

**U.S. DEPARTMENT OF TRANSPORTATION**  
**PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION**  
**Special Permit Analysis and Findings**

**Special Permit Information:**

**Docket Number:** PHMSA-2016-0009  
**Requested By:** NEXUS Gas Transmission, LLC  
**Operator ID#:** 39120  
**Date Requested:** January 12, 2016  
**Code Section(s):** 49 CFR 192.625

**Purpose:**

The Pipeline and Hazardous Materials Safety Administration (PHMSA) provides this information to describe the facts of the subject special permit application submitted by NEXUS Gas Transmission, LLC<sup>1</sup> (NEXUS), to discuss any relevant public comments received with respect to the application, to present the engineering/safety analysis of the special permit application, and to make findings regarding whether the requested special permit should be granted and if so under what conditions. NEXUS requested that PHMSA waive compliance from 49 Code of Federal Regulations (CFR) 192.625 for one (1) segment and 9.84 miles of natural gas transmission pipeline.

**Pipeline System Affected:**

The special permit request applies to the NEXUS pipeline and asks for a waiver of the odorant requirements in 49 CFR 192.625 for 9.84 miles of 36-inch diameter pipeline located at the downstream section of the NEXUS pipeline in Washtenaw County, Michigan. This special permit requires NEXUS to implement additional conditions on the design, construction,

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<sup>1</sup> NEXUS is a joint venture that is owned equally by Spectra NEXUS Gas Transmission, LLC, an indirect wholly-owned subsidiary of Enbridge, Inc., and DTE NEXUS, LLC, an indirect wholly-owned subsidiary of DTE Energy Company. On February 27, 2017, Enbridge Inc. and Spectra Energy Corp closed their merger transaction.

operations, and maintenance of the 256.09-mile, 36-inch-diameter natural gas transmission pipeline, as described in the special permit. The NEXUS pipeline system consists of 256.09 miles of 36-inch pipeline, four (4) compressor stations and six (6) meter stations with a design flow capacity of 1.5 billion cubic feet per day (Bcf/d) of natural gas. The special permit allows NEXUS to continue to operate the pipeline at its proposed maximum allowable operating pressure (MAOP) of 1440 pound per square inch gauge (psig)<sup>2</sup> without odorized natural gas in *special permit segment 1* with implementation of the conditions of the special permit.

### **Special Permit Request:**

NEXUS applied to PHMSA on January 12, 2016, for a special permit seeking relief from the Federal pipeline safety regulations in 49 CFR 192.625 for 9.84 miles<sup>3</sup> of *special permit segment 1* as described below and in Appendix A - NEXUS Pipeline – Overview Map.

The special permit prescribes additional terms and conditions for *special permit segment 1*, *special permit segment 2* and the *special permit inspection area* as defined below.

- *Special permit segment 1* – is defined as 10.93 miles of NEXUS pipeline from mile post (MP) 245.16 to MP 256.09 (end of the NEXUS pipeline) located at the downstream section of the NEXUS pipeline in Washtenaw County, Michigan.
- *Special permit segment 2*<sup>4</sup> – is defined as 7.28 miles of NEXUS pipeline from MP 237.88 (Washtenaw County, Michigan county line) to MP 245.16 located in Washtenaw County, Michigan.

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<sup>2</sup> The NEXUS pipeline will have a potential impact radius of 942.6 feet as determined by 49 CFR § 192.903 for gas transmission pipeline integrity management determination of high consequence areas.

<sup>3</sup> NEXUS' original special permit application submitted to PHMSA was to waive the odorant requirements of 49 CFR 192.625 for the natural gas transported for approximately 9.84 miles of the NEXUS pipeline, from MP 246.25 to 256.09. This request was due to: significant technical and operational problems that receipt of odorized gas presents for downstream pipelines and storage fields, wherein odorization is not required by law; and (2) additional design, materials, construction, operations and maintenance measures that are expected to increase the level of safety to a greater extent than would be achieved by introducing odorant. PHMSA extended the *special permit segment 1* to MP 245.16 to further protect dwellings and schools in the area with heavier wall thickness Class 3 location pipe. *Special permit segment 1* is from NEXUS pipeline MP 245.16 to MP 256.09.

<sup>4</sup> *Special permit segment 2* was added to extend the safety conditions to areas near *special permit segment 1* based upon public concerns and future population growth near the pipeline.

- ***Special permit inspection area***<sup>5</sup> – is defined as the NEXUS pipeline from MP 0 in Columbiana County, Ohio to MP 256.09 in Washtenaw County, Michigan.

