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February 13, 2018

John St. Hilaire, Vice President
Vermont Gas Systems, Inc.
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PUBLIC UTILITY COMMISSION

Subject: Notice of Probable Violations for certain aspects of the construction of the Addison Natural Gas Project

Dear Mr. St. Hilaire:

Pursuant to 30 V.S.A. § 29, and Commission Rule 6.102, the Vermont Department of Public Service (the "Department") conducted several pipeline safety inspections related to the construction of the Addison Natural Gas Project ("ANGP") by Vermont Gas Systems, Inc. ("VGS"). These inspections were made to verify compliance with 49 C.F.R. Part 192, Commission Rule 6.102, and other requirements related to the certificate of public good ("CPG") issued to VGS in Docket 7970 authorizing construction of the ANGP pursuant to 30 V.S.A. § 248.

During the inspections and subsequent review of VGS submittals, the Department became aware of several probable violations of 49 C.F.R. Part 192, as described in greater detail below. These items were brought to the attention of VGS representatives at the time of discovery and again during multiple subsequent meetings with VGS representatives. At this time, VGS has not demonstrated to the Department that the specific conditions described below have been adequately remediated.

Pursuant to Commission Rule 6.104(A), the Department hereby initiates an enforcement proceeding by serving this Notice of Probable Violation ("NOPV") on Vermont Gas Systems, Inc. Commission Rule 6.104(A) requires that a copy of this NOPV be filed with the Public Utility Commission ("PUC" or "Commission"), and that such notice shall be treated as a petition to impose penalties under 30 V.S.A. § 30.

In this letter, the Department presents two distinct types of probable violations of the minimum pipeline safety standards, as well as one additional area of concern for which we recommend the



same remediation as the two probable violations. These items all pertain to the construction of the Addison Natural Gas Project. The Department's findings are as follows:

FINDINGS

Finding Number 1: Pipe Support

The Federal Minimum Pipeline Safety Standards (49 C.F.R. Part 192) state, in pertinent part:

§192.303 Compliance with specifications or standards.

Each transmission line or main must be constructed in accordance with comprehensive written specifications or standards that are consistent with this part.

§192.319 Installation of pipe in a ditch.

(b) When a ditch for a transmission line or main is backfilled, it must be backfilled in a manner that:

(1) Provides firm support under the pipe; and

(2) Prevents damage to the pipe and pipe coating from equipment or from the backfill material.

VGS's Technical Specification for ANGP, Section 312333, part 3.5B, dated April 29, 2015, stated:

Pipe supports shall be installed in all locations prior to backfilling, unless otherwise directed by the Construction Management Team – refer project design drawings for further requirements. Stacked sandbags, pipe pillows, or owner approved equal are acceptable methods. Spacing shall be per manufacturers recommendations, if a commercial product, or 15' maximum intervals if sandbags.

The design drawings (details 3 and 6 on Sheet ANGP-T-G-015) clearly specify that a minimum of six inches of select backfill be placed underneath the pipe for support in the absence of sandbags or pipe pillows. On August 31, 2015, VGS installed pipe directly on the bottom of the trench between stations 240+26 and 279+75 (3,949 feet).

In May 2016, VGS amended the text of Section 312333, part 3.5B, as follows:

Pipe supports may be installed in all locations prior to backfilling as an alternative to continuous pipe bedding for the entire width of the trench. However, areas around pipe shall still be padded with select backfill as shown on the contract drawings and explained in paragraph 3.3.b. above. Stacked sandbags, pipe pillows, or owner approved equal are acceptable methods. Spacing shall be per manufacturer recommendations, if a commercial product, or 15' maximum separation if sandbags.

Subsequent to amending its specification, in 2016 VGS installed pipe directly on the bottom of the trench between stations 564+24 and 567+84 (360 feet). In July 2016, VGS requested clarification from its engineer of record (CHA), and received the following response:

Per specification 312333, the trench bottom may be prepared utilizing two methods noted below. With either method, the pipe shall have a minimum of six (6) inches of select backfill/padding placed beneath (between in-situ native material and bottom of pipe) and on all sides of the pipe (Section 3.3.B).

- (1) The pipe may be placed on stacked sandbags, or other approved support method (Section 3.5.B) and backfilled as specified in Section 312333.
- (2) The pipe may be “continuously supported” with select backfill/pipe padding (minimum six (6) inches) as described in section 312333, Part 3.3.B, and shown on details 3 and 6 on sheet ANGP-T-G-015. The Contractor and Construction Management Team shall verify that the 6” of padding material below the pipe meets specification 312333 Part 2.1.A.

