements imposed by the FERC.
- Vegetative covers established on a right-of-way should be properly maintained.
- Access and service roads should be maintained with proper cover, water bars, and the proper slope to minimize soil erosion. They should be jointly used with other utilities and land-management agencies where practical.
- Chemical control of vegetation should not be used unless authorized by landowner or land-managing agency. When chemicals are used for control of vegetation, they should be approved by EPA for such use and used in conformance with all applicable regulations.
- Unobtrusive sites should be selected for the location of above-ground facilities.
- Above-ground facilities should cover the minimum area practicable.
- Noise potential should be considered in locating compressor stations, or other above-ground facilities.



- The exterior of above-ground facilities should be harmonious with surroundings and other buildings in the area.
- The site of above-ground facilities that are visible from nearby residences or public areas should be planted in trees and shrubs or other appropriate landscaping, and should be installed to enhance the appearance of the facilities consistent with operating needs.

In addition to the above-listed requirements, the FERC imposes conditions related to maintenance and repair activities in its orders issuing certificate authorizations. Such conditions may relate to construction techniques, restoration requirements or on-going maintenance of pipeline right-of-way. For example, the FERC routinely includes the following condition in orders authorizing pipeline construction:

Routine vegetation maintenance clearing shall not be done more frequently than every 3 years. However, to facilitate periodic corrosion and leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be maintained annually in a herbaceous state. Routine vegetation maintenance clearing shall not occur between April 15 and August 1 of any year. This condition is also one of the myriad of provisions in FERC's "Upland Erosion Control, Revegetation and Maintenance Plan". By including the provision in its order, FERC is placing this requirement on the pipelines for the life of the pipeline.

When repair and maintenance activities require excavation, Tennessee will restore excavated sites to pre-excavation contours and will monitor the disturbed area until the site is successfully revegetated. As noted above, the desires of the landowner will be taken into account so long as the result is consistent with applicable requirements of law and any requirements imposed by the Commission. Tennessee follows the applicable FERC guidelines as stated in FERC's Plans and Procedures. Copies of the Plan and Procedures are enclosed with the 300 Line Project Highlands Region Comprehensive Mitigation Plan, submitted with the instant exemption request.

## 4.0 REGULATED AREAS AND IMPACT MITIGATION

This section provides a review of regulated areas under the jurisdiction of the Highlands Act and the mitigation measures that Tennessee proposes to implement during Project construction to avoid impacts to regulated areas. In addition to the specific measures detailed below, Tennessee will construct the project in accordance with the FERC's Upland Erosion Control, Revegetation, and Maintenance Plan ("Plan") and Wetlands and Waterbodies Construction and Mitigation Procedures ("Procedures"), as well as Tennessee's Construction Best Management Practices ("BMPs"), which includes a Spill Prevention Countermeasure and Control Plan ("SPCC"), Waste Management Plan, Unanticipated Discovery Plan, Pipe Coating Management Plan, and the 300 Line Project Highlands Region Comprehensive Mitigation Plan ("CMP"). Tennessee may also employ horizontal directional drill ("HDD") technology during construction of the 325 Loop Segment to avoid sensitive resource areas and areas that present difficulties for conventional construction methodologies. A description of the HDD construction technology and proposed areas along the 325 Loop Segment where the HDD construction method may be utilized is detailed below.

HDD is a trenchless installation process by which the pipeline is installed utilizing equipment and techniques derived from oil well drilling technology. In general terms, the installation is a two-stage process consisting of establishing a small diameter pilot hole along the crossing profile, followed by enlarging the pilot hole to accommodate pull back of the proposed pipeline.

The pilot hole is drilled using a non-rotating small diameter (3 to 5 inches) drill string and a drill bit consisting of an asymmetric jetting head. The hydraulic cutting action of the drill head is remotely operated to control its orientation, and the position of the drill string is electronically monitored during the drilling operation. Directional corrections are made as necessary to ensure that the drill string maintains the desired profile and alignment. Bentonite drilling fluid, comprised of bentonite clay and water, is delivered to the cutting head through the drill string to provide the hydraulic cutting action and to remove cutting spoil as the drilling fluid returns to the entry point of the pilot hole. The bentonite clay is processed to remove the cuttings, and the bentonite is recycled for use as the drilling operation continues.

Enlarging the pilot hole is accomplished with one or more reaming passes, depending upon the proposed pipeline diameter. The rotating reaming/cutting tool is attached to the drill string at the exit point, and drawn back toward the drilling rig situated at the entry point of the pilot hole. Drill pipe is added behind the reaming tool as it progresses toward the drill rig to ensure that a continuous drill string is maintained in the drilled hole. Bentonite drilling fluid delivered through the drill string to the reaming tool is once again used to remove cutting spoil from the hole and stored in a settlement pit. Enlargement of the hole to accommodate the six-inch pipeline will be completed through a single reaming-pass with a larger diameter (12-inch) tool to obtain the desired dimension. The pullback string will be fabricated within the existing ROW in advance of the HDD. Following the reaming operation, the prefabricated pipeline is attached to the drill string at the exit point and typically drawn back toward the drilling rig at the entry location.