The NEXUS pipeline ***special permit inspection area*** totals 256.09 miles of 36-inch pipe as described in Attachment A and includes ***special permit segment 1*** and ***special permit segment 2***.

The ***special permit segments 1 and 2*** are located in Washtenaw County, Michigan. The ***special permit inspection area*** is located in the Ohio counties of Columbiana, Stark, Summit, Wayne, Medina, Lorain, Huron, Erie, Sandusky, Wood, Lucas, Henry, and Fulton, and the Michigan counties of Lenawee, Monroe, and Washtenaw.

The special permit allows NEXUS to operate the 10.93 miles of ***special permit segment 1*** without odorization, but must operate ***special permit segments 1 and 2*** and ***special permit inspection area*** in accordance with the additional safety requirements required in the special permit conditions.

#### **Public Notice:**

On August 15, 2017, PHMSA published the special permit request in the Federal Register (82 FR 38758) and the public comment period ended on October 16, 2017, with all comments received through November 15, 2017, being reviewed and considered. The special permit application from NEXUS, pipeline route maps, public comments, environmental assessment, and special permit conditions are available in Docket No. PHMSA-2016-0009 at: [www.regulations.gov](http://www.regulations.gov).

PHMSA received over 118 stakeholder comments on the proposed NEXUS pipeline special permit. All comments received were for denial of the special permit request with the exception of one (1) supporting request. A summary of the stakeholders posting comments are:

- Stakeholder Comments Requesting PHMSA to Deny the NEXUS Special Permit: 117
  - Private Citizens – 112

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<sup>5</sup> ***Special permit inspection area*** throughout the conditions include ***special permit segments*** unless specifically defined as not applicable or if the ***special permit segment*** has more stringent conditions.

- Sierra Club – 1
- Townships/Municipalities – 3
  - Michigan Drain Commissioners Office
  - Water Resources Commissioner
  - Letter between DOT Liaison and Township
- Member of Congress – 1
- Stakeholder Comments in support of the NEXUS Special Permit: 1
  - Letter from DTE Gas Company

**PHMSA Overall Response and Considerations of Public Safety Concerns:**

PHMSA has reviewed the public stakeholder comments on the docket, e-mails sent to PHMSA, and any phone calls received through November 15, 2017, concerning the NEXUS pipeline. For *special permit segment 1*, the offset of the pipeline from any dwellings or homes, usage of the higher safety factor pipe, enhanced design, material, construction, hydrostatic pressure testing, operations and maintenance specifications, and procedures as outlined in the special permit conditions will maintain equivalent safety as compared to odorization of this segment. The special permit conditions require additional aerial, ground patrol and instrumented leak detection on a periodic basis. For detection and shutdown of the pipeline in emergency situations, the pipeline gas flow and pressure will be monitored by NEXUS personnel 24-hours, 7- days a week, and all pipeline mainline valves will be remote-controlled for isolation and with pressure monitoring. Based upon the public stakeholder concerns, PHMSA will add an additional *special permit segment 2* from NEXUS pipeline MP 237.88 (Washtenaw County, Michigan county line) to MP 245.16 located in Washtenaw County, Michigan, and will require additional safety conditions for this pipeline segment. PHMSA has also added additional special permit conditions for the *special permit inspection area*.

The public comments are summarized as noted below and the referenced Findings of No Significant Impact (FONSI) can be reviewed on the docket (PHMSA-2016-0009) at [www.regulations.gov](http://www.regulations.gov).

PHMSA's summarization of the public stakeholder comments and how the concerns are being handled within the special permit are below:

- 1) **Stakeholder Comment**: require the NEXUS pipeline to odorize the gas;
  - **PHMSA Response**: The NEXUS pipeline is not connected to any dwellings for human occupancy or within 64-feet from the nearest structure from MP 245.16 to MP 256.09.<sup>6</sup> Odorant would not be an effective method for this situation. PHMSA has structured special permit conditions that exceed PHMSA pipeline safety code requirements in 49 CFR Part 192 for the NEXUS pipeline life-cycle that included design, construction, operations, maintenance and emergency response. Denial of the special permit would result in additional construction and environmental impacts.
- 2) **Stakeholder Comment**: require quarterly walking inspections of the route by qualified workers with gas detection equipment;
  - **PHMSA Response**: Special permit condition D.8 requires NEXUS to conduct ground patrols two (2) times per calendar year with gas leakage detection equipment that can detect gas leaks along the *special permit segment 1 and 2*<sup>7</sup> at intervals between every five (5) months not to exceed seven and one-half (7-½) months, but at least two (2) times per calendar year.
- 3) **Stakeholder Comment**: require more frequent (monthly or bi-weekly) aerial inspections;
  - **PHMSA Response**: Special permit condition D.8 requires NEXUS to conduct aerial flyover patrols of the *special permit inspection area* right-of-way once a week, not to exceed 10-days, contingent on weather conditions. Should mechanical availability of the patrol aircraft or weather conditions become an extended issue, the special permit inspection area pipeline aerial flyover patrol