Per the specifications and details 3 and 6 on sheet ANGP-T-G-015, laying the pipe directly on in-situ native material on bottom of trench is not acceptable.

In addition to the above, VGS also installed pipe without support in at least two locations. On September 3, 2016 in the vicinity of ANGP project Station 1635+00 and on approximately September 18, 2016 at a segment between project Station 1642+00 and 1660+00, construction personnel placed pipe directly on the bottom of a trench which was not excavated to the depth required in VGS’s project specifications. The personnel then removed muddy soil immediately adjacent to the pipe which facilitated the pipe to progressively lower its position, and increase its depth, without pipe supports.

The Department believes that installing the pipe directly on the bottom of the trench was not in accordance with VGS’s written specifications, and is therefore a violation of 49 C.F.R. §192.303. In addition, the Department is concerned that this installation may have an increased susceptibility to corrosion due to differing soil conditions above and below the pipe, and unknown materials in the soil below the pipe.

Finding Number 2: Trench Breakers

VGS’s Technical Specification for the ANGP, Section 312333, part 3.5C, states:

Trench breakers shall be installed per construction plan details prior to backfilling operations begin.

Trench breakers are used to “break” the flow of groundwater along the buried pipeline to reduce soil erosion around the pipe. As part of its quality assurance and quality control (“QA/QC”) program, VGS identified that, during the 2014 construction season, “trench breakers were not

installed as designed in numerous locations. ... Also, there were some trench breakers installed where there was not a designed location.” VGS investigated this discrepancy, and determined, after talking to field personnel (inspectors), “that some of the locations where trench breakers were designed on paper were omitted because field conditions warranted them not to be installed. On the other hand there were locations where there was no designed trench breaker, but field conditions warranted one to be installed. There was no documentation of this process.” VGS monitored this ‘phase one’ section of pipe by aerial patrol and walking survey multiple times in 2016 and 2017, and has not observed any areas of concern.

The Department believes that installing trench breakers in the above-described manner (especially without a formal documentation process when deviating from written specifications) was not in accordance with VGS’s written specifications, and is therefore a violation of 49 C.F.R. §192.303. In addition, the Department is concerned that this installation may have an increased susceptibility to soil erosion around the pipe, which may affect the integrity of the pipe.

Additional Subject of Concern: Pipe Coating (No Allegation of Probable Violation)

The following discussion of pipe coating concerns does not include any allegation of probable violations. The Department has decided to include this subject of concern in this NOPV because an additional benefit of the recommended remediation measures will be to address any potential for corrosion which may be presented by the pipe coating concerns described below.

The Code of Federal Regulations applicable to gas pipeline coatings and external corrosion control requires that pipe coatings be installed according to the following standard:

49 C.F.R. §192.455 External corrosion control: Buried or submerged pipelines installed after July 31, 1971.

(a) ... each buried or submerged pipeline installed after July 31, 1971, must be protected against external corrosion, including the following:

(1) It must have an external protective coating meeting the requirements of §192.461.

49 C.F.R. §192.461 External corrosion control: Protective coating.

(a) Each external protective coating, whether conductive or insulating, applied for the purpose of external corrosion control must—

(1) Be applied on a properly prepared surface;

(2) Have sufficient adhesion to the metal surface to effectively resist underfilm migration of moisture;

(3) Be sufficiently ductile to resist cracking;

(4) Have sufficient strength to resist damage due to handling and soil stress; and

(5) Have properties compatible with any supplemental cathodic protection.

(b) Each external protective coating which is an electrically insulating type must also have low moisture absorption and high electrical resistance.

- (c) Each external protective coating must be inspected just prior to lowering the pipe into the ditch and backfilling, and any damage detrimental to effective corrosion control must be repaired.
- (d) Each external protective coating must be protected from damage resulting from adverse ditch conditions or damage from supporting blocks.
- (e) If coated pipe is installed by boring, driving, or other similar method, precautions must be taken to minimize damage to the coating during installation.

Through its QA/QC program, VGS identified multiple varieties of coating patches (used to patch anomalies in the mill-applied protective pipe coating) that exhibited adhesion failures. Once identified, VGS discontinued the use of these types of patches. In addition, VGS identified certain manufactured lots of Canusa sleeves ("wraps") that exhibited adhesion failure. Two hundred and ninety-six (296) sleeves were on unburied pipe and were replaced. Sixty-seven (67) sleeves are on installed sections of pipe.

