



Spire Inc.
605 Richard Arrington Jr Blvd N
Birmingham, AL 35203

September 27, 2024

Mr. Dustin Hubbard
Director, Western Region
Pipeline and Hazardous Materials Safety Administration

RE: CPF 5-2024-023-NOPV
Spire Storage West LLC – OPID 39935

Dear Mr. Hubbard:

Spire has reviewed the seven items from the referenced violation report sent on August 23, 2024, for the Spire Storage West Belle Butte facility and is submitting the following responses. If you need additional detail or would like to discuss, please feel free to contact me at (205) 337-1337.

Sincerely,

A handwritten signature in black ink, appearing to read "Randy Wilson", written in a cursive style.

Randy Wilson
Director, Pipeline and System Integrity

CC: Mr. Scott Smith
Mr. Craig Hoeflerlin
Ms. Barbara Palmer
Mr. James Long

1. §192.465 External corrosion control: Monitoring and remediation.

(a) Each pipeline that is under cathodic protection must be tested at least once each calendar year, but with intervals not exceeding 15 months, to determine whether the cathodic protection meets the requirements of § 192.463. However, if tests at those intervals are impractical for separately protected short sections of mains or transmission lines, not in excess of 100 feet (30 meters), or separately protected service lines, these pipelines may be surveyed on a sampling basis. At least 10 percent of these protected structures, distributed over the entire system must be surveyed each calendar year, with a different 10 percent checked each subsequent year, so that the entire system is tested in each 10–year period.

Spire failed to properly test its cathodic protection at least once per calendar year, but with intervals not to exceed 15 months, as required. During the inspection, Spire provided several records to demonstrate its compliance with the cathodic protection (CP) requirements outlined in 192 Appendix D. However, the documents furnished did denote that adequate testing of the CP on the pipeline was conducted as required by §192.465(a) for the calendar years of 2021 and 2022.

Specifically, of the documents reviewed by PHMSA for the calendar years of 2021, 2022 and 2023, only the 2023 annual CP survey included the current applied and voltage drop considered readings. The provided 2021 and 2022 annual CP surveys did not include applied current readings or readings with a voltage drop considered. Without considering voltage drop, it is not possible to determine the effective pipeline protective voltage.

Therefore, Spire failed to demonstrate adequate corrosion control monitoring as prescribed in §192.465(a) for the calendar years of 2021 and 2022.

Spire Response: Item #1 – External corrosion control: Monitoring and Remediation:

Spire does not contest this item as described but wishes to submit additional information for consideration and requests mitigation of the civil penalty.

After the Belle Butte inspection, Spire initiated improvements to the field equipment and data collection processes to address the corrosion control activities. Remote monitoring units with satellite connectivity have been installed on all rectifiers. This will enable us to have continual control and information on the rectifier status and automate the bi-monthly read collection process. Also, remote monitoring units have been added to CP test stations at strategic locations on the pipelines. These will allow for continual monitoring of CP on the pipelines.

Significant improvements have also been completed with the data collection and data storage programs for corrosion control. Spire has purchased the American Innovations Data Survey Manager software to manage and store the facility's CP data and a new datalogger to use for the annual reads that will automate the data storage process, collect GPS coordinates of the CP read points, and collect both the on current read and the instant-off voltage drop conditions.

Spire has invested approximately \$61,000 toward improvements of the Spire Storage West corrosion control program since the inspection. While Spire cannot go back and improve the

historical records for the previous years, these equipment and technological improvements were completed to mitigate these concerns from occurring in the future. There have not been any issues indicated with the system's CP conditions to date after these improvements. The annual read cycle for test points was completed the week of September 23rd and all on/instant off readings were good.

2. §192.465 External corrosion control: Monitoring and remediation.

(a) ...

(b) Cathodic protection rectifiers and impressed current power sources must be periodically inspected as follows:

(a) Each cathodic protection rectifier or impressed current power source must be inspected six times each calendar year, but with intervals not exceeding 2 ½ months between inspections, to ensure adequate amperage and voltage levels needed to provide cathodic protection are maintained. This may be done either through remote measurement or through an onsite inspection of the rectifier.

Spire failed to inspect its cathodic protection rectifiers at the required interval of six times each calendar year, but with intervals not to exceed 2 ½ months, as required. A review of Spire's cathodic protection rectifier inspection records found a monitoring interval that exceeded the 2 ½ month limit on at least eight occasions: two times within 2021, three times in 2022, and three times in 2023.