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<sup>6</sup> The one current structure within 50 feet of the NEXUS pipeline is a DTE Gas Company structure that will be demolished prior to the NEXUS pipeline being placed into natural gas service. The nearest dwelling intended for human occupancy for this section of the pipeline is at approximate MP 253.17, and is approximately 64 feet from the NEXUS pipeline.

<sup>7</sup> *Special permit segment 1* – is defined as 10.93 miles of NEXUS pipeline from MP 245.16 to MP 256.09 (end of the NEXUS pipeline) located at the downstream section of the NEXUS pipeline in Washtenaw County, Michigan.

*Special permit segment 2* – is defined as 7.28 miles of NEXUS pipeline from MP 237.88 (Washtenaw County, Michigan county line) to MP 245.16 located in Washtenaw County, Michigan.

must be completed within 21-days of the past patrol by other methods such as walking or driving the pipeline route, as feasible.

- 4) **Stakeholder Comment**: require inline remote sensing, monitoring and electronic controls along 24-hours a day / 7-days a week control center oversight of the same;
  - **PHMSA Response**: Special permit condition D.10 requires NEXUS to monitor the pipeline at all mainline valves within the *special permit inspection area*<sup>8</sup> by a supervisory control and data acquisition (SCADA) system and all mainline valves must be equipped for remote monitoring and control, or remote monitoring and automatic control in accordance 49 CFR 192.620(d)(3)(iii). Mainline valves must be monitored for valve status (open, closed, or partial closed/open), upstream pressure, and downstream pressure. The NEXUS Gas Control Center must monitor the pipeline 24 hours a day, 7 days a week and will confirm the existence of a leak or rupture as soon as practicable, based upon NEXUS pipeline operating procedures.
- 5) **Stakeholder Comment**: require alternative power sources to ensure functioning of sensors and controls in the event of a power outage;
  - **PHMSA Response**: Special permit condition D.10 requires NEXUS to install and maintain remote monitoring and automatic control equipment including pressure sensors and backup power to maintain communications and control to the NEXUS Gas Control Center during power outages.
- 6) **Stakeholder Comment**: require 24/7 on call operations staff physically located within 20 to 30 minutes of all control valves and other appurtenances relevant for emergency response;
  - **PHMSA Response**: Special permit condition D.10 requires NEXUS to close the appropriate mainline valves following a pipeline leak or rupture as soon as

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<sup>8</sup> *Special permit inspection area* – is defined as the NEXUS pipeline from MP 0 in Columbiana County, Ohio to MP 256.09 in Washtenaw County, Michigan.

The NEXUS pipeline special permit inspection area totals 256.09 miles of 36-inch pipe as described in Attachment A and includes *special permit segment 1* and *special permit segment 2*. The special permit inspection area is located in the Ohio and Michigan counties listed above. The NEXUS pipeline system consists of the NEXUS pipeline, 4 compressor stations, 6 meter stations and associated facilities located in the Ohio and Michigan counties listed above.

practicable from the time the pipeline leak or rupture and its location are confirmed, not to exceed 30 minutes from such confirmation.

- 7) **Stakeholder Comment**: require any other safety or other measures frequently required when such a waiver is granted and all other applicable PHMSA requirements, preferably for the entire length of pipeline in Washtenaw County as well as the approximately 10-mile section which would normally require odorization without the waiver;<sup>9</sup>

- **PHMSA Response**: The special permit conditions are for pipeline segments in Washtenaw County, Michigan as well as all other segments from MP 0 to MP 256.09 in Michigan and Ohio.

- 8) **Stakeholder Comment**: The pipeline will traverse the American Center for Mobility, which represents both a major economic growth for the benefit not only of the State of Michigan and Washtenaw County, but also the United States of America.

