NOTICE OF PROBABLE VIOLATION
and
PROPOSED CIVIL PENALTY

VIA ELECTRONIC MAIL TO: justin.trettel@eqt.com

October 17, 2025

Mr. Justin Trettel
Vice President, Midstream
EQT Production Company
2200 Energy Drive
Canonsburg, Pennsylvania 15317

CPF 1-2025-033-NOPV

Dear Mr. Trettel:

From November 9, 2022, through March 3, 2025, representatives of the Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS), pursuant to Chapter 601 of 49 United States Code (U.S.C.) investigated a substantial release of natural gas at the Rager Mountain Gas Storage Field (Rager Mt. UNGSF), operated by EQT Production Company (EQT)[1] in Jackson Township, Cambria County, Pennsylvania. The Rager Mt. UNGSF includes ten operating storage wells and two observation wells and is connected via pipeline segments to interstate gas transmission pipelines.

On November 6, 2022, well #2244 at the Rager Mt. UNGSF failed. The failure resulted in a sustained and uncontrolled natural gas leak for 14 days while EQT attempted to stop the gas flow. After repeated unsuccessful attempts to contain the leak, EQT isolated the well and stopped the gas flow on November 19. An estimated 1.037 billion cubic feet of natural gas was released into the atmosphere, which is one of the largest releases of natural gas from an underground natural gas storage facility in U.S. history.[2]

[1] At the time of the incident, Equitrans Midstream Corporation (OPID 31604) operated the Rager Mt. UNGSF. The facility is now operated by EQT Production Company (OPID 39491).

[2] PHMSA, UNGS Major Incidents, https://www.phmsa.dot.gov/pipeline/underground-natural-gas-storage/ungs-major-ncidents#:~:text=Aliso%20Canyon&text=The%20failure%20resulted%20in%20a,Canyon%20incident%20a%20state%20emergency (last updated Sept. 23, 2025).

As a result of the incident, PHMSA issued a Notice of Proposed Safety Order which resulted in a Consent Agreement and Order.[3] As part of the corrective actions required by the Consent Agreement and Order, EQT engaged an independent third-party to conduct a Root Cause Analysis, *Rager Mountain Well #2244 Casing Failure Root Cause Analysis* (Aug. 24, 2023) (RCA).[4]

The RCA determined that the direct cause of the incident was external corrosion on the top joint casing of the well. Specifically, the RCA determined that the top joint had an open annulus valve close to the ground that allowed ingress of water, air (oxygen), and organic/inorganic matter, which resulted in a wet-dry cycle that caused the corrosion. The RCA also determined that a root cause of the incident was EQT's failure to mitigate the threat of top joint corrosion by gelling[5] the annulus, which would have prevented the ingress of water, air (oxygen), and organic/inorganic matter. To improve the response to uncontrolled natural gas leaks, the RCA suggested that EQT establish a well control plan for each well with identified ranges of kill fluid densities and pump rates along with a logistics plan for efficient equipment procurement.

As a result of the PHMSA incident investigation, it is alleged that you have committed probable violations of the Pipeline Safety Regulations, Title 49, Code of Federal Regulations (CFR). The items investigated and the probable violations are:

1. § 192.12 Underground natural gas storage facilities.

(a) . . .

(b) *Depleted hydrocarbon and aquifer reservoir UNGSFs.*

(1) . . .

(2) Each UNGSF that uses a depleted hydrocarbon reservoir or an aquifer reservoir for natural gas storage and was constructed on or before July 18, 2017, must meet the provisions of API RP 1171 (incorporated by reference, *see* § 192.7), sections 8, 9, 10, and 11, and paragraph (c) of this section, by January 18, 2018, and must meet all provisions of paragraph (d) of this section by March 13, 2021.

EQT failed to follow section 8, *Risk Management for Gas Storage Operations*, in American Petroleum Institute's Recommended Practice 1171 (2015) (API RP 1171) in accordance with section 192.12(b)(2). Specifically, 1) EQT failed to use available information regarding operational characteristics, such as individual well deliverability, and previous integrity issues with top joint casing corrosion at the Rager Mt. UNGSF, including at well #2244, to determine susceptibility to threat and hazard-related events and to assess threat and hazard interaction in

[3] *See* Equitrans Midstream Corporation, Consent Agreement and Order, CPF No. 1-2022-080-NOPSO, 2023 WL 3884043 (May 26, 2023).

[4] PHMSA, Rager Mountain Well #2244 Casing Failure Root Cause Analysis (last updated Nov. 8, 2023), https://www.phmsa.dot.gov/foia/rager-mountain-well-2244-casing-failure-root-cause-analysis.

