Exhibit VGS-AG-081

STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Case No. 17-3550-INV

Investigation pursuant to 30 V.S.A. §§ 30 and 209 regarding the alleged failure of Vermont Gas Systems, Inc. to comply with the certificate of public good in Docket 7970 by burying the pipeline at less than required depth in New Haven, Vermont	

DIRECT TESTIMONY OF JOHN ST. HILAIRE ON BEHALF OF VERMONT GAS SYSTEMS, INC.

July 10, 2020

SUMMARY OF TESTIMONY

Mr. St. Hilaire's testimony provides evidence demonstrating that the ANGP was constructed in accordance with the certificate of public good and to high safety and integrity standards. It incorporates by reference several previously filed affidavits and attachments so that the Commission and parties can efficiently refer to that testimony during the course of this proceeding. He also provides some comments on the independent investigation and recommendation of William Byrd.

EXHIBITS

Exhibit VGS-JSH-1	August 4, 2017 Affidavit and Attachments of John St. Hilaire
Exhibit VGS-JSH-2	August 11, 2017 Affidavit and Attachments of John St. Hilaire
Exhibit VGS-JSH-3	September 22, 2017 Affidavit and Attachments of John St. Hilaire
Exhibit VGS-JSH-4	Correspondence with Clough Harbor and Associates
Exhibit VGS-JSH-5	Clough Harbor and Associates Contract

DIRECT TESTIMONY OF
JOHN ST. HILAIRE
ON BEHALF OF VERMONT GAS SYSTEMS, INC.

Q1. Please state your name and occupation.

A1. My name is John St. Hilaire. I am the Vice President of Operations at Vermont Gas Systems, Inc. ("VGS" or the "Company"), at 85 Swift Street, South Burlington, Vermont.

Q2. Please describe your educational background, pertinent professional experience, and current job responsibilities.

A2. I have an Associate in Science Degree in Mechanical Engineering Technology from Vermont Technical College (1989), a B.S. in Business Management from Champlain College (1999), an M.S. in Administration from St. Michaels College (2005), and a B.S. in Accounting from Champlain College (2010). I have been at VGS since 1990 in positions of increasing responsibility. In April 2013, I was promoted to Director, Operations Services, Gas Supply and Gas Control, and in September 2015, I was promoted to my current position. In my current position, I have overall responsibility for the design, installation, and ongoing safe operations of the Company's pipeline system. I also oversee the Field Services area, which includes emergency response to potential natural gas leaks, repair and maintenance of heating and hot water appliances, and the Company's rental program for water heaters and conversion burners. Finally, and of particular relevance to this case, beginning in April 2016 I served as the Executive Sponsor during the construction of the Addison Natural Gas Project (the "Project" or "ANGP").

Q3. Have you previously provided testimony before the Vermont Public Utility Commission (the "Commission")?

A3. Yes. I have testified in Docket No. 8472 relating to the Phase VII pipeline transmission looping project, Docket No. 7970 concerning natural gas supply and other matters relating to the ANGP, Docket No. 8710 regarding the ANGP budget, schedule and costs, and Case Nos. 17-1238-INV, 18-0409-TF, and 19-0513-TF relating to plant additions and other issues pertaining to VGS's recent rate cases.

Q4. Have you previously submitted testimony in this case?

A4. Yes. I have submitted several affidavits in this case and incorporate that testimony here by reference. These include affidavits and attachments dated August 4, 2017 (**Exhibit VGS-JSH-1**), August 11, 2017 (**Exhibit VGS-JSH-2**), and September 22, 2017 (**Exhibit VGS-JSH-3**). On October 25, 2017, VGS requested that these affidavits as well as affidavits submitted by Jeff Nelson, dated August 4 and September 11, 2017, be treated as prefiled testimony. I understand that on October 27, 2017, the Commission ordered that, in the absence of an objection from the other parties, the affidavits would be treated as prefiled testimony and no party objected.

