



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

840 Bear Tavern Road, Suite 300
West Trenton, NJ 08628
609.771.7800

NOTICE OF AMENDMENT

OVERNIGHT EXPRESS DELIVERY

June 11, 2024

Mr. Thomas Meissner
President and Chief Executive Officer
Granite State Gas Transmission Inc.
6 Liberty Lane W
Hampton, New Hampshire 03842

CPF 1-2024-025-NOA

Dear Mr. Meissner:

From April 4, 2023 through June 2, 2023, a representative of the Pipeline and Hazardous Materials Safety Administration (PHMSA) pursuant to Chapter 601 of 49 United States Code (U.S.C.), conducted an integrity management inspection of Granite State Gas Transmission Inc.'s (Granite State) procedures and records.

As a result of the inspection, PHMSA has identified the apparent inadequacies found within Granite State's plans or procedures. The items inspected and the inadequacies are described below:

1. § 192.605 Procedural manual for operations, maintenance, and emergencies.

(a)

(b) *Maintenance and normal operations.* The manual required by paragraph (a) of this section must include procedures for the following, if applicable, to provide safety during maintenance and operations.

(1) Operating, maintaining, and repairing the pipeline in accordance with each of the requirements of this subpart and Subpart M of this part.

Granite State's procedures for maintenance and normal operations were inadequate. Specifically, Granite State's *Unitil Integrity Management Program – Section 3 Identification of Threats and Risk Assessment*, dated 05/01/23 (IMP-3) and *Analysis of Predicted Failure Pressure – 220.02.12*, dated 12/16/22 (Failure Pressure) failed to include a process related to cracks that survive pressure testing, per the requirements of § 192.712(d)(3).

Section 192.712(d)(3) states:

§ 192.712 Analysis of predicted failure pressure

(a)

(d) Cracks and crack-like defects –

(1)

(3) Cracks that survive pressure testing. For cases in which the operator does not have in-line inspection crack anomaly data and is analyzing potential crack defects that could have survived a pressure test, the operator must calculate the largest potential crack defect sizes using the methods in paragraph (d)(1) of this section. If pipe material toughness is not documented in traceable, verifiable, and complete records, the operator must use one of the following for Charpy v-notch toughness values based upon minimum operational temperature and equivalent to a full-size specimen value:

(i) Charpy v-notch toughness values from comparable pipe with known properties of the same vintage and from the same steel and pipe manufacturer;

(ii) A conservative Charpy v-notch toughness value to determine the toughness based upon the material properties verification process specified in §192.607;

(iii) A full size equivalent Charpy v- notch upper-shelf toughness level of 120 ft.-lbs.; or

(iv) Other appropriate values that an operator demonstrates can provide conservative Charpy v-notch toughness values of the crack-related conditions of the pipeline segment. Operators

During the inspection, PHMSA requested Granite State's procedures on cracks that survive pressure testing and calculations. Granite State provided the IMP-3 and Failure Pressure procedures. The Failure Pressure procedure Section 3.2.2 stated in part:

For cases in which Unitil does not have inline inspection crack anomaly data and is analyzing potential crack defects that could have survived a pressure test, the Gas Engineer calculates the largest potential crack defect sizes in accordance with IMP 3-3, SCC Evaluation Procedure. If pipe material toughness is not documented in TVC records as defined in 220.02.09, MAOP Reconfirmation, the Gas Engineer uses one of the following for Charpy v-notch toughness values based upon minimum operational temperature and equivalent to a full-size specimen value:

- Charpy v-notch toughness values from comparable pipe with known properties of the same vintage and from the same steel and pipe manufacturer
- A conservative Charpy v-notch toughness value to determine the toughness based upon the material properties verification process specified in 220.02.08, Material Verification Plan
- A full size equivalent Charpy v-notch upper-shelf toughness level of 120 ft.-lbs.
- Other appropriate values that Asset Integrity Engineers demonstrate can provide conservative Charpy v-notch toughness values of the crack-related conditions of the pipeline segment.

If the Charpy v-notch toughness value is an assumed other appropriate value, Unitil notifies PHMSA in accordance with 220.05.06, Agency Notifications Normal.

