Vermont Gas Systems, Inc.
Attn: Eileen Simollardes, Vice President
85 Swift Street
South Burlington, Vermont 05403

August 25, 2014

Subject: VGS Material Specifications and Quality Control Procedures / Plans – Docket 7970

Dear Eileen,

The purpose of this letter is to provide a final response from CHA on the information request from the Vermont Department of Public Service (DPS), dated May 19, 2014.

Responses to each DPS information request item are provided in the attached 'Information Table Response' submittal. The complete documentation binder with all information is electronically available at Vermont Gas Construction Management Trailer at 6180 Williston Rd, Williston, VT, 05495. The complete set of reference documents is approximately 715 pages long & 120 MB electronic file size and cannot be readily emailed.

CHA have provided all required documents for:

1. 23,631.1 feet of Abrasion Resistant Overcoat (ARO) 12.75" OD, 0.312" WT, API 5L X65 PSL2 pipe
2. 42,130.9 feet of Fusion Bonded Epoxy (FBE) coated 12.75" OD, 0.312" WT, API 5L X65 PSL2 pipe
3. 18,610.1 feet of Pritec® coated 12.75" OD, 0.312" WT, API 5L X65 PSL2 pipe
4. 650.5 feet of bare (uncoated) 12.75" OD, 0.500" WT, API 5L X65 PSL2 pipe

The Vermont Gas Construction Management Team are responsible for the coating of all further pipe and the fabrication and coating of transmission pipe fittings. Vermont Department of Public Service required documents for these items will be provided by the Vermont Gas Construction Management Team.

Attached Submittals:

Information Response Table - VGS Material Specifications and Quality Control Procedures / Plans – Docket 7970

Further information can be provided if necessary,

G. Williams

Glyn Williams
Senior Mechanical Engineer
CHA ~ *design/construction solutions*

Gregory S. Corso

Gregory S. Corso, PE
Sr. Vice President, Power & Energy Market
CHA ~ *design/construction solutions*

Information Response Table

VGS Material Specifications and Quality Control Procedures / Plans – Docket 7970

- The following table is a response to information requested by the State of Vermont, Department of Public Service on May 19, 2014.
- The reference documents index on Page 4 of 4 provides a full list of numbered reference documents.
- Numbered Reference Documents are electronically available at the Vermont Gas Construction Management Trailer at 6180 Williston Rd, Williston, VT, 05495.
- The complete set of reference documents is approximately 715 pages long & 120 MB electronic file size and cannot be readily emailed.

Item	Information Request	Response	Reference Documents
1	The specifications for the steel used to make the pipe and which steel mill(s) was used	Steel specification is API 5L PSL2 Grade X65 with further specifications stated in the pipe specification, steel mill manufacturing procedure specification, Purchase Orders placed with pipe suppliers and on the Paragon Industries Material Test Reports. All steel to make the pipe was supplied from Nucor Steel, Decatur, Alabama. Please see reference documents for further information.	1), 2), 3), 4), 5), 6), 29)
2	Any tests performed on the steel being used to make pipe or fittings for the ANGP and any out of specification results and the disposition of such results	Please see reference documents for further information.	1), 4), 5), 7), 29)
3	The quality control program/plan followed by the steel mill and how out-of-specification steel is segregated from material destined to be made into pipe or fittings for VGS	Please see reference documents for further information.	2), 3), 8), 9)
4	The pipe (or rolling) mill(s) used to produce the pipe for the ANGP	All pipe was produced by Paragon Industries, 3378 West Highway 117, Sapulpa, Oklahoma.	
5	The specifications for the pipe and any tests performed on the pipe, including if there were any out-of-specification pipe manufactured	Please see reference documents for further information.	1), 4), 5), 12), 13), 14), 15), 29)
6	The disposition of the out-of-specification pipe manufactured such as reworked, rejected, scrapped, etc. and how such pipe was segregated from good pipe being shipped to VGS or a VGS contractor	Please see reference documents for further information.	14), 15)
7	The quality control program/plan used by the pipe mill(s) and VGS to assure that all pipe to be delivered to the ANGP was within specification	Please see reference documents for further information.	9), 10), 11)
8	If there was alternative to the agreed upon methods of inspection in Docket 7970, 49 CFR 192 or any industry referenced standard, how VGS showed equivalence to the	Not Applicable	