In two locations where horizontal directional drilling ("HDD") was used (Route 2A and Monkton Swamp), VGS noted extensive pipe coating damage when pulling the pipe out the far end of the bore. VGS continued pulling pipe until it determined coating damage was within acceptable limits, and removed the damaged section of pipe; however, it is possible that there are areas of coating damage remaining underground.

While the Department is not at this time considering the above two items (patch adhesion failure and HDD damage) to be code violations, the Department is concerned that these two issues could, over time, present a corrosion risk to the pipeline. The Department is including these coating items in this NOPV because the remedial actions sought to monitor these coating concerns are the same remedial actions recommended for the pipe support and trench breaker items.

CONCLUSIONS

The Department alleges that both of the findings detailed above constitute violations of 49 C.F.R. §192.303, which requires that "Each transmission line or main must be constructed in accordance with comprehensive written specifications or standards that are consistent with this part." These failures to comply with VGS's written specifications constitute a failure to obey the 2013 Final Order and CPG issued in Docket 7970, as the 2013 Final Order and CPG were both conditioned on VGS's meeting or exceeding federal gas safety standards.

Based on the findings detailed above, the Department concludes that the following two Probable Violations have occurred; remedial action is required for both of these items:

- (1) The installation of the pipe directly on the bottom of the trench (in multiple locations) was not in accordance with VGS's written specifications, and such installations are therefore a violation of 49 C.F.R. §192.303

- (2) The installation of trench breakers without a formal documentation process when deviating from written specifications (in multiple locations) was not in accordance with VGS's written specifications, and such installations are therefore a violation of 49 C.F.R. §192.303

The remedial action sought to address the pipe support and trench breaker violations would also serve to address the potential pipe coating concerns described in this NOPV.

RELIEF SOUGHT

Remedial Action

All of the above-mentioned items have the potential to increase external corrosion of the pipeline, which is a time-dependent threat as the loss of metal increases over time. Accordingly, the Department recommends that the Commission order VGS to:

- (1) Reduce the maximum time between in-line inspection ("ILI") runs for both metal loss and geometry to a maximum of five years from the now-maximum seven years specified in the CPG for the ANGP.
- (2) Concurrently with the ILI, a close interval survey ("CIS") of the effectiveness of the cathodic protection should also be undertaken and the results integrated with the ILI results. All areas of poor cathodic protection should be remedied and mitigated within the prescribed time period and if metal loss of greater than 20% is noted, the mitigation shall take place within 3 months of discovery.
- (3) Also, concurrently with the ILI and CIS, a coating survey using either direct current voltage gradient ("DCVG") or alternating current voltage gradient ("ACVG") should be performed and integrated with other surveys and all moderate and severe coating anomalies shall be excavated and remediated. During the inspection of coating damage, measurements shall be taken to determine if metal loss is present and if over 40% of wall loss the pipe shall be repaired to its original strength.

The Department recommends that the Commission order VGS to report the results of these surveys according to the following schedule:

- (1) Within 75 days of the completion of the ILI runs for geometry and metal loss the company shall have a final report on the findings.
- (2) Within 105 days of the completion of the ILI runs the company shall have a report on the integration and analysis of ILI results (both geometry and metal loss), cathodic protection CIS survey, and coating surveys which show all metal loss of 10% or greater, areas where the cathodic protection does not meet the minus 0.85 VDC for either on or off potentials, and all moderate or severe coating anomalies.

The Department recommends that the Commission order VGS to submit to the Department and the Commission copies of all surveys, reports, analysis and actions.

Civil Penalty Discussion

Title 30

Subsection 30(a) of Title 30 provides that: "A person, company or corporation subject to the supervision of the Commission or the Department of Public Service . . . who fails within a reasonable time to obey an order or decree of the Commission, or who violates a provision of . . . section 248 of this title . . . shall be required to pay a civil penalty as provided in subsection (b) of this section, after notice and opportunity for a hearing."

Subsection (b) of Section 30 provides as follows with respect to civil penalty amounts for such violations:

The Commission may impose a civil penalty under subsection (a) of this section of not more than \$40,000.00. In the case of a continuing violation, an additional fine of not more than \$10,000.00 per day may be imposed. In no event shall the total fine exceed the larger of:

- (1) \$100,000.00; or
- (2) one-tenth of one percent of the gross Vermont revenues from regulated activity of the person, company, or corporation in the preceding year.