However, the Failure Pressure procedure reiterated § 192.712(d)(3) in its entirety. Failure Pressure

failed to describe any process related to crack analysis models that would be used in determining and calculating cracks that survive pressure testing. PHMSA asked Granite State where this information was documented and Granite State did not provide any additional information. After the inspection, Granite State stated that it is making enhancements to the existing procedures and developing a stress corrosion cracking plan.

Therefore, Granite State's procedures failed to include a process related to cracks that survive pressure testing, in accordance with § 192.712(d)(3). Granite State must revise its procedures to address this requirement.

2. § 192.605 Procedural manual for operations, maintenance, and emergencies.

(a)

(b) ***Maintenance and normal operations.*** The manual required by paragraph (a) of this section must include procedures for the following, if applicable, to provide safety during maintenance and operations.

(1) **Operating, maintaining, and repairing the pipeline in accordance with each of the requirements of this subpart and Subpart M of this part.**

Granite State's procedures for maintenance and normal operations were inadequate to ensure pipeline safety. Specifically, Granite State's *Unitil Integrity Management Program – Section 3 Identification of Threats and Risk Assessment*, dated 05/01/23 (IMP-3) and *Analysis of Predicted Failure Pressure – 220.02.12*, dated 12/16/22 (Failure Pressure) failed to include a process for evaluating crack like defects to ensure that a determination of the predicted failure pressure and the remaining life of the pipeline segment is established at the location of each anomaly or defect, per the requirements of § 192.712(d)(1).

Section 192.712(d)(1) states:

§ 192.712 Analysis of predicted failure pressure

(a)....

(d) Cracks and crack-like defects –

(1) Crack analysis models. When analyzing cracks and crack-like defects under this section, an operator must determine predicted failure pressure, failure stress pressure, and crack growth using a technically proven fracture mechanics model appropriate to the failure mode (ductile, brittle or both), material properties (pipe and weld properties), and boundary condition used (pressure test, ILI, or other)

During the inspection, PHMSA requested Granite State's procedures on evaluating crack defects pursuant to § 192.712(d)(1). Granite State provided the IMP-3 and Failure Pressure procedures. Failure Pressure Section 3.2 stated in part:

Unitil repairs cracks on site upon discovery in the field unless extenuating circumstances exist. When analyzing cracks and crack-like defects, the Gas Engineer or designee determines predicted failure pressure, failure stress pressure, and crack growth using a technically proven fracture mechanics model appropriate to the failure mode (ductile, brittle or both), material properties (pipe and weld properties), and boundary condition used (pressure test, ILI, or other).

However, the Failure Pressure procedure reiterated § 192.712(d)(1) in its entirety. Failure Pressure failed to describe any process related to how cracks would be analyzed, or any details related to a crack analysis model that would be used. When PHMSA asked Granite State where this information was documented and Granite State stated it is not aware of how it makes determinations for cracks or crack like defects. After the inspection, Granite State stated that it will be enhancing the procedures and developing a plan focused on the evaluation of cracks and crack like defects and establishing a baseline susceptibility plan.

Therefore, Granite State's procedures failed to include a process for evaluating crack like defects to ensure that a determination of the predicted failure pressure and the remaining life of the pipeline segment is established at the location of each anomaly or defect, in accordance with § 192.712(d)(1). Granite State must revise its procedures to address this requirement.

3. § 192.605 Procedural manual for operations, maintenance, and emergencies.

(a)

(b) ***Maintenance and normal operations.*** The manual required by paragraph (a) of this section must include procedures for the following, if applicable, to provide safety during maintenance and operations.

(1) **Operating, maintaining, and repairing the pipeline in accordance with each of the requirements of this subpart and Subpart M of this part.**

Granite State's procedures for maintenance and normal operations were inadequate to ensure pipeline safety. Specifically, Granite State's *Analysis of Predicted Failure Pressure – 220.02.12*, dated 12/16/22 (Failure Pressure) failed to include a process for collecting, creating and retaining records pursuant to § 192.712(g), including records related to all investigations and analyses of predicted or assumed anomalies or defects, per the requirements of § 192.605(a).

Section 192.712(g) requires operators to maintain specific records for the life of the pipeline related to the investigations, analyses, and other actions taken in accordance with the requirements of § 192.712.