Perhaps the greatest advantage of the HDD crossing technique is the fact that open cut trenching and other equipment disturbance within resource areas is avoided 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 250 feet wide by 200 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 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 in order that it may be conveyed into the drill hole during the pull back operation.

TABLE 4 PROPOSED HDD CROSSINGS FOR LOOP 325 WITHIN THE HIGHLANDS REGION					
Township	County	Milepost	Approximate Length (feet)	Highlands Jurisdictional Area	Comment
Vernon	Sussex / NJ	5.41 – 5.83	2,190	Planning	Wetlands
Vernon	Sussex	5.83 – 6.50	3,545	Planning & Preservation	Roads, Lake & Subdivision
West Milford	Passaic	15.99 – 16.90	4,798	Preservation	Monksville Reservoir

#### 4.1 PRIME GROUNDWATER RECHARGE AREA

The Project is not anticipated to negatively impact groundwater quality and/or supply. Tennessee proposes to implement construction practices designed to reduce and/or mitigate potential impacts on groundwater during construction as detailed within the FERC's Plans and Procedures and Tennessee's Construction BMPs. Tennessee and its contractors will adhere to these practices related to groundwater protection including specifications for trench breakers and dewatering as well as restrictions on refueling and storage of hazardous substances.

All equipment used in construction of the pipeline looping will be refueled and lubricated within the limits of the ROW at a minimum distance of 100 feet from all wetlands, waterbodies, and identified wells. Auxiliary fuel tanks will be used to reduce the frequency of refueling operations, and refueling will not take place within 400 feet of identified municipal or community water supplies, including groundwater and surface water as per state requirements. The impact minimization measures will prevent the discharge of hydraulic fluids or fuels from leaving the ROW and/or leaching into the groundwater.

#### 4.2 SOURCE AND SURFACE WATER PROTECTION AREAS

All new major Highlands development is prohibited within a Highlands open water and its adjacent 300-foot buffer except for linear development, which shall be permitted provided that

there is no feasible alternative for the linear development outside the Highlands open water or Highlands open water buffer. "Highlands open waters" means all springs, streams including intermittent streams, wetlands, and bodies of surface water (NJDEP 2006). The Project has no feasible alternative for development outside of Highlands open water because a continuous length of pipeline must be installed parallel to the already existing pipeline.

Tennessee anticipates that all of the waterways in the Project area will be crossed by one of the three methods as described below. Tennessee will implement the waterbody construction procedures identified within the FERC's Plan and Procedures and Tennessee's Construction BMPs, as well as installing the specified erosion controls at all drainage channels prior to the commencement of crossing activities. Waterbody crossing procedures are described below.

#### Open Cut Crossing

For open cut crossings, the pipeline will be placed deep enough to meet the minimum cover requirement of three feet, provided rock is not encountered. The following additional stipulations will apply to all open cut stream crossings:

- Material excavated from the trench will be stockpiled above the stream banks;
- Material excavated from the trench will generally be used as backfill unless federal or state permits specify otherwise;
- Padding material, rock shield and/or concrete coating may be used around the pipe should the backfill material contain excessive rock;
- Any excess material will be removed from the body of water; and
- The stream bottom will be returned to its original contour.

#### 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. Soil characteristics must be stable, and stream flow should be low to moderate for this method to be used successfully and safely. The flume pipe must be long enough to account for the ditch potentially increasing in width during excavation (due to sloughing) and sized to consider high flow conditions. An effective seal must be created around the flume(s) so water will not penetrate and potentially compromise the channelized dam on both the inlet and outlet end.

#### 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. Tennessee will implement the following measures where the dam and pump method is utilized:

- Sufficient pumps, including on-site backup pumps, will be used to maintain downstream flows;
- Temporary dams will be constructed with materials that prevent sediment and other pollutants from entering the waterbody (e.g., sandbags or clean gravel with plastic liner);
- Pump intakes will be screened;

- Streambed scour at the pump discharge will be prevented; and
- The dam and pumps will be monitored to ensure proper operation throughout the waterbody crossing.

If necessary, the pipe used for stream crossings and in floodplains will be weighted to prevent flotation. The pipe will be welded together in the staging areas and then carried or floated along the ROW into place. If the streambed is composed of unconsolidated material, the pipe will be pulled into place. In rock-bottomed streams, the pipe will be floated or lifted across and then lowered into place. After the pipe is lowered into the trench, previously excavated material will be returned to the trench line for backfill. Stream flow will be maintained at all waterbody crossings, and no alteration of the stream capacity will result from pipeline construction. At small streams encountered along the ROW, a backhoe, or similar equipment will be used for trench excavation. As a rule, the completion of all construction activities at minor (less than 10 feet in width) stream crossings should not exceed one to two days per crossing.