Q5. Describe the purpose of your testimony today and explain how it is organized.

A5. The purpose of my testimony is to provide the Commission with additional information demonstrating that the ANGP was constructed to high standards and integrity. To facilitate that review, I incorporate prior affidavits and attachments into this testimony for easy reference by

the parties and the Commission and provide some comments and references regarding the issues and recommendations in the Final Report from the Independent Investigation of the Vermont Gas Systems Addison Natural Gas Project, submitted by William Byrd, as submitted with minor corrections and edits on January 8, 2020 (the "Independent Report"). For ease of reference, I have organized my testimony in the same manner as Mr. Byrd's report to make it easy for the parties and the Commission to cross-reference as needed. These topics broadly include (1) Compliance, (2) Design and Engineering, (3) Quality Assurance, (4) Burial of the Pipeline, (5) Coating, and (6) Cathodic Protection. Additionally, Mr. Byrd makes several recommendations he believes will "provide additional assurance of safety in the future." I conclude my testimony with a discussion of these recommendations.

Compliance with Pipeline Safety Regulations and CPG Commitments

Q6. Did VGS's construction of the ANGP comply with applicable pipeline safety and integrity standards, regulations, and CPG commitments?

A6. Yes, with the exceptions that have been addressed in other Commission proceedings, the ANGP meets or exceeds applicable pipeline safety and integrity standards, and complies with regulations and conditions mandated by the Commission's Final Order and CPG in Docket No. 7970 ("Final Order"). As I explain in my August 4, 2017 affidavit, ANGP construction was consistent with the Company's commitments and the Commission's CPG findings in Docket 7970. Examples of CPG requirements and VGS commitments to construct the ANGP to a higher standard than required by pipeline safety code include constructing the entire pipeline to "Class 3" standards, x-ray testing of every weld (rather than random testing), and installation of 12"

yellow ribbon above the pipeline where it was constructed by open excavation to warn any excavator of the presence of a natural gas pipeline. Exhibit VGS-JSH-1 ¶ 3 – 7.

Our adherence to safety protocols also extends beyond pipeline construction into the on-going monitoring and operation of the pipeline. VGS committed to implement substantial monitoring and safety requirements, and the CPG required that we do so. See CPG and Final Order ¶ 262. We have implemented these requirements, including adding remote control capabilities to mainline valves, quarterly leak survey and patrols to visually inspect the pipeline corridor, and utilizing an internal inspections tool through the entire ANGP pipeline on a schedule more frequent than required by code.

Mr. Byrd investigated VGS's compliance with applicable pipeline safety and CPG commitments. *See, e.g.*, Independent Report at 11, 60. I have reviewed Mr. Byrd's report, findings, and assessment of our compliance. I concur with his conclusions. This includes his conclusion that project execution and construction was "not perfect." With a project of this scale, covering 41 miles and requiring approximately half a million labor hours, we of course encountered challenges in the field, identified issues and resolved them as the construction proceeded. We have also acknowledged CPG violations with respect to specific construction items. These are issues that have been resolved or are pending final resolution before the Commission, including blasting, taking of the Harsh Sunflower, and worker safety issues around induced voltage. In Case No. 18-0395-PET, a pending-but-stayed NOPV proceeding relating to bedding and trench breakers, we do not believe there were CPG violations, but we nonetheless agreed with the remediation recommendations, including a financial penalty, proposed by the

Department. With respect to the issues raised and investigated in this case, VGS has complied with the CPG and Final Order in Docket No. 7970.

Design & Engineering

Q7. Did VGS construct the ANGP in accordance with sound engineering and construction practices?