- **PHMSA Response**: The NEXUS pipeline from MP 254.4 to MP 255.2 in Washtenaw County, Michigan, is located on The American Center for Mobility (ACM)<sup>10</sup> property. NEXUS has engaged in coordination and communication with the site owner and developer. NEXUS also has FERC-approved site-specific work plans in place for the pipeline routing on this site, as well as additional permitting and coordination through the Ypsilanti Community Utility Authority and the Michigan Department of Environmental Quality.

- 9) **Stakeholder Comment**: do not allow NEXUS to “not odorize” the gas to save money.

- **PHMSA Response**: PHMSA has considered the public comments and has developed special permit conditions to maintain safety. These conditions are summarized in the below “Operational Integrity Compliance” section. The conditions include design, material, construction, hydrostatic pressure testing, operations and maintenance activities to maintain safety in *special permit segment 1*.

- 10) **Stakeholder Comment**: concerns with NEXUS pipeline being routed near their home due to the Enbridge/SEP Texas Eastern Transmission, LP (Texas Eastern) 30-inch

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<sup>9</sup> Washtenaw County Line is at NEXUS pipeline MP 237.88.

<sup>10</sup> ACM is repurposing the site of an old General Motors plant into a test track environment for self-driving cars.

diameter pipeline incident/rupture near Delmont, Westmoreland County, Pennsylvania on April 29, 2016.

- **PHMSA Response:** The Texas Eastern 30-inch pipeline incident was due to a girth weld failure from corrosion. The pipeline girth weld corrosion was due to the usage of a tape coating system at the girth welds. The tape coating failed to properly stay bonded to the pipe and allowed moisture around the steel pipe and shielded the pipe from cathodic protection currents that reduce corrosion of the pipe. The special permit conditions will not allow usage of coating systems (such as tape) that will shield cathodic protection currents, and will require post construction backfill coating verification surveys and remediation, inline inspection (smart pigging) and remediation of anomalies. The special permit conditions require the NEXUS pipeline to be controlled by a supervisory control and data acquisition (SCADA) system and to be equipped with equipment and valves for remote monitoring and control to detect and shut-off gas flow when a large volume leak or rupture is detected.

#### **Analysis:**

PHMSA developed the special conditions to achieve an equivalent or higher level of safety by significantly decreasing the likelihood of a release of natural gas in the *special permit segment 1* and along the entire pipeline route in the *special permit inspection area* and in *special permit segment 2*. The special permit conditions include: enhanced pipe materials requirements (reducing the risk of a material related failure); additional construction quality requirements, additional inspection, higher hydrostatic pressure testing (decreasing the risk of a construction related failure); use of coatings on the pipe and girth welds that do not shield against cathodic protection (CP), increased post-construction testing, inline inspection (smart pigging), cathodic protection inspections and defined repair criteria (reducing the risk of failure due to mechanical damage and corrosion); and increased patrolling and line of sight markers (reducing the risk of in-service mechanical damage). The special permit conditions require the entire NEXUS pipeline to be controlled and monitored by a supervisory control and data acquisition (SCADA) system and to be equipped with equipment and valves for remote monitoring and control to detect and shut-off gas flow when a large volume leak or rupture is detected.



Natural gas is typically odorless, and thus gas without odorant could build-up within a closed structure without being detected. In order for ignition of leaking gas to occur, a sufficient concentration is required. Because natural gas dissipates in air, typically enclosed spaces are at much greater risk for ignition than open air. However, NEXUS pipeline will be installed to maximize the separation from any enclosed structures, and will not have a direct connection to any structures within *special permit segment 1*, so migration of gas released from a leak would not have a direct path to any structure, which minimizes the risk of natural gas build up in an enclosed structure. Furthermore, PHMSA believes that undertaking additional measures designed to prevent leaks will provide an equivalent or higher level of public safety in *special permit segment 1* than would be achieved by introducing odorant in the pipeline, and that this will offset any potential increased risk of an unidentified leak or build-up of natural gas in an enclosed area.