The proposed construction procedures will ensure that potential impacts at all stream crossings are minimized. To limit the time required for construction of a stream crossing, the ROW will be prepared on either side of the stream prior to the actual crossing. Stream crossings will be perpendicular to the flow to the extent practical. Temporary erosion control measures will be implemented as necessary to prevent downstream impacts. After the completion of construction, streambeds will be restored to their pre-construction elevations and grades. Spoil, debris, piling, cofferdams, construction materials, and any other obstructions resulting from or used during construction of the pipeline will be removed to prevent interference with normal stream flow. Any excavated material not used as backfill will be removed and disposed of in accordance with local, state, and federal conditions. Following grading, all stream banks will be restored to pre-construction conditions and in accordance with permit requirements.

#### 4.3 OPEN WATER PROTECTION AREA

To minimize impacts to wetlands, Tennessee will implement the wetland construction procedures described within the FERC's Plan and Procedures and Tennessee's Construction BMPs. Following construction, during operation of the Project, 10 feet of the permanent ROW, centered over the pipeline, will be maintained within wetlands at an early successional stage in accordance with FERC requirements. In forested wetlands, Tennessee will minimize tree clearing to the maximum extent practicable while maintaining safe construction conditions.

Tennessee will protect and minimize potential adverse impacts to wetlands by expediting construction in and around wetlands, by restoring wetlands to their original configurations and contours, by segregating topsoil during excavation, by permanently stabilizing upland areas near wetlands as soon as possible after backfilling, by inspecting the ROW periodically during and after construction, and by repairing any erosion control or restoration features until permanent revegetation is successful. Tennessee will comply with the applicable permit conditions issued by federal, state, and local permitting agencies.

#### 4.4 CRITICAL HABITAT RESOURCE AREA

The NJDEP shall consider as suitable habitat any area that, based on the best available scientific information, provides all of the components necessary to sustain any rare, or threatened or endangered animal species, including, but not limited to, nesting or breeding areas, foraging or feeding areas, resting or roosting areas, hibernacula or denning areas, or any area that is a part of a larger habitat area that provides all of the components necessary to sustain the rare, or

threatened or endangered animal species in question based upon evaluation of the following information (NJDEP 2006).

On behalf of Tennessee, AECOM Environment (“AECOM”) consulted with the USFWS and the NJDEP to identify the potential presence of federally and state listed threatened and endangered species as well as species of special concern and significant habitats within the Project corridor.

The USFWS has indicated that a portion of the proposed Project is within range of the foraging area of two known maternity colonies of the federally endangered Indiana bat (*Myotis sodalis*). The remainder of the Project is located within the summer range of the Indiana bat. The USFWS also indicated that the Project is in the vicinity of documented occurrences of the federally threatened bog turtle (*Glyptemys muhlenbergii*). AECOM conducted surveys for these two species based on USFWS specific survey requirements. The surveys were conducted by qualified species specific surveyors.

The NJDEP has provided a list of state listed rare plant and wildlife species, and rare wildlife habitat that have had occurrences in the vicinity or within one-quarter mile of the Project. All vascular plant surveys were conducted under the supervision of a qualified professional botanist who has familiarity with both the target species and the general plant species endemic to the study region. Rare wildlife and wildlife habitat surveys were conducted by a qualified wildlife biologist through a survey protocol reviewed and approved by NJDEP.

A detailed summary report is currently being prepared and will be submitted to the USFWS, the NJDEP, and Highlands Council staff for review and comment. Impact mitigation measures, if necessary, will be developed subsequent to completion of the field surveys in coordination with USFWS, NJDEP, and the Highlands Staff and referenced in the CMP.

#### 4.5 FOREST RESOURCE PROTECTION AREA

Long-term impacts to successional habitats are limited to forest and scrub-shrub areas during operation of the proposed Project. The siting of the alignment along a previously disturbed and maintained pipeline corridor was the preferred alternative as it reduces the clearing of forested areas during construction and minimizes the potential for habitat fragmentation. In areas where workspace within forested areas is unavoidable, such workspace will be cleared and standard erosion control/cover species will be planted after construction is completed. Temporary workspace that was identified as forest during the field surveys will be allowed to revert to forest. Areas that are already vegetated with grasses or early successional species will be restored after the conclusion of construction activities.

#### 4.6 STEEP SLOPES

Linear development as defined at N.J.A.C. 7:38-1.4 shall be permitted on a slope with a grade of 20 percent or greater provided that there is no feasible alternative for the linear development outside the steep slope (NJDEP 2006). The Project has no feasible alternative for development outside of the steep slopes. The potential for slope failure due to earthflow along the proposed ROW would be minimized through specialized construction techniques and the use of erosion control procedures outlined in the FERC’s Plan and Procedures and Tennessee’s Construction BMPs and the CMP.

Upon completion of pipe installation, disturbed areas and drainage patterns will be restored to pre-construction contours and elevations. Revegetation of the ROW in accordance with the

FERC's Plan will ensure that the disturbed areas are stabilized to prevent erosion. Construction and restoration activities will be monitored throughout the process to ensure compliance. Operation and maintenance activities will include routine revegetation monitoring as a standard operational procedure.

