**SPECTRA ENERGY TRANSMISSION, LLC**
5400 Westheimer Court
Houston, TX 77056
713.627.6385 direct
adrake@spectraenergy.com

Mailing Address:
P.O. Box 1642
Houston, TX 77251-1642

**J. A. (Andy) Drake, P.E.**
*Vice President*
*Asset Integrity*

April 18, 2013

Mr. Wayne Lemoi
Director, Southern Region
Pipeline and Hazardous Materials Safety Administration
233 Peachtree Street
Suite 600
Atlanta, Georgia 30303

**Re: East Tennessee Natural Gas LLC**
**Warning Letter**
**CPF 2-2013-1002W**

Dear Mr. Lemoi:

From May 21, 2012 to October 25, 2012, representatives of the Pipeline and Hazardous Materials Safety Administration (PHMSA), Southern Region, Office of Pipeline Safety, inspected the procedures relating to the East Tennessee Natural Gas, LLC (ETNG) Integrity Management Program (IMP). On the basis of the inspection, PHMSA identified four (4) probable violations of the Pipeline Safety Regulations, Title 49, Code of Federal regulations, and issued a Warning Letter dated March 19, 2013.

ETNG has reviewed the issues raised in the Warning Letter, and will not be contesting PHMSA's findings. This letter is ETNG's response to the Warning Letter.

**1. §192.609 Change in Class Location: Required Study**

**Whenever an increase in population density indicates a change in class location for a segment of an existing steel pipeline operating at a hoop stress that is more than 40 percent of SMYS, or indicates that the hoop stress corresponding to the established maximum allowable operating pressure for a segment of existing pipeline is not commensurate with the present class location, the operator shall immediately make a study to determine:**
**(a) The present class location for the segment involved.**

**PHMSA Finding**

ETNG did not immediately make a study to determine the present class location of a pipeline segment when an increase in population density occurred along its existing steel pipeline operating at a hoop stress of more than 40 percent of the specified minimum yield strength (SMYS).



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Class location field reports show that ETNG conducted a class location field survey of the Samick Music Company office building when the building was under construction in December 2006. ETNG did not, however, provide any evidence to show that it made an immediate class location study of the population density increase along a +/- 785 foot segment of its Line 3100-1 in Gallatin, TN, caused by the Samick Music Company warehouse at 1329 Gateway Drive, Gallatin, TN. In fact, an ETNG memorandum conveyed that the above-referenced change to a Class 3 location near the Samick warehouse occurred as part of a class location change on Line 3100-1 between stations 314+73 and 372+14 on July 7, 2009 (the date of the memorandum) – not circa September 2007.

PHMSA's inspector interviewed the Samick Music Company credit manager on site on September 6, 2012, and again via telephone on December 18, 2012. The manager stated that the warehouse had been occupied since September 2007 with at least 20 employees who worked for 5 days per week for more that 10 weeks per year. That is, the Samick Music Company warehouse at 1329 Gateway Dr., Gallatin, TN, met the Class 3 location occupancy and location criteria circa September 2007 but ETNG did not make a class location study of the population density increase until July 7, 2009; i.e. 22 months after the population density first increased along the pipeline.

**ETNG Response**

The identification of this class location change was delayed due to an error in the classification of Samick Music within ETNG's Geographic Information System (GIS). The building was placed into the system as a single business, not as a multiple occupancy (20+ people) as would have been customary, since it was within 300' of the pipeline. No class change was detected in 2007 because the building was misclassified in the GIS as a single business.

In the fall of 2008, a Business Process Improvement (BPI) exercise was conducted on both the class analysis process and program execution. Several enhancements were made to both; one of the most significant process improvements was for the class analysis program to 'flag' possible new class changes with a highlighted, 'proposed new' class change entry within the program output. This would directly address the possible issue of a structure being entered into the system under an incorrect 'structure type' which had occurred in the Samick Music Office Building instance (single business rather than multiple occupancy). All BPI enhancements were implemented before the next class analysis cycle.

