

NOTICE OF AMENDMENT

ELECTRONIC MAIL - RETURN RECEIPT REQUESTED

April 19, 2022

John Filiatrault
Senior Vice President, CO2 Pipeline and Supply
Denbury Onshore, LLC
5320 Legacy Drive
Plano, Texas 75024

CPF 4-2022-021-NOA

Dear Mr. Filiatrault:

From March 22, 2021 to March 26, 2021, representatives of the Pipeline and Hazardous Materials Safety Administration (PHMSA) pursuant to Chapter 601 of 49 United States Code (U.S.C.), virtually inspected Denbury Onshore, LLC's (Denbury) Integrity Management (IM) Plans and Procedures, of which some are incorporated within Denbury's Operations and Maintenance (O&M) Manual.

Based on the inspection, PHMSA has identified the apparent inadequacies found within Denbury's plans or procedures, as described below:

1. § 195.452 Pipeline integrity management in high consequence areas.

(a) . . .

(f) *What are the elements of an integrity management program?* An integrity management program begins with the initial framework. An operator must continually change the program to reflect operating experience, conclusions drawn from results of the integrity assessments, and other maintenance and surveillance data, and evaluation of consequences of a failure on the high consequence area. An operator must include, at minimum, each of the following elements in its written integrity management program:

- (1) A process for identifying which pipeline segments could affect a high consequence area;**

Denbury's *Integrity Management Program, IMP0100, Integrity Management Plan* (Revised: 2/15/2021) did not consider topography for overland spread and water transport of CO₂ for its pipelines and facilities to determine the extent of commodity spread and its effects on HCAs.

Denbury's *Integrity Management Program, IMP0100, Integrity Management Plan, 3.5.5.3 Potential Transportation Zones* states, "Denbury pipelines transport CO₂, which vaporizes upon release to air or water, and dissipates or dissociates upon release to water. As such, overland and waterway transport mechanisms do not have the potential to affect an HCA" and *3.5.6 Identification of "Could Affect" Facilities* states, "Due to the nature of CO₂ releases, a facility is determined to be a "Could Affect" facility if the pipeline into or out of the facility is a "Could Affect" segment, or a "Could Affect" facility boundary intersects an HCA or HCA buffer." Additionally, Denbury personnel stated that its pipelines transport CO₂, which vaporizes upon release to air or water, and dissipates or dissociates upon release to water. As such, overland and waterway transport mechanisms do not have the potential to affect an HCA. Denbury's process does not adequately consider the nature and characteristics of the product transported or document an adequate air dispersion analysis in the event a release results in a CO₂ gas plume.

Denbury must amend its procedures to include a quantitative analysis of the overland spread and a water transport analysis, including differences in spill volume, between line pipe and other pipeline facilities, which usually have a greater potential release volume.

2. § 195.452 Pipeline integrity management in high consequence areas.

(a) . . .

(f) *What are the elements of an integrity management program?* An integrity management program begins with the initial framework. An operator must continually change the program to reflect operating experience, conclusions drawn from results of the integrity assessments, and other maintenance and surveillance data, and evaluation of consequences of a failure on the high consequence area. An operator must include, at minimum, each of the following elements in its written integrity management program:

(1) . . .

(6) Identification of preventive and mitigative measures to protect the high consequence area (see paragraph (i) of this section);

(i) *What preventive and mitigative measures must an operator take to protect the high consequence area?* -

(1) . . .

(2) *Risk analysis criteria.* In identifying the need for additional preventive and mitigative measures, an operator must evaluate the likelihood of a pipeline release occurring and how a release could affect the high consequence area. This determination must consider all relevant risk factors, including, but not limited to:

(i) Terrain surrounding the pipeline segment, including drainage systems such as small streams and other smaller waterways that could act as a conduit to the high consequence area;

- (ii) Elevation profile;
- (iii) Characteristics of the product transported;
- (iv) Amount of product that could be released;
- (v) Possibility of a spillage in a farm field following the drain tile into a waterway;
- (vi) Ditches alongside a roadway the pipeline crosses;
- (vii) Physical support of the pipeline segment such as by a cable suspension bridge;
- (viii) Exposure of the pipeline to operating pressure exceeding established maximum operating pressure.
- (ix) Seismicity of the area.