#### 4.7 AGRICULTURAL RESOURCE AREA

Agricultural Resource Area was developed by the Highlands Council as one of 51 indicators utilized for the development of the Land Use Capability Map as referenced in the New Jersey Highlands Regional Master Plan. To determine the priority areas for farmland preservation, the Highlands Council utilized the results of the agricultural resource assessment to identify those lands within the Highlands Region which have the highest agricultural resource values. The seven indicators used to determine Agricultural Priority Areas are: Agricultural Resource Areas, important farmland soils (undeveloped), preserved farms, contiguous farms greater than 250 acres, agricultural uses 10 acres or greater, 50 percent or greater prime soils, and one-quarter mile proximity to preserved farms.

Tennessee will reduce adverse impact to agricultural land by following the FERC's Procedures and by implementing Tennessee's BMPs.

#### 4.8 HIGHLANDS PLANNING AND PRESERVATION AREAS

Of the over 800,000 acres that make up New Jersey's Highlands Region, the Highlands Act designates approximately 398,000 acres of exceptional natural resource value as the Highlands Preservation Area. Approximately 145,000 acres within the Highlands Preservation Area are undeveloped. All of the land in the Highlands Region that is not in the Highlands Preservation Area lies within the Highlands Planning Area (NJDEP 2008).

Tennessee proposes to implement construction practices designed to reduce and/or mitigate potential impacts on the Highland's Planning and Preservation Area's resources including waterbodies, wetlands, rare species habitat, forested areas, steep slopes, and agricultural areas. These construction practices are detailed within the FERC's Plans and Procedures, Tennessee's ECP, and the CMP.

#### 4.9 LAKE MANAGEMENT AREAS

The Highlands Water Protection and Planning Act Rules provides for the protection and enhancement of Highlands Lakes and their environs, including Highlands lake communities. Overbuilt, damaged, and poorly managed shoreline areas can result in the degradation of water quality, harm to lake ecosystems, decrease of natural aesthetic values, and overall loss of property values for lake communities. Lakes can be harmed by pollutant sources in the watershed area draining to them. Most existing lake communities were built prior to modern environmental requirements. Some have sewer systems, but many rely on septic systems (or even cesspools) on inadequately sized lots. Studies indicate that nearly every public lake (privately-owned lakes were not evaluated) in the Highlands is experiencing contamination, often including excessive bacteria and nutrients. Many lake communities have been experiencing intensifying land uses as the original buildings are torn down and replaced by larger structures. The Highlands Council seeks to identify redevelopment opportunities to improve community character and value, to both protect natural resources and to enhance and restore the quality of lake environments in the Region. The Highlands Act seeks to protect, restore, and enhance the

water quality of Highlands lakes and to protect the unique character of Highlands lake communities through the delineation of Lake Management Areas that have several tiers:

- A Shoreline Protection Tier comprised of all land within 300 feet of the shoreline of a Highlands Lake
- A Water Quality Management Tier comprised of land within 1,000 feet of the shoreline of a Highlands Lake
- A Scenic Resources Tier consisting of an area measured 300 to 1,000 feet from the shoreline, scaled based upon the view distance from the opposite shoreline, and determined through the size and layout of the lake, with wider portions of lakes having longer view distances
- A Lake Watershed Tier consisting of the drainage area of a Highlands Lake as determined through the use of LiDAR topographic or other topographic data where LiDAR is not available, within which actions will be focused on the restoration of lake water quality, including activities under the *Water Quality Restoration Program* (NJHWPPC 2007).

Lakes are considered Highlands open waters. All new major Highlands development is prohibited within a Highlands open water and its adjacent 300-foot buffer except for linear development, which shall be permitted provided that there is no feasible alternative for the linear development outside the Highlands open water or Highlands open water buffer. The Project has no feasible alternative for development outside of Highlands open water due to the linear nature of pipeline installation. Mitigation measures to be taken are described in section 4.2.

#### 4.10 RIPARIAN AREAS

Riparian Areas are areas adjacent to, and hydrologically interconnected with, rivers and streams. They are areas that exhibit periodic inundation or saturation of soils, are subject to periodic flooding, and include wildlife corridors within 300 feet of a surface water feature. Riparian Areas serve as an interface between surface water bodies and terrestrial ecosystems and play a critical role in maintaining the quality and ecological integrity of Highlands Open Waters. The Highlands Region contains an extensive network of surface waters and associated riparian lands. The Highlands Council completed an inventory of the Highlands Open Waters within the Highlands Region. The mapped Riparian Area is 367,988 acres (NJHWPPC 2008).

A Riparian Area integrity value class was assigned to each subwatershed based on a cumulative assessment of all the indicators as follows:

- High Integrity Riparian Area – these areas exhibit predominantly natural vegetation including high quality habitat for water/wetland dependent species, and a generally low incidence of impervious area, agricultural uses, and/or road crossings.
- Moderate Integrity Riparian Area - these areas contain a higher incidence of impervious area, agricultural uses, and road crossings and a reduced proportion of natural vegetation including high quality habitat for water/wetland dependent species.
- Low Integrity Riparian Area - these areas contain a high proportion of impervious area, agricultural uses, and road crossings and minimal natural vegetation including high quality habitat for water/wetland dependent species.



