**Exhibit VGS-AG-028**

# SPECIFICATION FOR APPLICATION OF PIPELINE EXTERNAL COATINGS

**Specification Number 30253-01**

**Revision 4, April 18th 2014**

**FOR**

**VERMONT GAS SYSTEMS, INC.**

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Vermont Gas Systems, Inc.
Spec. No.: 30253-01
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## 1.0 SCOPE

1.1 This specification states the minimum requirements for the external coating of API 5L pipe.

## 2.0 REGUALTIONS AND STANDARDS

2.1 Pipe coating shall comply with the following regulations:

- Part 192, Title 49, Code of Federal Regulations, including Section 192.112 covering additional coating requirements for steel pipe.

2.2 Pipe coating shall be in accordance with one of the following standards:

- CSA Z245.20 Series-10, 'Plant-applied External Fusion Bond Epoxy Coating for Steel Pipe'
- NACE RP/SP0185, 'Extruded Polyolefin Resin Coating Systems with Soft Adhesives for Underground or Submerged Pipe'
- NACE RP0394, 'Standard Recommended Practice - Application, Performance, and Quality Control of Plant-Applied, Fusion-Bonded Epoxy External Pipe Coating'

2.3 Reference Standards listed in this specification are:

- API 5L, 'Specification for Line Pipe'
- API RP 5L1, 'Recommended Practice for Railroad Transportation of Line Pipe'
- API RP 5LT, 'Recommended Practice for Truck Transportation of Line Pipe'
- NACE RP-0274, 'Standard Recommended Practice High-Voltage Electrical Inspection of Pipeline Coatings'

2.4 Purchaser will allow no change to these requirements without prior written approval.

2.5 These regulations and standards shall be interpreted as the minimum requirements applicable to the work and no statement contained in this specification shall be construed as limiting the work to such minimum requirements.

2.6 Regardless of any omission from this specification or the above references regulations or standards, all work shall performed be in accordance with the best recognized practice.

## 3.0 GENERAL REQUIREMENTS

3.1 Coatings shall be classified as a 'Non-Shielding' coating.

3.2 Coating on pipe used for trenchless installation must be non-shielding and resist abrasions and other damage possible during installation.

3.3 The Coater's quality assurance inspection and testing program for the coating must cover the surface quality of the bare pipe, surface cleanliness and chlorides, blast cleaning, application temperature control, adhesion, cathodic disbondment, moisture permeation, bending, coating thickness, holiday detection, and repair.

3.4 Purchaser shall have access at all times to the work, with the right to inspect work and material furnished by Coater. All coating work shall be subject to Purchaser's approval. Failure to discover or reject defective work or materials by Purchaser and/or the Coater shall not be construed as acceptance of such work or material by Purchaser.

## 4.0 SURFACE PREPARATION, CLEANLINESS AND CLEANING

4.1 As a minimum, all surface preparation, cleanliness and cleaning activities shall be in accordance with Section 2.0.

4.2 Ends of pipe shall be protected or positioned in such a fashion as to prevent entry of abrasive into the pipe interior during blasting. Any abrasive entering pipe shall be removed prior to coating. Also, care shall be taken to prevent damage to internal markings. Any marking made illegible shall be restored by the Coater at no additional cost to Purchaser.

4.3 Pipe bevels shall be protected during blast cleaning and coating operations to prevent nicking, gouging or other damage to lands and bevels. Bevel protectors shall be required if damage is incurred at no additional cost to Purchaser.

4.4 During the cleaning operation, pipe surfaces shall be inspected for slivers, scabs and other surface conditions that could adversely affect the integrity of the pipe or coating. Coater shall provide equipment for grinding and/or filing imperfections at no additional cost to Purchaser. All grinding or dress out shall comply with API 5L, latest approved edition as adopted by regulations listed in Section 2.1.

4.5 Purchaser's Inspectors shall note any inordinate amount of surface preparation required that would delay delivery of finished product and/or increase inspection, for possible back charges to pipe vendor.

4.6 Bare, grit blasted pipe shall be checked for chloride contamination, at the inbound table, twice during each shift. Grit blasted pipe found to be contaminated shall be 100% acid washed prior to coating.

4.7 Dented pipe shall only be accepted if it can be demonstrated the dent is in compliance with API 5L, latest approved edition as adopted by regulations listed in Section 2.1 For any dented pipe that does not comply, the full section of pipe containing the defect shall be cut off. If any length of pipe does not comply with the minimum pipe length, the entire length shall be rejected.

## 5.0 PREHEAT BEFORE COATING

5.1 Pipe preheat shall be in accordance with Section 2.0

## 6.0 COATING MATERIALS AND THICKNESS

6.1 The following shall be specified by the Purchaser:

- Approved coating materials
- Pipe quantity, outside diameter, wall thickness and nominal length
- Bare pipe specification
- Coating thickness, stating individual layers where applicable

6.2 Coating materials shall be qualified prior to application by the Coater in accordance with Section 2.0.

6.3 Where not specifically stated, the dry cured coating minimum thickness shall be taken to be the values as provided to the Coater.