NEXUS requested that odorization requirements be waived for the following reasons:

- 1) Certain transmission pipelines, including some DTE Gas Company pipelines and the Vector Pipeline, immediately downstream of the NEXUS pipeline do not presently contain or require odorant because they are either not located in Class 3 or 4 locations or they qualify for an exemption from odorization requirements under 49 CFR 192.625, including where 50% of the line downstream from the location is in a Class 1 or 2 location. Appendix A – NEXUS Pipeline Area Overview Map - and Appendix B - NEXUS Pipeline DTE Gas Company Interconnect Schematic - illustrate the DTE Gas Company systems of unodorized and odorized pipelines and the interconnected interstate pipelines in the vicinity of the terminus of the proposed NEXUS pipeline. The DTE Gas Company pipelines depicted in orange as shown in Appendix A and Appendix B are currently odorized, and all supplies to those pipelines are unodorized, allowing for precise control of odorization.
- 2) Further downstream of the NEXUS pipeline, DTE Gas Company currently adds odorant to all deliveries of natural gas to its distribution systems and its odorized transmission systems as required by 49 CFR 192.625 (i.e., those pipelines located in Class 3 and 4 areas where odorization exemptions do not apply, such as where 50% of the line

downstream is not located in a Class 1 or 2 location). All current receipts into or deliveries out of the DTE Gas Company Willow Gate Station are unodorized, except for the three (3) DTE Gas Company pipelines used solely for market deliveries to the Detroit/Ann Arbor, Michigan metropolitan area (these pipelines are illustrated leaving the Willow Gate Station on the right hand side and are colored orange). Other than these three (3) odorized pipelines, the remaining pipelines currently interconnected at Willow Gate Station are transmission pipelines exempt from odorization in accordance with 49 CFR 192.625(b)(1) or 192.625(b)(2)(i), or both.

**Operational Integrity Compliance:**

PHMSA has reviewed this special permit request to ensure that integrity threats to the pipeline in the *special permit segments 1 and 2* and *special permit inspection area* are addressed in the operator's design, material, construction, operations and management plan (O&M Procedures and specifications). PHMSA carefully designed a comprehensive set of conditions that NEXUS is required to meet in order for the special permit to be granted for non-odorization of the last 10.93 miles of 36-inch diameter pipeline. Among other things, the conditions include:

- 1) *Special permit inspection areas* must be capable of internal inspection in accordance with 49 CFR 192.150 and must include permanently installed launchers and receivers.
- 2) All mainline valves on the NEXUS pipeline within the *special permit inspection area* must be equipped for remote operation, monitoring and control, or remote monitoring and automatic control in accordance 49 CFR 192.620(d)(3)(iii).
- 3) The 36-inch mainline pipe within the *special permit inspection area* must be manufactured using American Petroleum Institute Standard 5L "Specification for Line Pipe" (API 5L)<sup>11</sup> product specification Level 2.
- 4) The ratio of the specified outside pipe diameter of the pipe to the specified wall thickness (d/t) must be less than 100 for the pipeline within the *special permit inspection area*.

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<sup>11</sup> API 5L editions and other industry standards "incorporated by reference" are listed in 49 CFR 192.7. If PHMSA adopts a revised edition of a referenced standard such as API, NACE International (NACE) or ASME standards into 49 CFR Part 192, the referenced requirements of those revised standards are automatically incorporated into these special permit conditions unless noted otherwise.

- 5) The toughness properties for pipe must ensure at least ninety-nine percent (99%) probability of fracture arrest within eight pipe lengths with a probability of not less than ninety percent (90%) within five pipe lengths as defined in 49 CFR 192.112(b) for the pipeline within the *special permit inspection area*.
- 6) All of the pipe seams on pipeline to be installed in the *special permit inspection area* must be ultrasonically tested after cold expansion and/or mill hydrostatic testing.
- 7) All pipe to be used within the *special permit inspection area* must be hydrostatically tested at the mill at a test pressure corresponding to a hoop stress of 95 percent specified minimum yield strength (SMYS) for 10 seconds.
- 8) All pipe to be used within the *special permit inspection area* must be hydrostatically tested at the mill at a test pressure corresponding to a hoop stress of 95 percent specified minimum yield strength (SMYS) for 10 seconds.
- 9) Within the *special permit inspection area* welding of pipeline girth welds in accordance with 49 CFR Part 192, Subpart E must include one hundred percent (100%) non-destructive examination (NDE) of all girth welds;
- 10) NEXUS must run a post construction high resolution (HR) deformation/caliper inline inspection (ILI) tool<sup>12</sup> within the *special permit inspection area* prior to placing the pipeline into service.
- 11) NEXUS must conduct a post backfill direct current voltage gradient (DCVG) or alternating current voltage gradient (ACVG) survey within the *special permit inspection area* no later than three (3) months after placing the pipeline into gas service.