The Project has no feasible alternative for development outside of Highlands open water due to the linear nature of pipeline installation. Mitigation measures to be taken are described in section 4.2.

#### 4.11 CONSERVATION PRIORITY AREAS

To determine the priority areas for land preservation, the Highlands Council used the results of the Resource Assessment to identify those lands within the Highlands Region which have the highest ecological resource values. These values are based upon a combination of 33 ecological indicators which measure the quantity and quality of the following regional resource values: forests, watershed condition, critical habitat, prime ground water recharge areas, open waters and riparian areas, and steep slopes. The resources are not weighted, but rather are scored as an additive process (i.e., an area containing three resources would receive a score of three). Because the priority system is GIS-based, it is possible to use the same data layers in different combinations, and to ascertain which resources resulted in a score for any area of land. The highest value areas contain a maximum of 31 criteria/indicators (NJHWPPC 2007). The conservation priority areas, or Highlands regulated areas, are described in detail above along with appropriate mitigation measures that will be taken.

TABLE 5 ESTIMATED IMPACTS TO REGULATED AREAS WITHIN THE HIGHLANDS PLANNING AREA				
REGULATED AREA	LINEAR DISTANCE CROSSED (MILES) <sup>A</sup>	AREA IMPACTS (ACRES) <sup>A</sup>		
		PERMANENT	TEMPORARY	TOTAL
<b>Total Dimensions</b>	<b>4.16</b>	<b>7.76</b>	<b>63.13</b>	<b>70.89</b>
Prime Groundwater Recharge Area	2.01	2.62	27.44	30.06
Source Water Protection Area	0.00	0.00	0.00	0.00
Surface Water Reservoirs	0.00	0.00	0.00	0.00
Open Water Protection Area	0.70	0.83	9.74	10.57
Critical Habitat Resource Area	2.29	4.46	29.02	33.48
Forest Resource Protection Area	3.76	6.61	49.34	55.95
Steep Slopes	0.02	0.10	2.78	2.88
Agricultural Resource Area	0.64	0.80	6.30	7.10
Conservation Priority Area	1.12	2.51	18.25	20.76
Riparian Area	1.30	2.22	14.29	16.51
Lake Management Area	0.18	0.46	1.69	2.15
Special Environmental Zones	0.00	0.00	0.00	0.00

a - Area / distance is estimated based on GIS datalayers and excludes HDD areas identified in Table 4.

TABLE 6 ESTIMATED IMPACTS TO REGULATED AREAS WITHIN THE HIGHLANDS PRESERVATION AREA				
REGULATED AREA	LINEAR DISTANCE CROSSED (MILES) <sup>A</sup>	AREA IMPACTS (ACRES) <sup>A</sup>		
		PERMANENT	TEMPORARY	TOTAL
<b>Total Dimensions</b>	<b>9.86</b>	<b>31.17</b>	<b>128.36</b>	<b>159.53</b>
Prime Groundwater Recharge Area	1.83	5.08	24.34	29.41
Source Water Protection Area	6.03	19.72	67.59	87.31
Surface Water Reservoirs	0.00	0.00	0.00	0.00
Open Water Protection Area	5.86	19.41	57.41	76.82
Critical Habitat Resource Area	9.34	28.32	104.46	132.78
Forest Resource Protection Area	9.86	31.18	111.52	142.69
Steep Slopes	0.05	0.52	3.47	3.99
Agricultural Resource Area	0.00	0.00	0.00	0.00
Conservation Priority Area	5.37	20.34	76.27	96.61
Riparian Area	4.22	14.62	36.89	51.51
Lake Management Area	0.99	2.96	14.60	17.56
Special Environmental Zones	0.63	1.94	6.87	8.81

a –Area / distance is estimated based on GIS datalayers and excludes HDD areas identified in Table 4.

TABLE 7  
ESTIMATED IMPACTS TO REGULATED AREAS WITHIN THE HIGHLANDS REGION  
(PLANNING AREA AND PRESERVATION AREA)

REGULATED AREA	LINEAR DISTANCE CROSSED (MILES) <sup>A</sup>	AREA IMPACTS (ACRES) <sup>A</sup>		
		PERMANENT	TEMPORARY	TOTAL
<b>Total Dimensions</b>	<b>14.02<sup>a</sup></b>	<b>38.93</b>	<b>191.49</b>	<b>230.42</b>
Prime Groundwater Recharge Area	3.84	7.70	51.78	59.47
Source Water Protection Area	6.03	19.72	67.59	87.31
Surface Water Reservoirs	0.00	0.00	0.00	0.00
Open Water Protection Area	6.56	20.51	67.15	87.39
Critical Habitat Resource Area	11.63	32.78	133.48	166.26
Forest Resource Protection Area	13.62	37.79	160.86	198.64
Steep Slopes	0.07	0.62	6.25	6.87
Agricultural Resource Area	0.64	0.80	6.30	7.10
Conservation Priority Area	6.49	22.85	94.52	117.37
Riparian Area	5.52	16.84	51.18	68.02
Lake Management Area	1.17	3.42	16.29	19.71
Special Environmental Zones	0.63	1.94	6.87	8.81

a –Area / distance is estimated based on GIS datalayers and excludes HDD areas identified in Table 4.