Discussion of Civil Penalty Proposed by the Department of Public Service

Subsection 30(c) of Title 30, which applies to civil penalties for failure to obey an order of the Public Utility Commission, identifies eight factors which the Commission may consider in determining the amount of a civil penalty:

- (1) The extent that the violation harmed or might have harmed the public health, safety, or welfare, the environment, the reliability of utility service, or the other interests of utility customers;
- (2) Whether the respondent knew or had reason to know the violation existed and whether the violation was intentional;
- (3) The economic benefit, if any, that could have been anticipated from an intentional or knowing violation;
- (4) The length of time that the violation existed;
- (5) The deterrent effect of the penalty;
- (6) The economic resources of the respondent;
- (7) The respondent's record of compliance; and
- (8) Any other aggravating or mitigating circumstance.

The Department of Public Service places the highest priority on the safe operation and maintenance of pipeline infrastructure. Therefore, the primary relief sought by the Department is an order that directs VGS to increase the frequency of monitoring as described above in this NOPV. Additionally, the Department believes that a civil penalty may be warranted for these

probable violations. In consideration of the factors provided in Subsection 30(c) of Title 30 for the determination of the amount of a civil penalty, the Department considers factor numbers five (5) and seven (7) to be most relevant. With regard to VGS's record of compliance, the Department notes that in recent Commission dockets there have been three other civil penalties imposed on VGS for violations of Commission rules and orders arising from its construction of the Project. The second of these cases resulted in a \$95,000 penalty for VGS's failure to fully comply with comprehensive written specifications prepared consistent with federal gas safety standards¹. The two findings at the core of this NOPV are the result of construction practices or conditions which were not in accordance with VGS's written specifications, and which are therefore violations of 49 CFR C.F.R. §192.303. Considering that at least one of the three prior civil penalties imposed on VGS also resulted from a failure to fully comply with VGS's written specifications, VGS's record of compliance while constructing the pipeline should be a factor in determining an appropriate penalty amount for the current violations. In consideration of the deterrent effect of the penalty, the Department seeks the imposition of a penalty which would be sufficient to specifically deter VGS from failing to comply with its written specifications and Commission orders on a prospective basis. The Department has also reviewed the record of civil penalties imposed on pipeline operators by the Federal Pipeline and Hazardous Materials Safety Administration ("PHMSA") for similar violations in other states. This review of similar civil penalties imposed by PHMSA leads the Department to conclude that a penalty amount of \$25,000 would be appropriate for the types of violations alleged in this NOPV. The Department also concludes that a civil penalty in the amount of \$25,000 would be effective as a deterrent to any future failures by VGS to comply with its written specifications. The Department therefore recommends that the Commission impose a civil penalty on VGS in the amount of \$25,000.

PROCEDURES GOVERNING THIS NOTICE OF PROBABLE VIOLATIONS

Pursuant to Commission Rule 6.104(A), a copy of this Notice of Probable Violation has been filed with the Public Utility Commission and is to be treated as a petition to impose penalties under 30 V.S.A. § 30.

In accordance with Commission Rule 6.104(D), VGS must make a written response to the Department and to the Commission within 30 days of this Notice.

This Notice of Probable Violation contains a statement of the remedial action sought and requests that the Commission impose a civil penalty in the amount of \$25,000. Therefore, in accordance with Commission Rules 6.104(B)(3) and 6.104(E), the Department notes that VGS may respond to this notice as follows:

- (1) Agree to take the remedial action sought and submit a plan for compliance which shall include a schedule of steps to be taken and a date by which complete compliance shall be obtained;
- (2) Pay the proposed civil penalty by certified check payable to the Commission; and/or

¹ Notice of Probable Violation of Intrastate Gas Pipeline Safety Regulations by Vermont Gas Systems, Inc., Docket 8814, Order of 12/8/16.

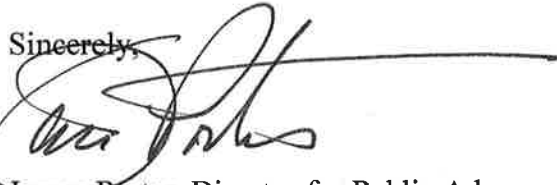
- (3) Object to imposition of the remedial action and the imposition of the penalty and request a hearing before the Commission.

Pursuant to Commission Rule 6.104(F), a request for hearing must include a statement of the issues intended to be raised at hearing, assert any defenses VGS intends to raise, and include an explanation of any mitigating factors accompanied by supporting data or other information. The hearing request may also include an offer made in compromise of the proposed remedial action.

Pursuant to Commission Rule 6.104(G), if Vermont Gas Systems, Inc., agrees to the remedial actions sought, then it will be deemed to have waived notice and an opportunity for hearing, provided the Commission's Final Order is substantially consistent with the remedial action and penalty agreed to by the Department and Vermont Gas Systems, Inc.

If you have any questions, please do not hesitate to contact the Department.

Sincerely,



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