April 23, 2020

Mr. Robert Burrough
PHMSA, Eastern Region
840 Bear Tavern Road
Suite 300
West Trenton, NJ 08628

RE: Notice of Amendment, CPF 1-2020-1009M

Dear Mr. Burrough:

Texas Gas Transmission, LLC (Texas Gas or TGT), a subsidiary of Boardwalk Pipelines, LP (Boardwalk) has received the Notice of Amendment (NOA) dated March 27, 2020, regarding the inadequacies found between March 25, 2019 and August 29, 2019, during PHMSA's onsite inspections of Texas Gas's assets in Kentucky and Indiana.

Texas Gas has reviewed the inadequacies and has provided a response to each item in the NOA as outlined below. For each procedure revision, a Management of Change (MOC) is referenced and a copy is enclosed for your review.

Item 1: *§192.12 and API RP 1171-8.3.2: TGT's written procedures for implementing the requirements of API RP 1171 were inadequate. Specifically, TGT's procedures did not address how it would assess threat and hazard interaction in their Risk Model, as required by API RP 1171, Section 8.3.2 Data Sources (Section 8.3.2). At the time of the inspections, TGT's procedures failed to demonstrate how the threat and hazard interaction requirement was addressed in their Risk Management Model as required by Section 8.3.2.*

Response: Boardwalk addresses threat and hazard interaction by incorporating compound multipliers into the TaskOp™ risk model and plans to further capture these interactions by integrating quantitative field data and inspection results into the model. Current storage interactive threats are:

- Production casing metal loss accelerated by surface water & bad cement (metal loss < 10 ft.) - added to TaskOp™ on April 13, 2020

- Accelerated corrosion and compounded blowout scenarios due to elevated H_2S levels - added to TaskOp™ on March 13, 2020 for Wilfred and Leesville Storage fields.
    - Increasing multipliers are given to each ppm of H_2S range with greater than 50 being times 2.

Appendix 3 of the *Underground Natural Gas Storage Manual* reflects these updates as shown in MOC 2020-03-25e.

Item 2: *§192.12 and API RP 1171-8.7.1: TGT's written procedures for implementing the requirements of API RP 1171 were inadequate. Specifically, TGT's procedures did not address how the effectiveness of their Risk Management plan would be determined, as required by API RP 1171, Section 8.7.1 Periodic Assessment and Review (Section 8.7.1). At the time of the inspections, TGT's procedures failed to address how the effectiveness of their Risk Management plan would be determined in accordance with Section 8.7.1.*

Response: Boardwalk addressed this concern after the Headquarter inspection in March 2019, by creating Form 1500-17: *UGS Integrity Effectiveness Plan* and revised procedures in the *Underground Natural Gas Storage Manual*. These updates are reflected in MOC 2019-03-19b and 2020-03-25e.

Item 3: *§192.12 and API RP 1171-9.3.2: TGT's written procedures for implementing the requirements of API RP 1171 were inadequate. Specifically, TGT's procedures failed to address annular gas monitoring requirements for its monitor wells that do not have any taps on their annulus. Furthermore, TGT also failed to establish procedures to evaluate any occurrence of annular gas that exceeds the established threshold level, as required by API RP 1171, Section 9.3.2 Well Integrity Monitoring (Section 9.3.2). At the time of the inspections, TGT procedures failed to address the requirements of API RP 1171, Section 9.3.2. TGT could not provide a procedure to evaluate annulus pressure or flow for wells in multiple storages that do not have any annulus taps. TGT also could not demonstrate that they had procedures to address any exceedance of threshold pressure on the annulus. Finally, TGT could not produce documentation showing they had evaluated the one exceedance of their defined thresholds at the Midland Storage Facility.*

Response: Boardwalk addressed this concern in 2019, by creating several forms and procedures as summarized below:

- Created Form 1500-18: *UGS Cemented Annulus Leak Detection Report* and added procedures to the *Underground Natural Gas Storage Manual* as reflected in MOC 2019-03-19b.

- Created Forms 1500-19: *UGS Petal Cavern Annulus Test Report* and 1500-21: *UGS Jackson Storage Monthly Pressure Report* for Petal and Jackson to monitor annular pressure as reflected in MOC 2019-04-16a and updated procedures in the *Operations and Maintenance - Natural Gas Manual* for these two forms in MOC 2019-04-29c.

- Updated procedures in the *Operations and Maintenance - Natural Gas Manual* and the *Underground Natural Gas Storage Manual* to include quarterly sniffing at wells and procedures for exceedance as reflected in MOC 2019-07-09a and 2019-07-29a.

Item 4: *§192.12 and API RP 1171-8.3.2: TGT's written procedures for implementing the requirements of API RP 1171 were inadequate. Specifically, TGT failed to establish procedures that required data gathering of pressures and volumes to determine the integrity of the Midland and Leesville storage fields for 2018, in accordance with Section 8.3.2. At the time of the inspection, TGT had not established adequate procedures regarding data gathering for the Midland and Leesville Storages to prove adequacy of the integrity of the storage facility for that year. The wells in these two storages did not have taps that would allow the gathering of the required information. TGT had not developed a procedure to remedy this issue, nor had it developed additional Preventative and Mitigative (P&M) measures to ensure well integrity until taps are available.*

Response: Boardwalk addressed this concern by updating procedures in 2019, as summarized below:

- Stated inventory thresholds for reservoirs in the *Underground Storage Natural Gas Manual* as reflected in MOC 2019-04-29b

- Sniff test required for wells that do not have a tubing and packer completion as reflected on the "UGS Well Site Inspection & Security Check Task List" in MOC 2019-03-19b.

- Quarterly sniffing at wells and procedures updated in the *Operations and Maintenance - Natural Gas Manual* and the *Underground Natural Gas Storage Manual* for exceedance as reflected in MOC 2019-07-09a, 2019-07-29a, and 2019-08-05.

Item 5: *§192.12 and API RP 1171-8.3.2: TGT's written procedures for implementing the requirements of API RP 1171 were inadequate. Specifically, TGT's Storage Integrity Program procedures did not include a process for data gathering and assessing plugged and abandoned third-party wells in accordance with Section 8.3.2. At the time of the inspection, TGT's written Storage Integrity Program procedures failed to address data gathering and assessing plugged and abandoned third-party wells.*

Response: Boardwalk addressed this concern in 2019, by creating Form 1500-24: *UGS Plugged Well Site Inspection Form* and updated procedures in the *Underground Natural Gas Storage Manual* as reflected in MOC 2019-12-10e. While third-party wells have been included in these inspections, procedures in the *Operations and Maintenance - Natural Gas Manual* and the *Underground Natural Gas Storage Manual* were revised with language stating such as reflected in MOC 2020-03-25e.

If you have any questions regarding this response, please contact me at (270) 688-6497 or by email at Tina.Baker@bwpipelines.com.

Sincerely,

Tina H. Baker
Manager, Compliance Services

Enclosures

C: Mr. James Pfeifle, PHMSA
Mr. Richard Keyser, Boardwalk Pipelines, LP
Mr. Tony Rizk, Boardwalk Pipelines, LP
Mr. Mike Brandau, Boardwalk Pipelines, LP
Mr. Randy Head, Boardwalk Pipelines, LP