

U.S. DEPARTMENT OF TRANSPORTATION

PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION (PHMSA)

**Special Permit Analysis and Findings**

**Purpose:**

This information is provided to describe the relevant facts of the special permit petition described below, the engineering and safety analysis of the petition completed by the Pipeline and Hazardous Materials Safety Administration (PHMSA) and the findings supporting the grant of a special permit to Spectra Energy Transmission.

**Special Permit Information:**

Docket Number: PHMSA-RSPA-2004-19469  
Requested By: Spectra Energy Transmission (SET)  
Date Requested: April 23, 2004  
Code Sections: 49 CFR § 192.611

Pipeline System Affected: This special permit applies to two pipeline segments operated by SET's subsidiary, Texas Eastern, in Scioto County, OH. The pipeline segments are on Line 10 and Line 15 and are located approximately 5.3 miles downstream of the Texas Eastern Wheelersburg Compressor Station where the class locations along the pipelines have changed from Class 1 to Class 2. The two pipeline "*special permit segments*" are defined as follows:

- ***Line 10 special permit segment*** - 716 feet, mile post (MP) 568.99 to MP 569.13
- ***Line 15 special permit segment*** - 721 feet, MP 569.41 to MP 569.55

A ***special permit inspection area*** is defined as an area that extends 220 yards on each side of a pipeline centerline along the entire length of the *special permit segment* and along the pipeline up to 25 miles upstream and downstream of each end of the *special permit segment*. The two "*special permit inspection areas*" for this special permit request are defined as follows:

- ***Line 10 special permit inspection area*** - the area that extends 220 yards on each side of the centerline of Line 10 from the discharge of the Texas Eastern Wheelersburg Compressor Station (approximately 5.3 miles upstream of the special permit segment) to MP 594.13 (approximately 25 miles downstream of the special permit segment).

- ***Line 15 special permit inspection area*** - the area that extends 220 yards on each side of the centerline of Line 15 from the discharge of the Texas Eastern Wheelersburg Compressor Station (approximately 5.3 miles upstream of the special permit segment) to MP 594.55 (approximately 25 miles downstream of the special permit segment).

### **Special Permit Request**

SET petitioned PHMSA on April 23, 2004, for a special permit seeking relief from the Federal pipeline safety regulations in 49 CFR § 192.611 for a 716 ft. segment on Line 10 and a 721 ft. segment on Line 15 of Texas Eastern's natural gas transmission system in Scioto County, OH. Texas Eastern is a subsidiary of SET. This special permit allows SET to continue to operate the pipeline segments at their current maximum allowable operating pressure (MAOP) of 1,000 pounds per square inch gauge (psig). The Federal pipeline safety regulations in 49 CFR § 192.611 require natural gas pipeline operators to confirm or revise the MAOP of a pipeline segment after a change in class location.

### **Public Notice:**

On December 7, 2004, PHMSA posted a notice of this special permit request in the Federal Register (69 FR 70748) inviting interested persons to comment on the request. We did not receive any public comments for or against this request as a result of this notice. We also requested and received supplemental information from SET. The request letter, Federal Register notice and all other pertinent documents are available for review in Docket No. PHMSA-RSPA-2004-19469 in the Federal Docket Management System (FDMS) located on the internet at [www.Regulations.gov](http://www.Regulations.gov).

### **Analysis:**

Background: On June 29, 2004, PHMSA published in the Federal Register (69 FR 38948) the criteria it uses for the consideration of class location change waivers, now being granted through special permits. First, certain threshold requirements must be met for a pipeline segment to be further evaluated for a class location change special permit. Second, the age and manufacturing process of the pipe; system design and construction; environmental, operating and maintenance histories; and integrity management program elements are evaluated as significant criteria. These significant criteria are presented in matrix form and can be reviewed in the FDMS, Docket

Number PHMSA-RSPA -2004-17401. Third, such special permits will only then be granted when pipe conditions and active integrity management provides a level of safety greater than or equal to a pipe replacement or pressure reduction.

Threshold Requirements: Each of the threshold requirements published by PHMSA in the June 29, 2004, FR notice is discussed below in regards to the SET special permit petition.