During the spring, 2009 class analysis process, the Samick Office Building was flagged as a possible new class change (utilizing the new program enhancement). Per Spectra Energy's policy, a field investigation was performed which established the Samick Music Office Building as having an occupancy of 12 employees (not 20) and identified the Samick Music Warehouse, as a multiple occupancy, containing 40 employees. The change to Class 3 was verified, and the pipe replacement was scheduled and completed.

ETNG has implemented enhancements to the class location analysis process to address the issue that resulted in this class change not being identified in 2007 through the BPI described above.

2. **§192.611 Change in class location: Confirmation or revision of maximum allowable operating pressure.**

**...(d) Confirmation or revision of the maximum allowable operating pressure that is required as a result of a study under §192.609 must be completed within 24 months of the change in class location. Pressure reduction under paragraph (a) (1) or (2) of this section within the 24-month period does not preclude establishing a maximum allowable operating pressure under paragraph (a)(3) of this section at a later date.**

**PHMSA Finding**

ETNG did not confirm or revise the maximum allowable operating pressure (MAOP) of a segment of Line 3100-1 in Gallatin, TN, within 24 months of a change in class location.

A change to a Class 3 location occurred along a +/- 785 foot segment of ETNG's Line 3100-1 in Gallatin, TN, circa September 2007 due to the Samick Music warehouse (see Item 1 above). According to ETNG's records, the hoop stress corresponding to the established MAOP of approximately 470 feet of pipe within the referenced class change segment was not commensurate with the present Class 3 location. While ETNG replaced the segment with pipe complying with the MAOP requirements of §192.619(a), it did not do so until May 2011, more than 19 months after the allowed 24-month time period had expired and more than 43 months after the change in class location.

**ETNG Response**

As noted in Item 1, above, the misclassification of the Samick Music facility within the GIS had resulted in a delay in identification of the change to a Class 3 location. Changes to the processes for class location evaluation following the BPI enhancements in 2008 resulted in the proper identification of the new Class 3 in 2009, and the pipe was scheduled for replacement within 24 months of identifying the new Class 3 location. However, as noted by PHMSA, the delay in identifying the new Class 3 resulted in the pipe replacement occurring more than 24 months after the Samick Music warehouse was occupied.

3. **§192.907 What must an operator do to implement this subpart?**

**(a) General. No later than December 17, 2004, an operator of a covered pipeline segment must develop and follow a written integrity management program....**

**PHMSA Finding**

ETNG did not follow its written integrity management (IM) program because it did not excavate the pipeline within the time period specified in its written IM procedures.

ETNG's written IM procedure Stress Corrosion Cracking Direct Assessment (SCCDA) Procedure Number: 9-2040 (10/17/11), Section 6.3.2 states, "*If Category 1 SCC is found in an excavation, additional integrity assessment(s) will be undertaken within 12 months at the most suitable site within the limits of the HCA* {High Consequence Area}..."

Notwithstanding the above procedure, ETNG discovered a Category 1 high-ph stress corrosion crack (SCC) on its Dixon Springs Discharge Line 3100-1 on September 22, 2009, in a non-HCA area but did not conduct an additional excavation within 12 months of finding the Category 1 SCC. ETNG conducted an additional SCC excavation within the limits of an HCA (as required by SOP 9-2040) on October 5, 2011; 1 year and 13 days after the required excavation date.

**ETNG Response**

During SCCDA assessment of the ETNG system, a pipe surface feature was identified using magnetic particle inspection methods on Dixon Springs Line 3100-1. This feature was not characterized as SCC, but rather as a possible manufacturing defect or other surface anomaly. Numerous other similar isolated surface features were shallow and consistent with surface defects not associated with SCC. The line was blown down and a pipe spool sample containing the defect was removed from service. Destructive laboratory metallurgical analysis was performed, and metallographic analysis revealed that the feature was consistent with high pH SCC, with crack depth characteristic of a Category 1 feature. Delay in shipping and conclusive diagnosis of the SCC resulted in a delay in scheduling and performing the excavation inside the HCA within 12 months from the date of the SCCDA. ETNG acknowledges that the subsequent SCCDA excavation was not conducted within the requirement timeframe of SOP 9-2040.