During the inspection, PHMSA requested Granite State's procedures on collecting and retaining records, including those related to analyses of anomalies or defects. Granite State provided the Failure Pressure procedures. The Failure Pressure procedure Section 5.0 stated in part:

Unitil keeps records of the investigations, analyses, and other actions taken for the life of the pipeline. Records document justifications, deviations, and determinations made for the following, as applicable:

- The technical approach used for the analysis
- All data used and analyzed
- Pipe and weld properties
- Procedures used
- Evaluation methodology used
- Models used

- Direct in situ examination data
- In-line inspection tool run information evaluated, including any multiple in-line inspection tool runs
- Pressure test data and results
- In-the-ditch assessments
- All measurement tool, assessment, and evaluation accuracy specifications and tolerances used in technical and operational results
- All finite element analysis results
- The number of pressure cycles to failure, the equivalent number of annual pressure cycles, and the pressure cycle counting method
- The predicted fatigue life and predicted failure pressure from the required fatigue life models and fracture mechanics evaluation methods
- Safety factors used for fatigue life and/or predicted failure pressure calculations
- Reassessment time interval and safety factors
- The date of the review
- Confirmation of the results by qualified technical subject matter experts
- Approval by responsible operator management personnel

However, the Failure Pressure procedure reiterated § 192.712(g) in its entirety. Failure Pressure failed to describe any process related to how and where records are retained, as well as details on the collection, creation and retention of records related to investigations and analyses. PHMSA asked Granite State where this information was documented and Granite State stated that the process is done through training. However, nothing is noted in the procedure for how this process is conducted. After the inspection, Granite State stated that it will be enhancing the procedures to address the process for managing and retaining all documents and records generated during any susceptibility study, analysis, or engineering assessment.

Therefore, Granite State's procedures failed to include a process related to retaining records pursuant to § 192.712(g), in accordance with § 192.605(a). Granite State must revise its procedures to address this requirement.

4. § 192.605 Procedural manual for operations, maintenance, and emergencies.

(a)

(b) *Maintenance and normal operations.* The manual required by paragraph (a) of this section must include procedures for the following, if applicable, to provide safety during maintenance and operations.

(1) *Operating, maintaining, and repairing the pipeline in accordance with each of the requirements of this subpart and Subpart M of this part.*

Granite State's procedures for maintenance and normal operations were inadequate to ensure pipeline safety. Specifically, Granite State's *Unitil Integrity Management Program – Section 3 Identification of Threats and Risk Assessment*, dated 05/01/23 (IMP-3) and *Analysis of Predicted Failure Pressure – 220.02.12*, dated 12/16/22 (Failure Pressure) failed to include a process related to the performance of fatigue analysis and remaining life calculations for pipeline segments susceptible to cyclic fatigue or other loading conditions that could lead to fatigue crack growth,

per the requirements of § 192.712(d)(2).

Section 192.712(d)(2) states:

§ 192.712 Analysis of predicted failure pressure

(a)....

(d) Cracks and crack-like defects –

(1)

(2) Analysis for crack growth and remaining life. If the pipeline segment is susceptible to cyclic fatigue or other loading conditions that could lead to fatigue crack growth, fatigue analysis must be performed using an applicable fatigue crack growth law (for example, Paris Law) or other technically appropriate engineering methodology. For other degradation processes that can cause crack growth, appropriate engineering analysis must be used. The above methodologies must be validated by a subject matter expert to determine conservative predictions of flaw growth and remaining life at the maximum allowable operating pressure. The operator must calculate the remaining life of the pipeline by determining the amount of time required for the crack to grow to a size that would fail at maximum allowable operating pressure.

During the inspection, PHMSA requested Granite State's procedures on its analysis for crack growth and remaining life. Granite State provided the IMP-3 and Failure Pressure procedures. Failure Pressure Section 3.2 stated in part:

If the pipeline segment is susceptible to cyclic fatigue or other loading conditions that could lead to fatigue crack growth, fatigue analysis is performed using an applicable fatigue crack growth law (for example, Paris Law) or other technically appropriate engineering methodology. Cyclic fatigue susceptibility is determined by employing the Cyclic Fatigue Susceptibility Determination Form. For other degradation processes that can cause crack growth, appropriate engineering analysis must be used. The above methodologies must be validated by a subject matter expert to determine conservative predictions of flaw growth and remaining life at the maximum allowable operating pressure. The operator must calculate the remaining life of the pipeline by determining the amount of time required for the crack to grow to a size that would fail at maximum allowable operating pressure.