A7. Yes. The CPG and Final Order was based on VGS's "demonstrated commitment" to "design, construction, operation and maintenance standards [to] ensure there will be no undue adverse impact from the Project on safety or public health." Final Order at 92. As discussed, construction of the ANGP complied with applicable safety codes, and in many circumstances, surpassed those requirements as contemplated by the CPG. VGS contracted for engineering services with Clough Harbor Associates Consulting ("CHA") in 2012 and CHA remained the Engineer of Record throughout the entire course of ANGP construction. CHA is a highly competent full-service engineering and consulting firm and they provided continuous consultation and engineering services on the ANGP. The ANGP pipeline was constructed in accordance with CHA's sound engineering practices, design and final plans. I address the matter of stamping of the final plans later in this testimony.

Quality Assurance

Q8. Did VGS's construction of the ANGP include an adequate quality assurance plan?

A8. Yes. The CPG and Final Order required VGS to construct the ANGP under a quality assurance plan inspection and testing program. We did so. Mr. Byrd reviews in detail the Company's QA/QC plan, inspection and testing program. Independent Report at 27, 64. His findings accurately reflect the plan and the field inspection work. VGS's quality assurance plan

was robust, identified risk items, implemented remediation steps, and met the requirements of the CPG and Final Order.

Pipeline Depth & Burial

Q9. Did VGS's construction of the ANGP meet pipeline depth and burial requirements?

A9. Yes. As set forth in my August 11, 2017 Affidavit and Certification and confirmed by Mr. Byrd through independent field visits and investigation, the ANGP was appropriately buried at required depths throughout the entire 41-mile pipeline, except for a span of approximately 0.5 miles in the Clay Plains Swamp. See Exhibit VGS-JSH-2; Independent Report at 32, 64. In the Swamp, our general contractor encountered challenging construction conditions and was unable to achieve the four feet of cover contemplated by the CPG and Final Order for purposes of VELCO right-of-way load requirements. I personally worked with VELCO to determine whether the depth of cover achieved in the Swamp was adequate for purposes of the load requirements. This included a detailed review of field information and engineering analysis. The depth we achieved meets applicable code requirements and VELCO agrees that it meets the loading requirements required by the CPG. Because the depth we achieved more than satisfies the applicable load requirement, there is no potential for an undue adverse impact on safety under the "public health and safety" criteria of Section 248(b)(5). Accordingly, we subsequently sought a non-substantial change determination from the Commission in this case.

Coating

Q10. Did VGS's construction of the ANGP meet pipeline coating requirements?

A10. Yes. The CPG and Final Order required VGS to construct the ANGP with an external, corrosion-control coating that would vary dependent upon soil conditions. Final Order ¶ 28.

VGS's ANGP construction utilized modern factory applied coatings that were inspected both in the factory and in the field, utilized a QA program to inspect field applied coatings, and coating inspections by "jeeping" were performed in the field to ensure no defects in the coating prior to installation. Mr. Byrd confirms these coating measures and their adequacy in his Report. Independent Report at 22, 70.

Cathodic Protection

Q11. Did VGS's construction of the ANGP meet cathodic protection requirements?

A11. Yes. VGS's ANGP construction included an engineered cathodic protection system that was in place and operating prior to operation of each segment of the ANGP. This system satisfies applicable code and CPG requirements relating to cathodic protection. Mr. Byrd confirms that the ANGP satisfies or exceeds requirements regarding cathodic protection. Independent Report at 22, 71.

Independent Report Recommendations

Q12. Although Mr. Byrd concludes in his Independent Report that the ANGP was "constructed in compliance with applicable rules and commitments," he also makes seven recommendations to "provide additional assurance of safety in the future." Do you agree with these recommendations?

A12. For the reasons set forth below, VGS agrees with the implementation of Mr. Byrd's recommendations as enhancements to VGS's current strong protocols for ongoing inspection and maintenance of the ANGP. The demonstrated quality of construction of the ANGP, the extensive post-construction review of the ANGP, including VGS's own review and Mr. Byrd's investigation, already provide a robust framework for ensuring continued safe operations of the

ANGP. VGS also has rigorous inspection and monitoring protocols in place consistent with the CPG, which in many cases, exceed applicable pipeline regulations. In general, Mr. Byrd's recommendations are forward-looking inspections and monitoring that go above and beyond existing CPG and pipeline safety standards. As discussed below, Mr. Byrd's recommendations can be implemented in addition to existing safety measures.