6.4 Maximum coating thickness shall not exceed that stated by the coating manufacturer.

6.5 The coating shall have a cutback of 2" ± 1". Coating material on the cutback, land and/or beveled edge of pipe shall not be acceptable.

6.6 Coating cure time shall be measured, recorded and controlled to ensure the coating is being adequately cured.

6.7 Coating thickness shall be measured and inspected in accordance with Section 2.0. Unless otherwise specified in Section 2.0, coating thickness shall be measured by a magnetic film thickness gauge or other approved instrument or gauge calibrated to National Bureau of Standards, Certified Coating Thickness Calibration Standards for the approximate thickness of the specified coating.

## 7.0 INSPECTION AND TESTING

7.1 Coating inspection and testing shall be in accordance with Section 2.0 and Section 3.0.

7.2 Holiday inspection shall be performed in the presence of Purchaser's Inspectors using Coater's electrical holiday detector of sufficient voltage. The detector shall be operated in such a manner as to mark and audibly indicate the presence of all holidays. Holiday detector shall be set at the voltage specified in NACE RP-0274, but not less than 2,000 volts, D.C. for dry type detectors. If any one length of pipe has excessive defects (more than 10 per pipe length), all coating shall be removed for re-application.

7.3 Coated pipe requiring closer inspection of the coating by Purchaser's Inspectors or the Coater's quality control personnel shall be set aside at no additional cost to Purchaser.

## 8.0 REPAIRS TO COATING

8.1 Pipe with either unacceptable coating, below minimum thickness, separation of bond and/or holidays outside of the acceptance criteria stated in Section 7.0 shall be repaired as per the manufacturer's recommendations.

8.2 After repairs, pipe shall be re-inspected with an electrical holiday detector set at the appropriate voltage.

## 9.0 DOCUMENTATION REQUIREMENTS

9.1 Purchaser shall be provided with all required quality assurance documentation showing Coater's inspection and testing in accordance with Section 2.0.

9.2 Coater shall furnish Purchaser with copies of the load-out tallies immediately upon load out of pipe at the Coater's works.

9.3 Copies of the pipe tally shall be given to Purchaser's Representative at the load out and one (1) copy shall accompany the invoice sent to the Purchaser.

## 10.0 PIPE MARKING

10.1 After coating, each joint shall be legibly marked with a permanent marking medium on the outside along the length with the following information as shown or exemplified under quotation marks, and any additional requirements of API 5L, latest edition adopted by 49 CFR 192.

- Pipe Manufacturer's name
- "API 5L", specified outside diameter, specified wall thickness, grade, product specification level, type of pipe, & hydrostatic test pressure
- Pipe manufacturer's master joint number
- Pipe heat number
- Dimensions, "ft., tenths of feet", to two decimal places
- Coater's name or mark, applicable coating standard, coating material manufacturer's name, coating thickness, Coater's lot/job number & coating date
- Purchase Order Number and Project Number
- Purchaser's Name - "VGS"

## 11.0 LOADING AND TRANSPORTATION

11.1 Procedures and specifications for loading, whether detailed or not in the Coater's loading procedure, shall meet the minimum requirements of API Standard RP-5L1 and/or API RP 5LT and any other instructions provided by the Purchaser.

11.2 Coater's compliance with Purchaser's requirements shall not relieve Coater from responsibility for damage to pipe during loading and transportation.

11.3 Pipe shall be positioned to prevent the contact of longitudinal welds with supports.

11.4 Nylon straps shall be used for the tie-down of externally coated pipe.

## 12.0 STORAGE

12.1 General

12.1.1 The timbers or berms shall have sufficient height to prevent ground surface water or mud from contaminating the pipe and shall be constructed in a manner to allow drainage of water from each piece of stacked pipe.

12.1.2 The area where the pipe is stored shall have sufficient drainage to prevent water standing under the pipe.

12.1.3 The number or tiers of pipe to be stacked shall be limited to prevent deformation or other damage to the pipe or its coating due to the weight of the pipe.

12.2 Separators

12.2.1 Nonmetallic separators or straps that becomes brittle with cold shall not be used.

12.2.2 Crimps used to bind strapping must be of such material, or effectively positioned, to avoid damage to coating on adjacent pipe when stored or loaded.

12.2.3 In case of use vacuum type pipe handling equipment, locations of protective separators shall be agreed with the Purchaser.

12.3 Coated Pipe Storage

12.3.1 Purchaser may elect to have pipe stored at Coater's yard after coating.

12.3.2 Storage materials and arrangements shall follow manufacturer recommendations and Coater’s good working practice to avoid any pipe or coating damage.

## 13.0 WARRANTY

13.1 If it is apparent that the origin of the failure was due to a manufacturing defect, then the Coater is considered liable under their standard warranty. Coater shall bear the cost of replacement or repair, at Purchaser's option, of any pipe, end bevels or pipe coating which is damaged due to Coater's operations or negligence.