4. **§192.907 How does an operator identify potential threats to pipeline integrity and use the threat identification in its integrity program?**

**...(e) Actions to address particular threats. If an operator identifies any of the following threats, the operator must take the following actions to address the threat.**
**...(3) Manufacturing and construction defects. If an operator identifies the threat of manufacturing and construction defects (including seam defects) in the covered segment, an operator must analyze the covered segment to determine the risk of failure from these defects. The analysis must consider the results of prior assessments on the covered segment. An operator may consider manufacturing and construction related defects to be stable defects if the operating pressure on the covered segment has not increased over the maximum operating pressure experienced during the five years preceding identification of the high consequence area. If any of the following changes occur in the covered segment, an operator must prioritize the covered segment as a high risk segment for the baseline assessment or a subsequent reassessment.**
**(i) Operating pressure increases above the maximum operating pressure experienced during the preceding five years;**

**PHMSA Finding**

ETNG did not adequately identify and properly use potential threats to each covered pipeline segment in its integrity program because it failed to address particular threats related to manufacturing.

ETNG had identified 29 covered segments as having materials known to be possible manufacturing threats and as being susceptible to increases in pressure, including pipe with low frequency electric resistance welded (LF ERW) longitudinal seams.

Discussions with ETNG's subject matter experts on June 20, 2012, and information provided to the PHMSA inspector subsequent to the inspection revealed that ETNG treated these covered segments as stable manufacturing-related threats, and did not prioritize them as high risk segments for a baseline assessment or a subsequent reassessment.

ETNG used the wrong criteria in evaluating pressure increases. These covered segments experienced operating pressure increases above the maximum operating pressure during the five years preceding the identification of an HCA (5-year MOP). As such, these segments should have been prioritized as high risk segments for the baseline assessment or a subsequent reassessment. But ETNG based its criteria for identifying and prioritizing covered segments as high risk requiring additional assessment on exceeding 104% of the 5–year MOP. In fact, in its November 8, 2012 response, ETNG stated, "*None of the HCA segments with an established 5-year MOP exceeded the 4% threshold. Thus the affected HCA segments had not been scheduled for an assessment or reassessment.*"

In essence, by adding a 4% margin to the 5-year MOP, ETNG missed at least 29 covered segments that should have been identified and prioritized as high risk segments and subjected to additional action to address the threat in baseline assessments or subsequent reassessments.

**ETNG Response**

ETNG had interpreted the regulations to allow some tolerance above the 5-year MOP for short duration pressure excursions, where the operating pressure quickly returned to a level lower than the 5-year MOP. In the risk assessment analysis, ETNG had applied a 4% tolerance, consistent with allowable overpressure protection requirements of §192.201, which require overpressure protection devices to be set at a pressure not to exceed 110% of MAOP or 75% of SMYS, whichever is lower. (The 4% tolerance was based on the ratio 75%/72% for Class 1 design.) Most of the pressure excursions above the 5-year MOP experienced on the ETNG system were small (10 psig or less), and technically did not present a significant threat to the pipeline.

ETNG recognizes that PHMSA's interpretation and FAQ guidance does not provide for a tolerance, as had been applied by ETNG, and that any pressure increase above the 5-year MOP would trigger the requirement to classify the covered segment(s) as high risk and schedule an assessment. Accordingly, ETNG has revised its IMP Threat Response Guidance (TRG) Document, Section 440, *Manufacturing*, to clarify the requirement that any covered segment that experiences a pressure increase for any duration above the 5-year MOP must be classified as high relative risk and

scheduled for an assessment. A redlined version of ETNG's TRG Document, Section 440, *Manufacturing*, was transmitted to PHMSA with our response to the Notice of Amendment (CPF 2-2013-1003M).

This completes our response to the issues raised in the Warning Letter. If you need additional information, please contact Rick Kivela at (713 627-6388.

Sincerely,

J. Andrew Drake, P.E.
Vice President, Asset Integrity

Cc(via electronic mail):
Dallas Rea