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<sup>12</sup> The (HR) deformation/caliper ILI tool assessment shall be done using NEXUS Company Procedure IP-MP2.5 and using HR deformation/caliper ILI tools that achieve a +/- 0.5% tool tolerance capability using individual finger sensors that are outside of cup-type sensors. The ILI tool tolerance shall not be applied for anomaly sizing purposes.

- 12) The *special permit segment 1* pipe must be hydrostatically tested to a pressure equal to two (2) times MAOP.<sup>13,14</sup>
- 13) The NEXUS pipeline within the *special permit segment 1* and *special permit segment 2* must be installed with a minimum depth of cover of 36 inches.
- 14) Coatings that can shield cathodic protection (CP), such as polyethylene coatings (shrink sleeves and tape coatings), must not be used within the *special permit inspection area*.
- 15) The NEXUS pipeline within the *special permit segment 1 and special permit segment 2* must be constructed with a construction quality management and assurance plan that includes the applicable conditions of the special permit.
- 16) Warning tape must be installed approximately one (1) foot above the pipeline within the *special permit segment 1* and *special permit segment 2*, except for locations where is impracticable to install warning tape, such as road bores and horizontal direction drills.
- 17) A baseline assessment of the NEXUS pipeline within the *special permit segment 1* and *special permit segment 2* using a high resolution (HR) magnetic flux leakage (MFL) ILI tool must be conducted within three (3) years of the NEXUS pipeline in-service date.
- 18) NEXUS must incorporate the requirements of this special permit into its written integrity management program (IMP) and standard operating procedures (SOPs).<sup>15</sup> NEXUS must treat *special permit segments 1 and 2* as “covered segment” in a “high consequence area (HCA)” in accordance with 49 CFR Part 192, Subpart O. Reassessments of the NEXUS

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<sup>13</sup> The mainline valve assembly located at MP 248.5 must be tested to a pressure of at least 1.5 x MAOP (not 2 x MAOP), since a higher test pressure would exceed the test pressure rating of the valves and ANSI 600 fittings. If the valve assembly at MP 248.5 is not tested in the pipeline ditch, but is either hauled by truck or lifted into the pipeline ditch for tie-ins, the valve assembly must be inspected for damage and tie-in welds must have tie-in pipe excavated to minimize lateral and longitudinal line-up stresses on the tie-in girth welds.

<sup>14</sup> To prevent the potential for excessive combined stress, NEXUS may limit the post-installation hydrostatic test pressure for horizontal directional drills (HDD) in *special permit segment 1* to 1.8 x MAOP, provided a 49 CFR Part 192, Subpart J hydrostatic test to 2 x MAOP was conducted on the HDD pipe prior to installation.

<sup>15</sup> Pipeline operating procedures such as NEXUS Standard Operating Procedure's (SOP's) are required by 49 CFR 192.603(b) and 192.605.

pipeline within the *special permit inspection area* using HR MFL and HR Deformation ILI must be conducted at the frequency specified for HCAs in 49 CFR 192, Subpart O.<sup>16</sup>

- 19) Anomaly response and repair for the NEXUS pipeline within *special permit segments 1 and 2* and the *special permit inspection area* must be conducted as required by 49 CFR 192, Subpart O, and the additional evaluation and remediation criteria in the special permit conditions regardless of HCA<sup>17</sup> status. The required timing for excavation, investigation, and remediation of anomalies based on ILI data or excavation results must be in accordance with 49 CFR 192.485 and 192.933, and must incorporate the appropriate class location design factors and wall loss criteria in the anomaly repair criteria
- 20) A close-interval survey (“CIS”) must be conducted and areas of inadequate cathodic protection in *special permit segment 1* and *special permit segment 2* and any inadequacies must be remediated<sup>18</sup> within one (1) year of the pipeline in-service date.
- 21) CIS reassessments must be conducted on *special permit segment 1* and *special permit segment 2* at a frequency consistent with the reassessment intervals specified in 49 CFR 192, Subpart O for HCAs and the CP levels required in 49 CFR 192, Subpart I.
- 22) Spacing between cathodic protection (CP) pipe-to-soil test stations within *special permit segment 1* and *special permit segment 2* cannot exceed one-half (½) mile.
- 23) Any areas of low CP potential within the *special permit segment 1* and *special permit segment 2* must be remediated within one (1) year of the finding unless it is impracticable to meet this schedule due to a permitting interval.

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<sup>16</sup> If 49 CFR 192.939(a) integrity management reassessment intervals should change from seven (7) years to some other reassessment interval under eight (8) years, NEXUS may use that reassessment interval instead of seven (7) years.