August 25, 2014

Item	Information Request	Response	Reference Documents
	agreed upon tests or methods		
9	Any certifications of the individuals who attest to all the quality control tests and their experience	There are a number of individuals. Relevant Documents are: Paragon Level I and Level II UT Operators NOV Tuboscope Level I and Level II UT Operators	 16) 17)
10	Certification by VGS: a. That the pipe was manufactured to API 5L 44th Edition (and other additions) product specification level (PSL) 2;	Please see reference documents for further information.	1), 4), 5), 28), 29)
	b. That the pipe had a mill leak test to at least 95% of SMYS or an approved alternative as per 49 CFR 192.112(e);	Paragon Material Test Reports 4) & 5) show evidence of the 3100 psig test pressure. This is above the test pressure calculated by 95% of SMYS. 12.75" OD, 0.500" WT API 5L X65 PSL2 pipe will be hydrotested to 95% SMYS at site by others.	4), 5)
	c. The pipe meets the conditions of 49 CFR 112(c)(1) and (2);	Evidence of quality management programs at mills is provided in the reference documents. Evidence of the macro etch test is given in 7). NOV Tuboscope are completing full-body and end ultrasonic testing. This is in addition to testing already completed by Paragon. Testing is completed to process control plan and standard operating procedure given in 18) and 19). Final NOV Tuboscope ultrasonic testing results are provided in reference document 20).	2), 8), 9), 10), 11) 7), 18), 19), 20)
	d. The pipe meets the conditions of 49 CFR 112(d)(1) and (2);	Please see reference documents for further information.	1), 4), 5), 9), 14), 15), 29)
11	VGS's specifications for the cathodic protection coating and the abrasion resistant coating;	Please see reference documents for further information.	21)

Item	Information Request	Response	Reference Documents
12	The quality control program/plan used by the coating facility that applies any coating to the pipe prior to it being shipped to VGS for installation;	ARO Coating was applied at Womble Coaters, Houston, TX. FBE Coating was applied at Durabond, Duquense, PA. Pritec® Coating was applied at Liberty Coating, Morrisville, PA. Please see reference documents for further information.	22), 23), 24)
13	Certification by VGS that any pipe used for horizontal directional drilling (HDD) has an additional coating to prevent damage to cathodic protection coating during that operation;	HDD pipe was coated with FBE Nap-Gard® 7-2508, 14-16 mils with an additional coating of ARO Nap-Gard® Nap-Rock 7-2610, 40 mils. Total coated thickness coated was 54-56 mils (minimum). Construction management procedures and site controls will ensure the correct coated pipe is used for HDD's.	25)
14	Certification by VGS that the pipe surface has been properly prepared as per 49 CFR 192.112(f) prior to applying the cathodic (corrosion) protection coating and per the quality control program/plan and a report of the inspections and testing to assure that the quality of the coating meets the minimum specifications of VGS.	Please see reference documents for further information.	25), 26), 27)

Information Response Table

VGS Material Specifications and Quality Control Procedures / Plans – Docket 7970

Reference Documents Index	
1.	Specification for Electric Resistance Welded (ERW) Pipe and High Frequency Induction Welded (HFIW) Pipe –Specification 686700-90-03 Revision 7, October 29th 2013
2.	Nucor Manufacturing Procedure Specification (MPS) for API 5L Steel Skelp – API MPS NSD_REF-0428 R7
3.	Purchase Orders for Transmission Pipe – PO 21475 & PO 21656
4.	12.75" OD, 0.312" WT, API 5L X65 PSL2: FBE and Pritec Coated Pipe – Paragon Material Test Reports (Pre-Delivery)
5.	12.75" OD, 0.312" WT, API 5L X65 PSL2: ARO Coated Pipe – Paragon Material Test Reports (Pre-Delivery)
6.	Paragon Process Checklist
7.	Nucor Steel Decatur Mannesmann Ratings
8.	Nucor Steel Decatur ISO 9001 Certificate
9.	Paragon Manufacturing Procedure Specification (MPS) API 5L HFW Line Pipe 45th Edition
10.	Paragon Inspection & Test Plan
11.	Paragon API Q1 & Official Use of API Monogram Certificate
12.	Paragon Pipe Charpy V-Notch Testing Results
13.	Paragon Pipe Drop Weight Tear Tests
14.	ARO Pipe Production – Daily Inspection Reports
15.	FBE & Pritec Pipe Production – Daily Inspection Reports
16.	Paragon UT Level I & II Personnel Certification
17.	NOV Tuboscope UT Level I & II Personnel Certification
18.	NOV Tuboscope Ultrasonic Inspection Process Control Plan
19.	NOV Tuboscope Standard Operating Procedure for Portable Full Length Ultrasonic Testing
20.	NOV Tuboscope – Final Ultrasonic Test Results
21.	Specification for Application of External Pipeline Coatings – Specification 30253-01 Revision 4, April 18th 2014
22.	ARO (Womble) Coating Quality Plans and Inspection & Test Plans
23.	FBE (Durabond) Quality Plans and Inspection & Test Plans
24.	Pritec (Liberty Coating) Coating Quality Plans and Inspection & Test Plans
25.	ARO (Womble) Pipe Surface Preparation and Coating Inspection
26.	FBE (Durabond) Pipe Surface Preparation and Coating Inspection
27.	Pritec (Liberty Coating) Pipe Surface Preparation and Coating Inspection
28.	Pipe Compliance with API 5L 44th Edition Letter
29.	12.75" OD, 0.500" WT, API 5L X65 PSL2 – Paragon Material Test Reports & Ultrasonic Test Results