- 1) No pipeline segment in a class location changing to Class 4 will be considered. This special permit request is for two pipeline segments in class locations changing from Class 1 to Class 2. SET has met this requirement for both *special permit segments*.
- 2) No bare pipe will be considered. The pipeline in both *special permit segments* is coated with coal tar. SET has met this requirement for both *special permit segments*.
- 3) No pipe containing wrinkle bends will be considered. There are no wrinkle bends in the *special permit segments*. This requirement has been met for both *special permit segments*.
- 4) No pipe segments operating above 72% of the specified minimum yield strength (SMYS) will be considered for a Class 3 special permit. Lines 10 and 15 are under consideration for a special permit due to a class location change from Class 1 to Class 2 location change. Therefore, this requirement does not apply.
- 5) Records must be produced that show a hydrostatic test to at least 1.25 x MAOP. Both *special permit segments* have been hydrostatically tested to 1,300 psig, 1.30 x MAOP, meeting this requirement.
- 6) In-line inspection (ILI) must have been performed with no significant anomalies identified that indicate systemic problems. Both *special permit segments* have been ILI inspected with no significant anomalies in the *special permit segments*, thus meeting this requirement.
- 7) Criteria for consideration of class location change waiver, now being granted through special permit, published by PHMSA in the Federal Register (69 FR 38948), define a waiver inspection area (now special permit inspection area) as up to 25 miles of pipe either side of the waiver segment (now special permit segment). There are two *special permit inspection areas* that must be inspected according to SET's integrity management program and periodically inspected with an ILI technique. The portion of the *special permit inspection areas* upstream of the *special permit segments* is approximately 5.3 miles and ends at the Wheelersburg Compressor Station. The portion of the *special permit inspection areas*

downstream of the *special permit segments* is approximately 25 miles long and ends at MP 594.55. This special permit will be issued conditioned upon SET's incorporation of both *special permit segments* in their written integrity management program as "*covered segments*" in a "*high consequence area*" (HCA) per 49 CFR § 192.903.

Criteria Matrix: The original and supplemental data submitted by SET for the *special permit segments* have been compared to the class location change special permit criteria matrix. The data falls within the "probable acceptance" column of the criteria matrix for all criteria except for the following:

- 1) Pipe manufacturer: Line 10 consists of double submerged arc welded (DSAW) pipe manufactured by National Tube (a U.S. Steel product) and installed in 1952. This places the *Line 10 special permit segment* in the "possible acceptance" column of the criteria matrix. There have been isolated occurrences of anomalies in U.S. Steel pipe products which have lead to failures. Line 10 was hydrostatically pressure tested to 1125 psig in 1952 and retested to 1300 psig in 1988 for 12 hours with no leaks or failures reported during either test. While it is possible for defects to have remained in the pipe after the 1988 hydrostatic test, it seems very remote since the pipeline had already been operating for over 30 years during which time any defects would have had a chance to grow.

Line 15 consists of electric flash welded (EFW) pipe manufactured by A. O. Smith and installed in 1957. This places the *Line 15 special permit segment* in the "requires substantial justification" column of the criteria matrix. Pipe manufactured by A.O. Smith using flash welding has had in-service incidents reported for pipe manufactured in nearly every year from 1928 – 1971. After a hard-spot related failure on Line 15 in Kentucky in 2003, SET ran a Tuboscope ILI tool capable of detecting hard spots in 24 miles of Line 15 downstream of the Owingsville, KY compressor station. The tool located 11 anomalies, 9 of which were in the same joint of pipe and none of which exceeded the threshold values of hardness associated with hydrogen cracking. Also, Line 15 was hydrostatically pressure tested to 1329 psig in 1957 and retested to 1300 psig in 1988 for 12 hours with no leaks or failures reported during either test. While it is possible for defects to have remained in the pipe after

the 1988 hydrostatic test, it seems very remote since the pipeline had already been operating for over 30 years during which time the defects would have had a chance to grow. This special permit will contain a condition that will require SET to check for the presence of injurious hard spots and to perform appropriate repairs in the *Line 15 special permit segment* by running an ILI capable of detecting hard spots.