However, the Failure Pressure procedure reiterated § 192.712(d)(2) in its entirety. Failure Pressure failed to describe any process related to how an analysis for crack growth and remaining life is calculated, or any details related to an appropriate engineering methodology to be used. PHMSA asked Granite State where this information was documented and Granite State stated that, if needed, it would send out to a contractor for review to conduct an analysis. After the inspection, Granite State stated that it is making enhancements to the existing procedures and developing a stress corrosion cracking plan.

Therefore, Granite State's procedures failed to include a process related to the performance of fatigue analysis and remaining life calculations for pipeline segments susceptible to cyclic fatigue, or other loading conditions that could lead to fatigue crack growth, in accordance with § 192.712(d)(2). Granite State must revise its procedures to address this requirement.

5. § 192.907 What must an operator do to implement this subpart?

(a) General. No later than December 17, 2004, an operator of a covered pipeline segment must develop and follow a written integrity management program that contains all the elements described in § 192.911 and that addresses the risks on each covered transmission pipeline segment. The initial integrity management program must consist, at a minimum, of a framework that describes the process for implementing each program element, how relevant decisions will be made and by whom, a time line for completing the work to implement the program element, and how information gained from experience will be continuously incorporated into the program. The framework will evolve into a more detailed and comprehensive program. An operator must make continual improvements to the program.

Granite State's integrity management program procedures were inadequate to ensure pipeline safety. Specifically, Granite State's *Unitil Integrity Management Program – Section 4 Integrity Assessment Plan*, dated 05/01/23 (IMP-4) failed to include details on gathering and integrating existing data and information on its pipelines, per the requirements of § 192.917(b).

Section 192.917(b) states:

(b) Data gathering and integration. To identify and evaluate the potential threats to a covered pipeline segment, an operator must gather and integrate existing data and information on the entire pipeline that could be relevant to the covered segment. In performing this data gathering and integration, an operator must follow the requirements in ASME/ANSI B31.8S, section 4. At a minimum, an operator must gather and evaluate the set of data specified in Appendix A to ASME/ANSI B31.8S, and consider both on the covered segment and similar non-covered segments, past incident history, corrosion control records, continuing surveillance records, patrolling records, maintenance history, internal inspection records and all other conditions specific to each pipeline.

ASME/ANSI B31.8S Section 4.4 states:

A plan for collecting, reviewing and analyzing the data shall be created and in place from the conception of the data collection effort. These processes are needed to verify the quality and consistency of the data.

During the inspection, PHMSA requested Granite State's procedures on collecting, gathering, and integrating in-line inspection data. Granite State provided the IMP-4. The IMP-4 Section 8 stated in part, "the ILI Consultant integrates the ILI results with historical ILI and operations data in order to align the data."

However, the IMP-4 failed to describe any processes or details regarding how/when Granite State conducts this analysis, as well as how Granite State integrates in-line inspection data amongst its various programs. PHMSA asked Granite State where this information was documented and Granite State stated that its process does not explicitly state instructions or further guidance. After

the inspection, Granite State stated that the Company is in the process of enhancing the IMP 4-2 ILI procedures to include detailing the integration of the ILI run data with operations data, defining requirements and vendor expectations, and expanding the detail associated with validating and accepting an ILI run.

Therefore, Granite State's integrity management procedures failed to include details on gathering and integrating existing data and information on its pipelines, in accordance with § 192.917(b). Granite State must revise its procedures to address this requirement.

6. § 192.919 What must be in the baseline assessment plan?

An operator must include each of the following elements in its written baseline assessment plan:

(a)

(e) A procedure to ensure that the baseline assessment is being conducted in a manner that minimizes environmental and safety risks.

Granite State's written baseline assessment plan required by § 192.919 was inadequate to ensure pipeline safety. Specifically, Granite State's *Environmental Impact and Safety Risk*, dated 05/01/23 (IMP-15), *OEP-129 – Inline Inspection Procedures*, dated 05/02/23 (OEP-129) and *ECS – Environmental Construction Standards*, dated 05/02/23 (ECS) failed to include a process to ensure the baseline assessment is being conducted in a manner that minimizes environmental and safety risks, per the requirements of § 192.919(e).