<sup>17</sup> HCAs in the *special permit inspection area* and *special permit segments 1 and 2* must have anomalies evaluated and repaired based upon the most stringent requirements of: this special permit; 49 CFR Part 192, Subpart O, or NEXUS’ Integrity Management Plan.

<sup>18</sup> The terms “remediate” or “remediation” of pipe coating must include repair of damaged external pipe coating, where required to maintain cathodic protection of the pipeline in accordance with 49 CFR 192.463.

24) In addition to the requirements of 49 CFR 192.705 and 192.706, NEXUS must perform right-of-way patrols as follows:

- a. Ground patrols using instrumented leakage detection equipment that can detect gas leaks along the *special permit segment 1 and special permit segment 2* at intervals between every five (5) months to seven and one-half (7-½) months, not to exceed seven and one-half (7-½) months, but at least two (2) times per calendar year.
- b. Aerial flyover patrols or ground patrols by walking or driving of the *special permit inspection area* right-of-way once a week, not to exceed 10-days, contingent on weather conditions. Should mechanical availability of the patrol aircraft or weather conditions become an extended issue, the *special permit inspection area* pipeline aerial flyover patrol must be completed within 21-days of the past patrol by other methods such as walking or driving the pipeline route, as feasible.
- c. If either the ground patrols or aerial flyover patrols schedule cannot be met due to circumstances beyond NEXUS' control, NEXUS must notify the appropriate Director, PHMSA Central or Eastern Region in writing of the reasons the schedule cannot be met and obtain a letter of "no objection"<sup>19</sup> within three (3) business days of the exceedance.

25) Line-of-sight markers must be installed and maintained within the *special permit segment 1 and special permit segment 2* in accordance with 49 CFR 192.620(d)(4)(iv) to the extent practical.

26) All mainline valves for the NEXUS pipeline within the *special permit inspection area* must be controlled by a supervisory control and data acquisition (SCADA) system and

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<sup>19</sup> For any special permit condition that requires NEXUS to provide a notice for a "no objection" response from PHMSA, other notice, annual report, or documentation to the appropriate PHMSA Central or Eastern Region Director, NEXUS must also send a copy to the PHMSA Director of State Programs and the appropriate state authorities, including the Michigan Public Service Commission, Manager of Gas Operations, or the Public Utility Commission of Ohio, Service Monitoring and Enforcement Department, Gas Pipeline Safety Program Manager, which are the authorities of the states along the NEXUS pipeline route that have interstate agent agreements with PHMSA.

must be equipped for remote monitoring and control, or remote monitoring and automatic control in accordance 49 CFR 192.620(d)(3)(iii) and the special permit conditions.

- 27) Within one (1) year of construction, NEXUS must perform surveys and remediation, with corrosion control implemented, for induced currents from electric transmission lines and other known sources of potential interference within the *special permit segment 1* and *special permit segment 2*.
- 28) NEXUS must provide pipeline safety awareness material to residents within the potential impact radius (PIR) of the *special permit segment 1* and *special permit segment 2* each calendar year.
- 29) Annually, after issuance of this special permit, NEXUS must submit an annual pipeline integrity report to PHMSA.
- 30) NEXUS must maintain data integration of special permit condition findings and remediation in the *special permit segment 1* and *special permit segment 2*.
- 31) For pipeline system flow reversals exceeding 90 days in *special permit segment 1* or *special permit segment 2*, NEXUS must prepare a written plan that corresponds to the applicable criteria identified in PHMSA Advisory Bulletin (ADB-2014-04), “Guidance for Pipeline Flow Reversals, Product Changes and Conversion of Service” issued on September 18, 2014 (79 FR 56121, Docket PHMSA-2014-0400).
- 32) NEXUS must evaluate the potential environmental consequences and affected resources of any land disturbances and water body crossings needed to implement the special permit conditions for *special permit segment 1*, *special permit segment 2*, or *special permit inspection area* prior to the disturbance.
- 33) If a leak or rupture (incident as defined by 49 CFR 191.3) occurs in any of the *special permit inspection areas*, a ‘root cause analysis’ must be performed to determine the cause of the failure.
- 34) NEXUS may request to extend the *special permit segment 1* to include new or extended contiguous segments in *special permit segment 2* from MP 245.16 to MP 237.88 (Washtenaw County, Michigan county line).

35) NEXUS must maintain all records required by 49 CFR Part 192, as well as records required in the special permit conditions for *special permit segment 1*, *special permit segment 2*, and the *special permit inspection areas*.