To address pipe manufacture issues, this special permit will be also conditioned on SET's treating both the *Line 10 special permit segment* and the *Line 15 special permit segment* as "covered segments" in an HCA per 49 CFR § 192.903. SET will also be required to perform a stress corrosion cracking direct assessment (SCCDA) of both Line 10 and Line 15 along the entire length of the *special permit inspection areas* according to the requirements of 49 CFR § 192.929 within one year after the grant of this special permit. This special permit will also include a condition that SET must continue to operate each *special permit segment* at or below its existing MAOP.

- 2) Pipe material: Pipe toughness is a measure of a pipe material's ability to resist failure from crack-like features created by manufacturing, construction related defects or as a result of third party damage. Both *special permit segments* are in the "possible acceptance" column of the criteria matrix for pipe toughness. Threats due to manufacturing or construction related defects were addressed with the hydrostatic tests during commissioning and the subsequent re-tests in 1988. This special permit will include a condition requiring SET to implement additional preventative measures to address potential third party damage for the *special permit segments* in accordance with 49 CFR § 192.935.
- 3) Design Stress: The criteria allows up to 80% SMYS for "grandfathered" systems changing from a Class location 1 to a Class location 2. This applies to both the Line 10 special permit segment and the Line 15 special permit segment, and places both segments in the "possible acceptance" column of the criteria matrix. To address the design stress issue, this special permit will be conditioned upon SET's treating both the Line 10 special permit segment and Line 15 special permit segment as "covered segments" in an HCA per 49 CFR § 192.903.
- 4) Pipe Coating: Both special permit segments are coated with coal tar, which places both *special permit segments* in the "possible acceptance" column of the criteria matrix. To

confirm adequate pipe coating condition and performance, this special permit will be conditioned upon SET's completion of a Direct Current Voltage Gradient (DCVG) survey of both special permit segments to verify the pipeline coating condition.

5) Direct Assessment (External Corrosion Direct Assessment (ECDA) and Stress Corrosion Cracking Direct Assessment (SCCDA)): Since neither an ECDA nor an SCCDA have been accomplished on either special permit segment, this places both special permit segments in the "possible acceptance" column of the criteria matrix. This special permit will include conditions requiring SET to perform an SCCDA on both Line 10 and Line 15 along the entire length of the special permit inspection areas. To address the ECDA issue, this special permit will be conditioned upon SET's completion of an indirect examination and remediation as follows:

- DCVG survey of both special permit segments to verify the pipeline coating condition and to remediate any integrity issues,
- Close Interval Survey (CIS) along the entire length of both special permit inspection areas to ensure effective cathodic protection, and
- SET must submit a written report of the DCVG and CIS findings to the Director, PHMSA Central Region, for review.

### **Findings:**

Based on the information submitted by SET and PHMSA's knowledge of natural gas pipeline operational requirements, PHMSA finds that granting this special permit to SET to operate two segments of the Texas Eastern natural gas transmission system in Scioto County, OH, at the current MAOP where a change in class location has occurred from a Class 1 location to a Class 2 location is not inconsistent with pipeline safety. We do so because the special permit analysis shows the following:

- 1) The special permit segment meets six of the seven threshold requirements. The seventh threshold requirement, that *special permit inspection areas* be inspected according to the operator's IMP and periodically inspected with an ILI inspection technique, will be addressed in the special permit conditions. The special permit conditions will also include additional inspection requirements for both *special permit inspection areas* and both *special*

*permit segments* on a frequency consistent with 49 CFR Part 192, Subpart O; the Integrity Management regulations.

- 2) Both *special permit segments* fall in the “probable acceptance” column of the criteria matrix for all criteria except for pipe material, design stresses, pipe coating and direct assessment for both *special permit segments*, which fall within the “possible acceptance” column of the criteria matrix. Also, pipe manufacture falls within the “requires substantial justification” column for the Line 15 special permit segment. This special permit will include conditions to address all these exceptions.
- 3) The special permit conditions will require SET to implement enhanced integrity management program actions for both Line 10 and Line 15 throughout the entire *special permit inspection areas* and will include additional requirements for both the *Line 10 special permit segment* and the *Line 15 special permit segment*.

Completed in Washington DC on: \_\_\_\_\_