Therefore, Spire failed to demonstrate adequate corrosion control monitoring as prescribed in §192.465(b)(1).

Spire Response: Item #2 – External corrosion control: Monitoring and remediation.

Spire does not contest this item as described but wishes to submit additional information for consideration and requests mitigation of the civil penalty.

Please see the additional information supplied in response to Item #1.

3. §192.475 Internal corrosion control: General.

(a) Corrosive gas may not be transported by pipeline, unless the corrosive effect of the gas on the pipeline has been investigated and steps have been taken to minimize internal corrosion.

Spire failed to neutralize the corrosive effect of the gas transported through the pipeline to minimize the effect on internal corrosion. During the inspection, Spire personnel verbally affirmed that a third-party contractor had implemented a sampling and neutralization program to mitigate the internal corrosion effects of the corrosive gas Spire transports through its pipelines, and provided its H₂S Removal Process. However, Spire could not provide any records verifying this

procedure had been implemented.

Therefore, Spire failed to demonstrate adequate internal corrosion pipeline protection from corrosive gas as required in §192.475(a).

Spire Response: Item #3 – Internal Corrosion Control: General.

Spire wishes to contest this item without an oral hearing and is supplying additional information. Spire also requests consideration for mitigation of the civil penalty. Spire believes the additional information affirms that the inhibitor injection process is being implemented and used to mitigate the corrosive effects of H₂S through its pipelines.

Spire injects the chemicals WGS 7840, WC 2257, and Biocide 2512W to mitigate internal corrosive effects in its pipelines. According to the procedure supplied, the gas stream is analyzed, and chemical is injected to remove H₂S to less than 4 ppm. To demonstrate that Spire is using this process, documentation is attached showing the inhibitor quantities purchased and used on the Spire Storage West system. The inhibitor is injected continuously. The SCADA system monitors the gas stream analysis and will alarm at levels well below 4 ppm. An example of this SCADA display information is also attached. Please see attachment “SSW Chemical Reports – Corrosion Inhibitors” and “Belle Butte H₂S SCADA Monitoring” respectively.

4. §192.477 Internal corrosion control: Monitoring.

If corrosive gas is being transported, coupons or other suitable means must be used to determine the effectiveness of the steps taken to minimize internal corrosion. Each coupon or other means of monitoring internal corrosion must be checked two times each calendar year, but with intervals not exceeding 7 ½ months.

Spire failed to monitor its internal corrosion coupons at least two times a year, at intervals not to exceed 7 ½ months, to measure the effect of corrosive gas. Spire presented testing records during the inspection for its internal corrosion coupons for the calendar years of 2019, 2020, and 2021. However, the records provided showed that coupon testing intervals exceeded the requirements of the pipeline safety regulations, with an average in-place coupon duration of 482 days.

Therefore, Spire failed to demonstrate adequate coupon testing as required in §192.477.

Spire Response: Item #4 – Internal corrosion control: Monitoring.

Spire does not contest this item. The schedule for corrosion coupon inspections has been adjusted to be completed on a 6-month basis.

5. **§192.481 Atmospheric corrosion control: Monitoring.**

(a) Each operator must inspect and evaluate each pipeline or portion of the pipeline that is exposed to the atmosphere for evidence of atmospheric corrosion, as follows:

Pipeline type:	Then the frequency of inspection is:
(1) Onshore other than a Service Line	At least once every 3 calendar years, but with intervals not exceeding 39 months.
(2) Onshore Service Line	At least once every 5 calendar years, but with intervals not exceeding 63 months, except as provided in paragraph (d) of this section.
(3) Offshore	At least once each calendar year, but with intervals not exceeding 15 months

Spire failed to conduct atmospheric corrosion inspections at least once every 3 calendar years, but with intervals not exceeding 39 months, as required. Specifically, during the PHMSA inspection, Spire provided the atmospheric corrosion records for the calendar year of 2022 but not for the calendar year of 2019 or any other years prior. Additionally, while Spire provided records of a 2022 atmospheric corrosion inspection at the Belle Butte, Canyon Creek, and Gem Stone facilities, and Wells 1A, 1B, 9A, 9B, 9C, 15, 34, 35, none of the documents provided by Spire included inspections of the aboveground pipes that connect the Belle Butte facility to the regulated injection/withdraw well flanges.

Therefore, Spire failed to demonstrate it performed atmospheric corrosion inspections at the required interval of every 3 calendar years, not to exceed 39 months.

Spire Response: Item #5 – Atmospheric corrosion control: Monitoring.