## 5.0 CONSISTENCY WITH GOALS AND PURPOSES OF THE HIGHLANDS ACT

The Project is consistent with the goals and purposes of the Highlands Act, which are stated in the Legislative Findings Section of the Highlands Act. N.J.S.A. 13:20-2. As discussed in detail below, the Project involves the installation of underground facilities adjacent to areas already used for this purpose which is expected to minimize impacts to the environment, particularly water resources, as well as minimize visual impacts to the natural beauty of the region. Design and appropriate construction methods will minimize other impacts in sensitive areas. The Project will not result in sprawl or scattered or inappropriate development. Additionally, the Project will enhance the economic vitality of the region and the state.

### 5.1 PROTECTION OF WATER RESOURCES

The overall primary goal of the Highlands Act is the preservation of drinking water resources and water quality in the Highlands Region “through creation of a comprehensive approach to the protection of the water . . . of the New Jersey Highlands.” N.J.S.A.13:20-2. Construction activities associated with the Project will have minimal impacts on surface and groundwater resources. The Project involves no wastewater flow and impacts on water resources associated with construction activities will be minimized to the maximum extent practicable. The limited ROW enlargement as detailed in Section 3.3 of this narrative represents the only permanent impact associated with construction of the Project, as the 325 Loop Segment will be an underground facility. All other construction related impacts will be temporary.

Tennessee intends to incorporate the use of HDD technology where typical construction techniques are not feasible. This process will minimize impacts on water resources (and other environmental media). While the trenchless process requires a larger equipment staging area, these impacts will be temporary and equipment staging areas will be allowed to revegetate following restoration.

With respect to groundwater, Tennessee proposes to implement construction practices designed to reduce and/or mitigate potential impacts on groundwater during construction as detailed within the FERC-approved Plans and Procedures and Tennessee’s Construction BMPs. Tennessee and its contractors will adhere to these practices related to groundwater protection including specifications for trench breakers and dewatering as well as restrictions on refueling and storage of hazardous substances.

All equipment used in construction of the pipeline looping will be refueled and lubricated within the limits of the ROW at a minimum distance of 100 feet from all wetlands, waterbodies, and identified wells. Auxiliary fuel tanks will be used to reduce the frequency of refueling operations, and refueling will not take place within 400 feet of identified municipal or community water supplies, including groundwater and surface water as per state requirements. The impact minimization measures will prevent the discharge of hydraulic fluids or fuels from leaving the ROW and/or leaching into the groundwater.

With respect to source and surface water areas, Tennessee will implement the waterbody construction procedures identified within the FERC-approved Plan and Procedures and Tennessee’s Construction BMPs, as well as installing the specified erosion controls at all drainage channels prior to the commencement of crossing activities. If necessary, the pipe used

for stream crossings and in floodplains will be weighted to prevent flotation. The pipe will be welded together in the staging areas and then carried or floated along the ROW into place. If the streambed is composed of unconsolidated material, the pipe will be pulled into place. In rock-bottomed streams, the pipe will be floated or lifted across and then lowered into place. After the pipe is lowered into the trench, previously excavated material will be returned to the trench line for backfill. Stream flow will be maintained at all waterbody crossings, and no alteration of the stream capacity will result from pipeline construction. At small streams encountered along the ROW, a backhoe, or similar equipment will be used for trench excavation. As a rule, the completion of all construction activities at minor (10 feet in width or smaller) and intermediate (10 to 100 feet in width) stream crossings will not exceed 24 and 48 hours respectively per crossing. No major (greater than 100 feet in width) stream crossings lie within the proposed route.

The proposed construction procedures will ensure that potential impacts at all stream crossings are minimized. To limit the time required for construction of a stream crossing, the ROW will be prepared on either side of the stream prior to the actual crossing. Stream crossings will be perpendicular to the flow to the extent practical. Temporary erosion control measures will be implemented as necessary to prevent downstream impacts. After the completion of construction, streambeds will be restored to their pre-construction elevations and grades. Spoil, debris, piling, cofferdams, construction materials, and any other obstructions resulting from or used during construction of the pipeline will be removed to prevent interference with normal stream flow. Any excavated material not used as backfill will be removed and disposed of in accordance with local, state, and federal requirements. Following grading, all stream banks will be restored to pre-construction conditions and in accordance with permit requirements.

For all of these reasons, the Project will have minimal if any impacts on surface and groundwater resources.