[5] Gelling is a process where an operator directs a viscous fluid containing corrosion inhibitor additives into the annulus. The inhibitor protects the casing from corrosion, while oxygen is prevented from entering by maintaining the fluid level in the annular space. *See* RCA at 47, fig.14.

accordance with section 8.3.2 in API RP 1171 and 2) EQT failed to evaluate the potential threat and hazard of top joint casing corrosion impacting Rager Mt. UNGSF in accordance with section 8.4.2 in API RP 1171.[6] EQT's failure to use available information in its risk management program to determine susceptibility to the threat of top joint casing corrosion and evaluate the potential threat and hazard of top joint casing corrosion was a causal factor in the November 6, 2022 reportable incident at well #2244.

During the investigation, PHMSA determined that EQT failed to evaluate the threat of top joint casing corrosion in its risk management program, despite available information regarding a history of casing and top joint replacements being necessary due to corrosion at the Rager Mt. UNGSF, as detailed below. In addition, table 1 in section 8.4.2 of API RP 1171 lists casing corrosion as a common threat and section 8.4.2 states that operators must evaluate the potential threats and hazards impacting storage wells and reservoirs.

The Rager Mt. UNGSF has a history of casing and top joint corrosion and replacements that have occurred on wells 2244, 2245, 2246, 2247, 2248, 2251, 2252, which is noted in the RCA

- Well #2244's casing was replaced at approximately 6,000 ft in 1993 after gas test report indicated a leak was found at that depth.
- Well #2245's casing was replaced at approximately 6,000 ft in 1971.
- Well #2246 had top joint casing replacement due to external corrosion in 2009 and lower depth casing replacement in 1990.
- Well #2247 had top joint casing replacement due to external corrosion in 2005 and lower depth casing replacement (~4,000ft) in 1995 due to internal corrosion.
- Well #2248 had top joint casing replacement due to external corrosion in 2004 and lower depth casing replacement in 1994 due to internal corrosion.
- Well #2251 had top joint casing replacement due primarily to external corrosion in August 2004.
- Well #2252 had top joint casing replacement in 1999 due to external corrosion.

PHMSA reviewed EQT's risk management program and found that EQT failed to evaluate the threat of top joint casing corrosion despite the fact that external corrosion in the top joints and casing had been mitigated ten times in seven wells, including at well #2244, prior to the incident.

In addition, EQT failed to evaluate the individual well deliverability, or the absolute open flow, of well #2244 in its risk management program. Well #2244 was a high deliverability well, which

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[6] Section 8.2 of API RP 1171 requires an operator to "develop, implement, and document a program to manage risk" to ensure the safety of the storage facility. A risk assessment must include, at a minimum, collection of relevant data, identification of potential threats to the facility, and evaluation of the likelihood of events and consequences. API RP 1171 § 8.2. With respect to data collection, section 8.3.2 states that "[t]he operator shall use available information such as performance data collected through the field history, operations and maintenance (O&M) activities, geotechnical data such as well logs, engineering data, and completion reports to determine susceptibility to threat and hazard-related events and to assess threat and hazard interaction." With respect to threat evaluation, section 8.4.2 states that "[t]he operator shall evaluate the potential threats and hazards impacting storage wells and reservoirs."

means it operated at higher flow rates and higher temperature than other wells at the Rager Mt. UNGSF, and corrosion rates increase with higher temperatures.[7]

EQT's failure to use available information in its risk management program and to evaluate the potential threat and hazard of top joint casing corrosion was a causal factor in the November 6, 2022 reportable incident at well #2244. Specifically, because EQT failed to consider available information of individual well deliverability and history of top joint casing corrosion in its risk management program, EQT failed to take action to prevent or mitigate[8] the threat of top joint casing corrosion, which the RCA determined was the direct cause of the incident.[9] Casing corrosion is listed as a common threat in API RP 1171, and it was a documented integrity issue at the Rager Mt. UNGSF.[10]

Therefore, EQT failed to follow section 8 in API RP 1171 in accordance with section 192.12(b)(2).

2. § 192.12 Underground natural gas storage facilities.

(a) . . .

(c) ***Procedural manuals.*** **Each operator of a UNGSF must prepare and follow for each facility one or more manuals of written procedures for conducting operations, maintenance, and emergency preparedness and response activities under paragraphs (a) and (b) of this section. Each operator must keep records necessary to administer such procedures and review and update these manuals at intervals not exceeding 15 months, but at least once each calendar year. Each operator must keep the appropriate parts of these manuals accessible at locations where UNGSF work is being performed. Each operator must have written procedures in place before commencing operations or beginning an activity not yet implemented.**

EQT failed to follow its manual of written procedures for emergency preparedness and response activities in accordance with section 192.12(c). Specifically, EQT failed to follow its *Storage Well Emergency Response Plan*, *Rev-2* (Jan. 24, 2022) (SWERP) by failing to design and implement a dynamic kill or other special kill procedures to overbalance and gain control of the well no later than seven days after the incident, or by November 12, 2022. This failure increased the severity of the November 6, 2022, reportable incident.