Denbury's *Integrity Management Program, IMP0100* (Revised: 2/15/2021), *Section 3.9 Process for Identification of Preventive and Mitigative Measures* is inadequate because it does not consider all relevant risk factors in the risk analysis process. At the time of the inspection, Denbury's procedure did not include the basis for an exclusion or any of the relevant risk factors listed in 195.452(i)(2)(i) through (ix).

Denbury must amend its written procedure to consider all relevant risk factors listed in 195.452(i)(2) or document a basis for an exclusion.

3. § 195.452 Pipeline integrity management in high consequence areas.

(a) . . .

(j) *What is a continual process of evaluation and assessment to maintain a pipeline's integrity? -*

(1) . . .

(5) *Assessment methods.* An operator must assess the integrity of the line pipe by any of the following methods. The methods an operator selects to assess low frequency electric resistance welded pipe or lap welded pipe susceptible to longitudinal seam failure must be capable of assessing seam integrity and of detecting corrosion and deformation anomalies.

(i) In-Line Inspection tool or tools capable of detecting corrosion and deformation anomalies, including dents, gouges, and grooves. For pipeline segments that are susceptible to cracks (pipe body and weld seams), an operator must use an in-line inspection tool or tools capable of detecting crack anomalies. When performing an assessment using an In-Line Inspection tool, an operator must comply with § 195.591;

§ 195.591 In-Line inspection of pipelines.

When conducting in-line inspection of pipelines required by this part, each operator must comply with the requirements and recommendations of API Std 1163, *Inline Inspection Systems Qualification Standard*; ANSI/ASNT ILI-PQ, *Inline Inspection Personnel Qualification and Certification*; and NACE SP0102-2010, *Inline Inspection of Pipelines* (incorporated by reference, see § 195.3). An in-line inspection may also be conducted using tethered or remote control tools provided they generally comply with those sections of NACE SP0102-2010 that are applicable.

NACE SP0102-2010

Section 5: Logistical Guidelines

5.1.5 Survey-acceptance criteria

5.1.5.1 A set of survey-acceptance criteria should be developed and agreed to by both parties prior to the start of the ILI survey. These criteria help to define when a rerun survey is required and include the following:

5.1.5.1.1 Physical damage to sensors after run...

5.1.5.1.6 Velocity underruns or overruns...

Denbury's *O&M Procedure, O&M 0916, In-Line Inspections* (Revised: 2/15/2021) procedure is inadequate because it does not provide the requirements listed in *NACE SP0102-2010, Section 5: Logistical Guidelines, 5.1.5 Survey-acceptance criteria* for conducting in-line inspection of its pipelines.

During the inspection, PHMSA reviewed Denbury's *O&M Procedure, O&M 0916, In-Line Inspections*, (Revised: 2/15/2021) *Section 3. Core Information and Requirements*, which states:

"3.5.4.2. The Project Manager will review data quality assessments provided by the ILI service provider via e-mail and determine acceptability of all ILI surveys including when survey data is incomplete or data quality is compromised to any degree. All decisions regarding the acceptability of an ILI survey and data quality will be made on an individual basis due to the complexity and number of possible scenarios in evaluating data. After reviewing the data quality assessment(s), the Project Manager will respond to the ILI service provider via e-mail to accept or reject the ILI survey and will copy the Corrosion Foreman and Integrity Management on the response. The Project Manager will document the rationale for accepting an ILI survey when there is any data degradation. For ILI surveys with degraded data, rationale for accepting the survey will be up to the Project Manager."

On January 3, 2022, Denbury submitted to PHMSA a revised procedure to address the requirements of §195.452(j)(5)(i) and §195.591 by adding survey-acceptance criteria as described in NACE SP0102-2010. Denbury's updated *O&M Procedure, O&M 0916, In-Line Inspections* (Revised: 10/13/2021) procedure was reviewed by PHMSA and determined to be adequate.

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 Compliance 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 Denbury Onshore, LLC maintain documentation of the safety improvement costs associated with fulfilling this Notice of Amendment (preparation/revision of plans, procedures) and submit the total to Mary L. McDaniel, Director, Southwest, Pipeline and Hazardous Materials Safety Administration. In correspondence concerning this matter, please refer to **CPF 4-2022-021-NOA** and, for each document you submit, please provide a copy in electronic format whenever possible.

Sincerely,

Mary L. McDaniel, P.E.
Director, Southwest Region
Pipeline and Hazardous Materials Safety Administration

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

cc: Chad Docekal, Regulatory Compliance Specialist, Denbury Inc., chad.docekal@denbury.com