## 5.2 ECONOMIC VITALITY

The Highlands Act provides that “it is important to ensure the economic viability of communities throughout the New Jersey Highlands and that . . . economic growth in certain appropriate areas of the New Jersey Highlands is also in the best interests of the citizens of the State.” Furthermore, there is a preference for economic growth activities “in or adjacent to areas already utilized for such purposes.” N.J.S.A. 13:20-2. The Project is consistent with and will advance the Highlands Act’s goal of ensuring economic vitality, while minimizing impacts associated with economic growth, as the upgrade activities are proposed adjacent to the existing 300 Line ROW. The proposed Project will generate several hundred temporary construction-related jobs. A number of those construction-related jobs are expected to be filled from the skilled New Jersey workforce. There will be opportunities for local contractors/personnel to provide their services to the Project. The construction crews are likely to make financial expenditures during the construction period for food, lodging, shopping, entertainment, fuel, and other similar services and products. In addition to those expenditures assisting local businesses, they will also generate sales tax revenue for the state. The Project will also generate a substantial increase in tax dollars for the host municipalities, estimated to be in an aggregate range of \$1,500,000 to \$2,000,000 per year based upon comparison to taxes generated in connection with the existing 300 Line. The Project will promote enhanced energy supply through diversified natural gas supplies and improved reliability in the State and region providing more cost effective energy supply for the region. Accordingly, the proposed Project will advance the goal of promoting appropriate economic benefits in the Highlands Region.

### 5.3 PRESERVATION OF AGRICULTURAL LANDS

The Highlands Act provides that agricultural lands are “important natural resources of the State that should be preserved.” N.J.S.A. 13:20-2. Tennessee’s proposal will minimize impacts to agricultural lands to the greatest extent practicable. The Project will not result in sprawl development. While some agricultural land will be impacted, the impacts to these areas will be minimized through implementation of the FERC-approved Plan and Procedures and Tennessee’s BMPs for temporary construction impacts primarily associated with equipment staging and through utilization of the existing 300 Line ROW to limit the area of additional required permanent ROW to 25 feet where feasible. Additionally, where appropriate, the temporary construction ROW width will be extended from 100 feet to 125 feet to facilitate topsoil segregation in agricultural areas.

### 5.4 AVOIDANCE OF FRAGMENTED, UNPLANNED, SPRAWL DEVELOPMENT, DISCOURAGE PIECEMEAL, SCATTERED OR INAPPROPRIATE DEVELOPMENT

The Legislature found that “sprawl and the pace of development in the [Highlands] has dramatically increased” and the Highlands “is at serious risk of being fragmented and consumed by unplanned development.” Furthermore, “a regional approach to land use planning in the preservation area should be established to replace the existing uncoordinated system” and the Highlands Act is intended to “discourage piecemeal, scattered and inappropriate development.” N.J.S.A. 13:20-2.

The Project will not result in sprawl or piecemeal development. By upgrading existing facilities and utilizing the existing permanent ROW to limit the additional permanent ROW associated with the upgrades to a maximum of 25 feet where feasible, the Project utilizes existing development to minimize impacts to resources within the Region consistent with the goal of avoiding fragmented, unplanned, and inappropriate development.

### 5.5 PROTECTION OF ENVIRONMENTALLY SENSITIVE LANDS

The Highlands Act provides that the “Highlands contain other exceptional natural resources such as clean air, contiguous forest lands, wetlands, pristine watersheds, and habitat for fauna and flora.” N.J.S.A. 13:20-2. The Project has been designed and construction activities will be implemented to minimize impacts to environmentally sensitive areas such as wetlands, critical habitat areas, forest areas, steep slopes, surface waterbodies, land areas associated with rare species, riparian areas and conservation priority areas to the maximum extent practicable. As detailed in Section 3.0 above, the Project will minimize additional permanent ROW impacts by utilizing the existing 300 Line ROW to the maximum extent practicable.

Tennessee will implement wetland construction procedures described within the FERC-approved Plan and Procedures and Tennessee’s Construction BMP’s to minimize potential impacts to wetlands. The width of the temporary construction ROW will be reduced to 75 feet in wetlands areas to reduce potential temporary construction impacts. Tennessee will expedite construction in and around wetlands to minimize potential adverse impacts by restoring wetlands to original configuration and contour, segregating topsoil during excavation, permanently stabilizing upland areas near wetlands as soon as possible after backfilling, conducting scheduled ROW inspections during and after construction, and repairing any erosion control or restoration features until permanent revegetation is successful. Tennessee will comply with applicable permit conditions issued by federal, state and local permitting agencies.

With respect to forested areas, the alignment of the pipeline looping along a previously disturbed and maintained pipeline corridor reduces impacts to forested areas during construction and minimizes the potential for habitat fragmentation. Where impacts are unavoidable, standard erosion control/cover species will be planted after construction is completed. Temporary workspace that was identified as forest during the field surveys will be allowed to revert to forest. Areas that are already vegetated with grasses or early successional species will be restored after the conclusion of construction activities.

With respect to steep slopes, where no reasonably feasible alternative for development outside of steep slopes exist, the potential for slope failure due to earthflow along the proposed ROW will be minimized through specialized construction techniques and the use of erosion control procedures outlined in the FERC-approved Plan and Procedures and Tennessee's Construction BMPs.

With respect to land associated with rare species, habitat assessments were conducted for all proposed impact areas. Consultations were initiated with NJDEP as well as the United States Fish and Wildlife Service to identify any federal or state listed species that may be present within the Project area. Additional surveys will be conducted during the 2009 field season to determine presence or absence of listed species. Impact avoidance and/or mitigation measures will be determined based on the result of field surveys and additional consultations with applicable regulatory agencies.