Recommendation 1: "The zinc ribbon / [Solid State Decoupler ("SSD")] system should be routinely inspected and quickly repaired as necessary to ensure that AC interference currents do not cause corrosion of the pipeline. VGS should conduct and document detailed inspections of all SSDs twice a year (not to exceed 7.5 months between inspections) and correct any problems within 2 months of discovery." Independent Report at 73.

Response: With the commissioning of ANGP, VGS incorporated an AC Mitigation procedure in the company's Operations & Maintenance ("O&M") manual. This procedure requires a detailed inspection and testing of the system on an annual basis utilizing a three-step protocol conducted by a cathodic protection technician. Additionally, VGS's current monitoring includes several Remote Monitoring Units that monitor the performance of the AC Mitigation system on a daily basis. The monitoring information is provided to the Department on a monthly basis.

Mr. Byrd recommends shortening the timeframe from annual to bi-annual and specifying that corrective action should be taken within 2 months. VGS has no objection to implementing this specification in our O&M manual. Our existing protocols achieve a

similar level of inspection and assurance and enable us to implement any corrective action identified by the remote systems upon detection. Accordingly, VGS agrees with this recommendation and believes it can be implemented consistent with current protocols and safety requirements.

Recommendation 2: "VGS should conduct over-the-line (OTL) surveys every 3 ½ years (not to exceed 48 months between inspections), with the specific types of OTL survey to be determined by a competent corrosion consultant independent of VGS. All indications should be investigated and corrected as necessary within 6 months of discovery. The surveys should be able to detect AC interference / stray current issues." Independent Report at 73.

Response: VGS has a robust Integrity Management Program that already incorporates OTL surveys performed by an independent third-party corrosion company on its existing system. VGS's initial OTL data on the ANGP was consolidated with our 2018 In-Line Inspection ("ILI") of the ANGP, performed approximately one year after the ANGP went into service. Although there is no specific pipeline code requiring OTL surveys, VGS uses these surveys as an appropriate integrity management tool, specifically, to provide helpful and targeted information in connection with other inspections, such as ILIs. Our plan had been to conduct OTLs within 6 months of future ILI's, which will be performed on the full ANGP on a 5-year interval in accordance with the remediation plan VGS and the Department have agreed to in Case No. 18-0395. Pipeline safety standards

contemplate an integrity assessment, such as an ILI in a 7-year interval on only certain segments of pipelines. The CPG contemplated ILIs, which are best practice, on the full ANGP. This is an additional example of ANGP safety exceeding industry standards. In light of Mr. Byrd's recommendation, we have adjusted our OTL protocol for the ANGP to conduct surveys every 3 ½ years as recommended. Our next OTL survey of the ANGP is scheduled for 2021.

Recommendation 3: "VGS (or VELCO) should install large warning signs at each end of the ROW in the Clay Plains Swamp with the following (or similar) text 'WARNING. SHALLOW HIGH PRESSURE GAS PIPELINE IN THIS AREA. NOTIFY VGS AT (phone number) BEFORE MOVING HEAVY EQUIPMENT INTO THIS AREA'" Independent Report at 73.

Response: After construction in the Clay Plains Swamp, VGS and VELCO collaborated to develop extra precautionary measures. The key safety interest included in our agreement with VELCO was the identification and location of the pipeline. Pipeline safety code requires markers to be placed in accordance with "line of sight," meaning markers are placed at intervals so that each marker is visible from the next. In order to strengthen this safety measure, we developed an agreement with VELCO to place markers at shorter 50-foot intervals. Mr. Byrd's signage recommendation provides additional notice above and beyond safety code and we have erected signs in this location consistent with his suggested language.