During the inspection, PHMSA requested the procedures regarding conducting integrity assessments in a manner that minimizes environmental and safety risks. Granite State provided the IMP-15 and ECS. The IMP-15 Section 15.3 - 15.4 stated in part:

15.3 Environmental Impact

All baseline assessments, reassessments and remediation activities shall be performed in accordance with Environmental Construction Standards, which are designed to minimize environmental impact. These Environmental Construction Standards are located in the Granite O&M Manual and constitute the minimum requirements that must be followed and may be supplemented with more stringent requirements based on specific assessment project locations and permits.

15.4 Protection from Safety Hazards

During baseline assessment, reassessment and remediation activities, precautions will be implemented to protect workers and members of the public from safety hazards in accordance with Granite's existing plans and procedures. Such precautions include but are not limited to notifying emergency response personnel of planned activities as appropriate, and notifying landowners and/or occupants of activities along the pipeline that may require precautionary measures prior to commencing work on or along the pipeline.

However, the IMP-15 failed to contain any specific processes or details on how Granite State ensures the baseline assessment is being conducted in a manner that minimizes environmental and safety risks. The IMP-15 failed to mention any processes related to pig launcher/receiver safety,

or completion of any job safety and hazard analysis forms. Furthermore, the language used throughout the OEP-129 and ECS contains numerous “should” statements, which do not mandate any specific action to be done regarding minimizing environmental and safety risks and therefore are not a requirement. The relevant sections of the OEP-129 and ECS must be modified to include the applicable “shall” statements in lieu of should statements, in order to ensure these are requirements.

PHMSA asked Granite State where this information was documented and Granite State did not provide any additional information. After the inspection, Granite State stated that “the Company’s IMP-15 Section 2.0 covers the requirements for conducting integrity assessments in a manner that minimizes environmental and safety risks.” However, the language used in IMP-15 Section 2.0 does not require any specific processes or actions to be conducted.

Therefore, Granite State’s procedures failed to include a process to ensure the baseline assessment is being conducted in a manner that minimizes environmental and safety risks, in accordance with § 192.919(e). Granite State must revise its procedures to address this requirement.

Response to this Notice

This Notice is provided pursuant to 49 U.S.C. § 60108(a) and 49 C.F.R. § 190.206. Enclosed as part of this Notice is a document entitled Response Options for Pipeline Operators in Enforcement Proceedings.

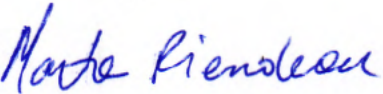
Please refer to this document and note the response options. Be advised that all material you submit in response to this enforcement action is subject to being made publicly available. If you believe that any portion of your responsive material qualifies for confidential treatment under 5 U.S.C. § 552(b), along with the complete original document you must provide a second copy of the document with the portions you believe qualify for confidential treatment redacted and an explanation of why you believe the redacted information qualifies for confidential treatment under 5 U.S.C. § 552(b).

Following the receipt of this Notice, you have 30 days to submit written comments, revised procedures, or a request for a hearing under § 190.211. If you do not respond within 30 days of receipt of this Notice, this constitutes a waiver of your right to contest the allegations in this Notice and authorizes the Associate Administrator for Pipeline Safety to find facts as alleged in this Notice without further notice to you and to issue an Order Directing Amendment. If your plans or procedures are found inadequate as alleged in this Notice, you may be ordered to amend your plans or procedures to correct the inadequacies (49 C.F.R. § 190.206). If you are not contesting this Notice, we propose that you submit your amended procedures to my office within 30 days of receipt of this Notice. This period may be extended by written request for good cause. Once the inadequacies identified herein have been addressed in your amended procedures, this enforcement action will be closed.

It is requested (not mandated) that Granite State Gas Transmission Inc maintain documentation of the safety improvement costs associated with fulfilling this Notice of Amendment (preparation/revision of plans, procedures) and submit the total to Robert Burrough, Director, Eastern Region, Pipeline and Hazardous Materials Safety Administration. In correspondence

concerning this matter, please refer to **CPF 1-2024-025-NOA** and, for each document you submit, please provide a copy in electronic format whenever possible.

Sincerely,

P.P. 

Robert Burrough
Director, Eastern Region
Pipeline and Hazardous Materials Safety Administration

Enclosure: *Response Options for Pipeline Operators in Enforcement Proceedings*