36) A NEXUS senior executive officer, vice president or higher must certify in writing the following:

- a. NEXUS pipeline *special permit segment 1 and 2*, and *the special permit inspection area* meet the conditions described in this special permit;
- b. The written manual of O&M procedures required by 49 CFR 192.605 for the NEXUS pipeline has been updated to include all requirements of this special permit; and
- c. NEXUS has implemented all Conditions as required by this special permit.

The special permit contains conditions to ensure NEXUS meets or exceeds the threshold requirements with equivalent safety and to ensure that granting the special permit will not be inconsistent with safety.

#### **Past Enforcement History – 2006 through November 28, 2017**

Since the beginning of 2006 through November 28, 2017, Enbridge and Spectra Energy were cited in 62 enforcement cases with a total of \$7,213,100 in assessed civil penalties. PHMSA initiated twenty-two Notices of Amendments, nineteen Notices of Probable Violations, seventeen Warning Letters, and four Corrective Action Orders against Enbridge Energy, Limited Partnership and Spectra Energy.

Below is a table of PHMSA enforcement matters of all types in all PHMSA Regions for Enbridge/Spectra (OPID #11169, 288, 4070, 14435, 19235, and 31335) from 2006 through November 28, 2017:

- Enbridge Energy, Limited Partnership (11169)
- Algonquin Gas Transmission, L.L.C. (Spectra Energy Partners, LP) (288)
- East Tennessee Natural Gas, LLC (Spectra Energy Partners, LP) (4070)
- Maritimes & Northeast Pipeline, L.L.C. (Spectra Energy Partners, LP) (31335)
- Ozark Gas Transmission, L.L.C. (Spectra Energy Partners, LP) (14435)
- Texas Eastern Transmission, LP (19235)



Status	Corrective Action Order	Notice of Amendment	Notice of Probable Violation	Safety Order	Warning Letter	Total
CLOSED	3	21	17	0	17	58
OPEN	1	1	2	0	0	4
<b>Total</b>	<b>4</b>	<b>22</b>	<b>19</b>	<b>0</b>	<b>17</b>	<b>62</b>

Enbridge’s (Spectra Energy) Texas Eastern Transmission, LP 30-diameter Line 27 pipeline near Delmont, Pennsylvania, ruptured on April 29, 2016. The failure was due to girth weld corrosion caused by usage of tape coating around the girth weld which shielded the girth weld from cathodic protection. PHMSA issued a Corrective Action Order (CAO) for this incident on May 3, 2016. CAO CPF No. 1-2016-1004-1004H can be reviewed at:

[https://primis.phmsa.dot.gov/comm/reports/enforce/documents/120161004H/120161004H\\_Corrective%20Action%20Order\\_05032016.pdf](https://primis.phmsa.dot.gov/comm/reports/enforce/documents/120161004H/120161004H_Corrective%20Action%20Order_05032016.pdf).

The NEXUS pipeline special permit conditions will not allow usage of tape coating or any other coating that will shield the pipeline from cathodic protection. Also, the special permit conditions require the *special permit inspection area* to have inline inspection on a maximum seven (7) year interval with remediation of any anomalies that would be detrimental to the safe operation of the pipeline.

The limitations section of the special permit requires a reapplication and review of the NEXUS special permit on a periodic basis. PHMSA may revoke, suspend or modify the NEXUS special permit based on any finding listed in 49 CFR 190.341(h)(1) and require NEXUS to comply with the regulatory requirements in 49 CFR 192.625. As provided in 49 U.S.C. Chapter 601 and 49 CFR Part 190, PHMSA may also issue an enforcement action for failure to comply with the special permit. Any work plans and associated schedules must be automatically incorporated into the NEXUS special permit and are enforceable in the same manner.

PHMSA has determined that imposing the conditions and limitations summarized in this document will ensure that granting the special permit for non-odorization *special permit segment I* of will be consistent with safety.

**Findings:**

Based on the information submitted by NEXUS and PHMSA's analysis of technical, operational and safety issues, and given the conditions that will be imposed in the special permit, PHMSA finds that granting this special permit to NEXUS to operate *special permit segment 1* located from MP 245.16 to MP 256.09 of the NEXUS pipeline in Washtenaw County, Michigan, without odorization of the natural gas would not be inconsistent with pipeline safety.

**Completed in Washington DC on:** June 29, 2018

**Prepared By:** PHMSA – Engineering and Research Division