Recommendation 4: "VGS should perform a DOC survey in all actively cultivated agricultural areas every 3 years, and address any DOC less than 4' (or landowner agreements – whichever is greater) to ensure agricultural activities will not impact the pipeline. This does not mean that DOC must be maintained at the original installation depth, but that any loss of cover must be managed in cooperation with the landowner / farmer to ensure agricultural activities do not interfere with pipeline safety." Independent Report at 73.

Response: The depth of cover in agricultural areas was intentionally increased in anticipation of potential impacts of active agricultural activities and VGS has constructed the ANGP in accordance with those CPG requirements. Additionally, VGS's monitoring protocols currently include quarterly pipeline patrol on the ANGP, and as required by code, annual notice to landowners about the pipeline. These protocols enable VGS to identify areas of concern and cooperate with landowners regarding potential issues. Mr. Byrd's recommendation can be performed in addition to existing safety precautions. VGS will perform a DOC survey in actively cultivated agricultural areas at the end of this growing season and thereafter at least every three years.

Recommendation 5: "VGS should ensure its line locating procedures, training, and qualification programs address the potential for zinc ribbon interference with line locating equipment. The procedures should require disconnection of the zinc ribbon prior to using an indirect line locator, probing the pipeline location, or hand digging / potholing

to ensure the line is located accurately prior to any excavation near a pipe protected by zinc ribbon. These procedures, training programs, and qualification programs should be submitted for DPS review within 6 months of this report." Independent Report 73.

Response: Mr. Byrd's recommendation addresses potential interference caused by zinc ribbon when VGS personnel are locating the pipeline. VGS field personnel responsible for locating the pipeline are already aware of the existence of the zinc ribbon and the potential for interference when engaged in location activity. Additionally, VGS has a corrosion technician trained to perform this work, including appropriate procedures required to mitigate the potential for interference caused by the zinc ribbon. Mr. Byrd's recommendation to formalize a training and procedure in connection with this work and file those procedures with the Department is consistent with VGS's consideration of this issue and we have submitted the written training and procedures to the DPS.

Recommendation 6: "VGS should hire a Vermont-licensed professional civil engineer with expertise in dirt road construction and maintenance to inspect each of the 15 open cut road crossings for evidence of frost heave, settlement, and potholing, at times of the engineer's choosing but at least twice (once during cold weather to look for frost heave and once during warm weather to look for settlement and potholing), and have them develop and certify a remediation plan for any deficiencies that are discovered. VGS should inform the engineer in writing prior to the inspections of any complaints received concerning these crossing locations. VGS should report to DPS and any relevant local

agency, municipality, or authority for each crossing within 18 months of my report concerning the results of these inspections and any remedial actions taken or planned. VGS should provide periodic updates to these parties until all deficiencies (if any) have been corrected." Independent Report at 73-74.

Response: VGS already monitors the entire ANGP pipeline route, along with our entire transmission system, during quarterly on-site patrols. The purpose of these quarterly inspections is to identify third party damage, soil settling, erosion, potholes, frost heaves, dead vegetation and any other indications that there could be an issue in the area so that remedial steps can be taken if necessary. Mr. Byrd's recommendation includes a focused inspection by a civil engineer at road crossings. VGS has no objection and has secured a contractor to perform a warm weather review this summer and a cold weather review in the 2020/2021 winter.

Recommendation 7: "VGS should modify its pipeline integrity management plan to specifically mention the locations of the 67 Canusa sleeve repairs from the problematic batches. These locations should be called out as a potential integrity concern during all subsequent integrity assessments and evaluations (such as close-interval surveys and in-line inspections). This does not mean that every assessment must be designed specifically to look for external corrosion threats at coating repairs. Rather, that the Canusa sleeve locations be considered when evaluating the results of every assessment (even

assessments not designed to look for that threat), because of the potential for interacting threats." Independent Report at 74 (footnote omitted).