Upon completion of pipe installation, disturbed areas and drainage patterns will be restored to pre-construction contours and elevations. Revegetation of the ROW in accordance with the FERC approved Plan will ensure that the disturbed areas are stabilized to prevent erosion. Construction and restoration activities will be monitored throughout the process to ensure compliance. Operation and maintenance activities will include routine revegetation monitoring as a standard operational procedure.

Therefore, the Project minimizes impacts to and protects environmentally sensitive lands to the maximum extent practicable. Impacts that can not be avoided or minimized in selected environmentally sensitive lands will be mitigated according to the CMP.

## 5.6 IMPLEMENT REGIONAL APPROACH TO LAND USE PLANNING

The Legislature found that "a regional approach to land use planning in the preservation area should be established to replace the existing uncoordinated system." N.J.S.A. 13:20-2. The proposed Project will have no impact on the regional planning goals of the Highlands Act. As detailed above, the Project involves a proposed upgrade of existing energy supply facilities for transportation through the region to downstream markets. The Project will not result in sprawl development and is consistent with the resource protection goals and provisions of the Highlands Act. The proposed Project will not promote development that is inconsistent with the regional land use planning approach of the Highlands Act.

## 5.7 STATE ACQUISITION OF EXCEPTIONAL NATURAL RESOURCE VALUE LANDS

The Act provides that "a strong and significant commitment by the State to fund the acquisition of exceptional natural resource value lands" should be implemented as soon as possible. N.J.S.A. 13:20-2. The Project will have minimal, if any, impact on the State's efforts to acquire exceptional natural resource value lands in the Highlands region. The Project will result where feasible in only 25 feet of new permanent ROW for the upgrade facilities which will connect to the existing 50

foot permanent ROW of the existing 300 Line. By utilizing the existing facilities and ROW for the proposed upgrade activities, impacts on any efforts of the State to acquire exceptional natural resource value lands will be minimized to the maximum extent practicable.

#### 5.8 ENCOURAGE APPROPRIATE PATTERNS OF COMPATIBLE RESIDENTIAL, COMMERCIAL AND INDUSTRIAL DEVELOPMENT, REDEVELOPMENT AND ECONOMIC GROWTH, IN OR ADJACENT TO AREAS ALREADY UTILIZED FOR SUCH PURPOSES

The Legislature found that “it is appropriate to encourage in certain areas of the New Jersey Highlands, consistent with the State Development and Redevelopment Plan and smart growth strategies and principles, appropriate patterns of compatible residential, commercial and industrial development, redevelopment and economic growth, in or adjacent to areas already utilized for such purposes.” N.J.S.A. 13:20-2. The Project involves planned upgrades to the existing 300 Line. The Project will result where feasible in only 25 feet of new permanent ROW for the upgrade facilities which will connect to the existing 50 foot permanent ROW of the existing 300 Line. By utilizing existing facilities and ROW for the proposed upgrade activities, the Project will advance the goal of encouraging appropriate patterns of compatible development in and adjacent to areas already utilized for such purposes.

#### 5.9 PRESERVATION OF THE NATURAL BEAUTY OF THE HIGHLANDS REGION

The Act recognizes the importance of protecting the “natural beauty of the New Jersey Highlands.” N.J.S.A. 13:20-2. The proposed Project primarily involves the installation of underground facilities. Moreover, additional disturbance associated with the upgrade activities will be minimized to the maximum extent practicable by utilizing the previously disturbed area associated with the existing facilities and ROW. The only permanent above-ground impacts on natural beauty or visual impacts will be associated with the modest ROW enlargement and installation of MLVs. The MLV sites for the proposed 325 Loop Segment, as described in Table 1, will be connected to the existing MLV sites on the 300 Line to negate the need for the creation of multiple new sites. The pig receiver will have a site located at the end of the loop in Ringwood Borough. Accordingly, the Project will have minimal visual or other impacts on natural beauty of the Highlands region.

#### 5.10 ADVANCEMENT OF QUALITY OF LIFE OF THE RESIDENTS OF THE REGION AND THE ENTIRE STATE

The Legislature found that it is in the public’s interest to provide “every conceivable opportunity for appropriate economic growth and development to advance the quality of life of the residents of the region and the entire State.” N.J.S.A. 13:20-2. The Project will provide temporary employment opportunities during construction and restoration activities and will promote enhancement of energy supply through diversified natural gas supplies and enhanced energy reliability in the State and region, while minimizing associated impacts through implementation of appropriate construction BMPs and utilization of existing facilities and disturbed areas to the maximum extent practicable. This Project is consistent with New Jersey’s Energy Master Plan and its reliance on clean, natural gas. Additionally, it is projected that the Project and operation of the upgraded facilities will generate a significant increase in tax revenues estimated to be in an aggregate range of \$1,500,000 to \$2,000,000 on an annual basis to the municipalities where Tennessee’s pipeline system, including the proposed 325 Loop Segment is located. That tax



increase in turn is anticipated to have a positive impact on quality of life to the Highlands area through increased financial resources for affected municipalities.

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