Spire wishes to contest part of this item as described without an oral hearing and is providing a clarification. Spire was unable to locate the records of the atmospheric corrosion inspection in 2019 as noted, so the company is not contesting that records for the interval are incomplete. However, for the 2022 inspection records, the finding states “none of the documents provided by Spire included inspections of the aboveground pipes that connect the Belle Butte facility to the regulated injection/withdraw well flanges”. After again reviewing the records supplied, Spire has determined that the above ground facilities on the documentation included the noted aboveground pipes in the finding. For the facilities at the plant, the connections to the regulated pipelines are made at the “DF” or “Dance Floor” locations. Each of these has a separate line-item on the survey checklist and includes the flanges and associated pipe. At the well sites, the line item on the survey form “all piping” includes any flange connections to the well facilities and associated piping. Spire will continue to designate these on the forms but can call out the flanges differently if it is required specifically. The records that were supplied with the 2022 inspection are attached: “SSW Belle Butte Atmospheric Corrosion Inspection Reports”.

With acceptance of this clarification, Spire also requests that the proposed compliance order for completing an inspection within 60 days be removed. The Company does not have an issue with

re-inspecting all of the facilities now, if necessary, but has already scheduled the next standard inspection in mid-2025.

6. §192.619 Maximum allowable operating pressure: Steel or plastic pipelines.

(a) No person may operate a segment of steel or plastic pipeline at a pressure that exceeds a maximum allowable operating pressure (MAOP) determined under paragraph (c), (d), or (e) of this section, or the lowest of the following...

Spire failed to operate its pipeline below MAOP as required by §192.619(a). During the inspection Spire provided pressure log data for seven pipeline monitoring points during the inspection period. However, the pressure records were missing 38 months between the calendar years of 2021 and 2023.

Therefore, Spire failed to operate their pipeline within MAOP limits as required by §192.619(a).

Spire Response: Item #6 – Maximum allowable operating pressure: Steel or plastic pipelines.

Spire does not contest this item about the missing pressure records but wants to submit additional information for consideration about this finding. During the requested timeframe, Spire discovered a faulty uninterruptable power supply (UPS) that caused the loss of some SCADA data during this timeframe. The SCADA operators did not lose the ability to operate the system during this time and the pressure information was continuously monitored. However, the data for portions of the historical maximum pressure records were lost over this period. Spire has since invested approximately \$100,000 to purchase a new UPS to remediate this condition.

This facility operates in such a way that, if an overpressure condition were to occur, then the plant and facilities would enter an automatic shutdown. The Company has not had a plant shutdown due to overpressure conditions at any time. Also, in conjunction with the response to Item #7, PSV's were in place and were not activated due to an overpressure event. Given this information, Spire does not believe that the pipeline ever experienced a pressure above MAOP. The Company believes it is more appropriate for this finding to state that Spire lacked complete historical records of pressure conditions on the pipeline facilities over the inspection period.

7. §192.739 Pressure limiting and regulation stations: Inspection and testing.

(a) Each pressure limiting station, relief device (except rupture discs), and pressure regulating station and its equipment must be subjected at intervals not exceeding 15 months, but at least once each calendar year, to inspections and tests to determine that it is—

(1) In good mechanical condition;

(2) Adequate from the standpoint of capacity and reliability of operation for the service in which it is employed;

(3) Except as provided in paragraph (b) of this section, set to control or relieve at the correct pressure consistent with the pressure limits of § 192.201(a); and

(4) Properly installed and protected from dirt, liquids, or other conditions that might prevent proper operation.

Spire failed to test its Pressure Safety Valves (PSVs) at an interval not to exceed 15 months but at least once per calendar year per §192.739. Spire presented PSV testing data during the inspection. However, a review of those records for the calendar years of 2020, 2021, and 2022 revealed that only one of the five PSVs located on Spire's pipeline met the testing interval described in 192.739. Without the test records for the other four PSVs, PHMSA cannot determine if Spire performed the required annual inspection on those PSVs as required.

Therefore, Spire failed to demonstrate it inspected its PSVs during the interval as required by §192.739(a).

Spire Response: Item #7 – Pressure limiting and regulation stations: Inspection and testing. Spire wishes to contest this item but not have an oral hearing. Spire is supplying additional information in the attached file “Belle Butte PSV Inspections” to affirm that PSV inspections and testing were completed annually not to exceed 15 months. Spire was not aware that the information submitted with the initial data requests appears to have been truncated and were missing the entirety of the records. After reviewing the information again, Spire is re-submitting the missing records to confirm these inspections were completed annually.