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[7] RCA at 52.

[8] There are several ways to prevent or mitigate top joint corrosion, such as through gelling. The RCA determined that the root cause for the top joint corrosion is the open annulus valve and the lack of gelling within top portion of the uncemented casing. RCA at 14.

[9] The RCA concluded that that "[t]he direct cause for the 7 in. top joint casing rupture and parting failure was external corrosion due to ingress of water, air (oxygen), and organic/inorganic matter through the open annulus valve, which was further exacerbated by a leaking connection into the uncemented annulus." RCA at 14.

[10] The RCA stated that top joint and/or casing corrosion was present in seven of twelve wells at Rager Mt. RCA at 224.

EQT's SWERP "establish[ed] a process for responding to and safely managing well control emergencies using a standard, uniform approach."[11] Section 5 addressed the most serious events and divided the response into three key phases: immediate response actions (first 24 hours); interim actions (day 2 to day 7); and extended actions (until completion). After the immediate response (such as accounting for personnel and establishing a safe zone), the interim actions required that the Storage Well Emergency Response Team work with the well control contractor during a Level 3 event (*i.e.*, an event in which the operator has lost control of the well) to design and implement a dynamic kill or other special kill procedures to stop the release of gas between days 2 and 7.[12] The November 2022 incident was a Level 3 event because EQT lost control of the well. However, EQT failed to design and implement a dynamic kill to gain control of the well, or kill the leak, until November 19 or day 14.

The failure by EQT to design and implement a dynamic kill or other special kill procedures within seven days is evidenced by the timeline of events. On November 11, 2022 (day 6), EQT's first kill attempt, running a 2-inch coiled tubing (CT) with fresh water (8.3 pounds per gallon (ppg)) down to the storage horizon, failed due to an obstruction. Kill modeling conducted for the RCA concluded that the 2-inch CT "had little chance of success."[13] The RCA stated that EQT used the 2-inch CT because it was "immediately available," and not because it was expected to gain control of the well.[14]

On November 12-13 (day 7-8), EQT used various methods of determining the nature of that obstruction and was unsuccessful.

On November 14 (day 9), EQT attempted a second kill using brine water (density of 10 and 11 ppg). After milling the obstruction, EQT ran the CT to the well bottom, but the kill pump rate was inadequate and the kill fluid density of 10 and 11 ppg was also inadequate. EQT determined that a larger CT rig was needed and requested 2 3/8-inch CT.

On November 16 (day 11), while waiting for the larger CT rig to arrive, EQT began gathering data and surveying for a relief well. The larger CT rig arrived on November 16 and the rig-up process started.

On November 17 (day 12), EQT attempted a third kill with brine water (density of 10 and 11 ppg) using 2 3/8-inch CT that initially stopped the gas flow. However, EQT had not accurately anticipated the requisite capacity needed. The fluid loss rate accelerated beyond the available capacity of the six brine tanks onsite, and the well began releasing gas again.

On November 19 (day 14), EQT, on its fourth attempt, successfully killed the well with an additional 11 ppg of brine water and set the isolation plugs.

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[11] SWERP at 9.

[12] SWERP at 39.

[13] RCA at 213.

[14] RCA at 213.

EQT's failure to design and implement a dynamic kill to overbalance and gain control of the well by day 7 or November 12 increased the severity of the November 6, 2022, reportable incident because the unintentional and uncontrolled release of gas continued unabated while EQT attempted to gain control of the well from day 8 to day 14 and resulted in the release of 1.037 BCF of gas into the atmosphere.

The SWERP required EQT to maintain various records, such as a 24-hour event log, an intervention plan, and a list of well control actions attempted.[15] During the investigation, PHMSA requested these records. However, EQT failed to provide documentation related to its intervention plan, such as the calculations used to develop any dynamic kill designs and failed to provide 24-hour event logs that included daily dynamic kill designs and a list of all well control actions attempted.[16]

Therefore, EQT failed to follow its manual of written procedures for emergency preparedness and response activities in accordance with section 192.12(c).

3. § 192.12 Underground natural gas storage facilities.

(a) . . .