Response: In 2018, VGS conducted an in-line inspection of the ANGP and incorporated the data from that inspection with other ANGP construction information (including more than 10,000 data points) into a comprehensive database that supports the assessment of the 41-mile ANGP pipeline. This database includes a variety of relevant integrity management information and Canusa sleeve information can be included in our integrity management and review process. Accordingly, VGS has no objection to Mr. Byrd's recommendation.

Q13. Please discuss whether VGS has complied with the CPG regarding the issues raised in this case and explain why the depth of cover in the Clay Plains swamp amounts to a non-substantial change?

A13. As VGS committed, and the PUC required in the CPG, the ANGP was to be constructed using very high safety standards. To that end, I have reviewed extensively the records of the work undertaken by VGS and its contractors in 2014 and 2015. I personally oversaw field construction and compliance in 2016 and 2017. I personally led and oversaw the post-construction reviews of the ANGP, including the review of each and every issue raised in this investigation. This has included both field and record review. Based on my review, the ANGP as constructed meets, and often exceeds, applicable pipeline safety requirements and complies with the CPG.

Specifically with regard to depth of cover in the Clay Plains Swamp, the depths achieved meet applicable code requirements and load standards, which was the purpose of the initial depth of cover requirement in the CPG and is intended to ensure there is no risk to public health or safety under Section 248 criteria (b)(5). At the depth constructed, there is no potential for a significant impact on safety because the construction in that area meets the load standards, is consistent with applicable pipeline standards and regulations, and satisfies the requirements of VELCO and VGS's agreement with VELCO.

Q14. The Commission has requested a review of whether the plans for the ANGP contained the stamp of a professional engineer. Please address this question.

A14. The Commission expanded this investigation to determine whether the engineering plans were stamped by CHA prior to construction. There is no factual dispute on this issue. The plans that were provided to VGS for construction were stamped "Issued for Construction" and the seal of the responsible engineer was not affixed to the plans prior to construction. CHA was required, by its contract with VGS, to perform its ANGP work in compliance with "all applicable laws, statutes, ordinances, rules, regulations and orders enacted by or promulgated by federal, state, municipal or other governmental authority," and warranted to VGS that CHA and its employees and agents were "fully informed of all legal rules and requirements that in any manner may affect the Work or those engaged in the performance of the Work," and "shall be licensed in accordance with all applicable laws." See **Exhibit VGS-JSH-5** (CHA contract) at 17 – 18. CHA has affirmed to VGS that all of its engineering work, including the plans used to construct the ANGP, were in fact, appropriately overseen by Vermont-licensed Professional Engineers. See

Exhibit VGS-JSH-4 (CHA correspondence). As Mr. Byrd notes in this report, moreover, CHA has affixed the Vermont PE seal to the plans used in construction, as an additional affirmation and permanent record that the plans meet the Vermont engineering licensing standard. Independent Report at 62 – 63. No party has identified any deficiencies in the engineering and design of the ANGP. I am confident that the ANGP plans and specifications provide a comprehensive and technically sound basis for the design, construction and quality assurance required by the CPG.

At the time of construction, I acknowledge that we did not focus on the presence or absence of a PE stamp on the plans. We did not at the time understand this to be a requirement imposed on CHA by Vermont law and did not require CHA to comply with this requirement prior to construction. We accept responsibility for this misunderstanding. Our subsequent follow up with CHA confirms that, although CHA initially omitted the seal from the specifications, their engineering work was performed under the responsible charge of Vermont-licensed engineers and complies with substantive standards for safe engineering, design and construction. We also recognize the merit in the National Transportation Safety Board's subsequent 2018 recommendation that utilities prospectively implement a design review process that includes ensuring engineering plans are stamped by licensed PEs. We have implemented that recommendation at VGS.

Q15. Does this conclude your testimony?

A15. Yes.