(c) *Procedural manuals.* Each operator of a UNGSF must prepare and follow for each facility one or more manuals of written procedures for conducting operations, maintenance, and emergency preparedness and response activities under paragraphs (a) and (b) of this section. Each operator must keep records necessary to administer such procedures and review and update these manuals at intervals not exceeding 15 months, but at least once each calendar year. Each operator must keep the appropriate parts of these manuals accessible at locations where UNGSF work is being performed. Each operator must have written procedures in place before commencing operations or beginning an activity not yet implemented.

EQT failed to maintain records necessary to administer its procedures in accordance with section 192.12(c). Specifically, EQT failed to maintain records required by its *Storage Well Emergency Response Plan*, *Rev-2* (Jan. 24, 2022) (SWERP), such as well control incident data sheets, and records from meetings during the November 2022 reportable incident with attendance and action items.

The SWERP included various recordkeeping requirements for each type of emergency. The SWERP categorized the November 2022 incident as a Level 3 incident, and it required EQT to:

- Prepare a Well Control Incident Data Sheet (page 15);

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[15] SWERP at 39, 41.

[16] The SWERP stated that the following parameters can be used to develop the dynamic kill design: depth of reservoir, gross and net sand thickness; permeability; porosity; reservoir pressure; and client specified pre-determined blowout rate in mmcfd (Millions of Cubic Feet per Day). SWERP at C-21.

- Establish and implement project document control procedures (page 31);
- Establish project work files and institute document control/record keeping procedures (page 32);
- Document, sort, distribute and make available critical information to the incident team (page 38);
- Document initial incident information, incident report, initial assessment report, intervention plan, site safety plan, unit status report, among other requirements (page 39);
- Gather certain information (page 41); and
- Preserve all data and information (page 44).

On March 16, 2023, PHMSA issued a Request For Information (RFI) to EQT. In the RFI, PHMSA requested a timeline of events pertaining to the emergency response and remediation of the incident, minutes of meetings held between November 6 (day 1 of incident) and November 19 (day 14; day of plugs placed in well), and any documents prepared during that timeframe.

PHMSA received and reviewed EQT's response to the RFI on April 14, 2023. EQT failed to provide the documentation required by the SWERP, such as well control incident data sheets and internal meeting records from November 6 through 19, 2022.

Therefore, EQT failed to maintain records necessary to administer its procedures in accordance with section 192.12(c).

Proposed Civil Penalty

Under 49 U.S.C. § 60122 and 49 CFR § 190.223, you are subject to a civil penalty not to exceed $272,926 per violation per day the violation persists, up to a maximum of $2,729,245 for a related series of violations. For violation occurring on or after December 28, 2023 and before December 30, 2024, the maximum penalty may not exceed $266,015 per violation per day the violation persists, up to a maximum of $2,660,135 for a related series of violations. For violation occurring on or after January 6, 2023 and before December 28, 2023, the maximum penalty may not exceed $257,664 per violation per day the violation persists, up to a maximum of $2,576,627 for a related series of violations. For violation occurring on or after March 21, 2022 and before January 6, 2023, the maximum penalty may not exceed $239,142 per violation per day the violation persists, up to a maximum of $2,391,412 for a related series of violations. For violation occurring on or after May 3, 2021 and before March 21, 2022, the maximum penalty may not exceed $225,134 per violation per day the violation persists, up to a maximum of $2,251,334 for a related series of violations. For violation occurring on or after January 11, 2021 and before May 3, 2021, the maximum penalty may not exceed $222,504 per violation per day the violation persists, up to a maximum of $2,225,034 for a related series of violations. For violation occurring on or after July 31, 2019 and before January 11, 2021, the maximum penalty may not exceed $218,647 per violation per day the violation persists, up to a maximum of $2,186,465 for a related series of violations.

We have reviewed the circumstances and supporting documentation involved for the above probable violations and recommend that you be preliminarily assessed a civil penalty of $ 939,900 as follows:

Item number	PENALTY
1	$ 483,800
2	$ 456,100

Warning Item

With respect to Item 3 we have reviewed the circumstances and supporting documents involved in this case and have decided not to conduct additional enforcement action or penalty assessment proceedings at this time. We advise you to promptly correct this item. Failure to do so may result in additional enforcement action.

Response to this Notice

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. All material you submit in response to this enforcement action may be 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 your receipt of this Notice, you have 30 days to respond as described in the enclosed *Response Options*. 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 a Final Order. If you are responding to this Notice, we propose that you submit your correspondence to my office within 30 days from receipt of this Notice. The Region Director may extend the period for responding upon a written request timely submitted demonstrating good cause for an extension.

In your correspondence on this matter, please refer to **CPF 1-2025-033-NOPV** and, for each document you submit, please provide a copy in electronic format whenever possible.

Sincerely,

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

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