ENMARK ENERGY, INC.

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January 28, 2014

Wayne T. Lemoi
Director, Office of Pipeline Safety
PHMSA Southern Region
233 Peachtree Street Ste. 600
Atlanta, GA 30303

CPF 2-2013-6013M

Dear Mr. Lemoi:

On August 12-15, 2013, representatives of the Pipeline and Hazardous Materials Safety Administration (PHMSA), Southern Region, Office of Pipeline Safety (OPS) inspected the Enmark Energy, Inc. (Enmark) Sandhill and Air Liquide Carbon Dioxide (CO_2) pipelines in Madison, Mississippi, pursuant to Chapter 601 of 49 United States Code. The following are proposed amended procedures that will address the apparent inadequacies that were determined during the subject inspection:

1. **§195.304 Test pressure.**
The test pressure for each pressure test conducted under this subpart must be maintained throughout the part of the system being tested for at least 4 continuous hours at a pressure equal to 125 percent, or more, of the maximum operating pressure and, in the case of a pipeline that is not visually inspected for leakage during the test, for at least an additional 4 continuous hours at a pressure equal to 110 percent, or more, of the maximum operating pressure.

Enmark's written O&M procedures in *Section 11 Maximum Allowable Operating Pressures: Establishment of MAOP/MOP Table 11-1* established one-hour as the pressure test duration for exposed pipe whereas a pressure test of at least 4 continuous hours at a pressure equal to or greater than 125 percent of the maximum operating pressure (MOP) is required when the pipeline can be visually inspected for leakage during the test.

Enmark's Amended Procedure
Enmark's O&M procedures in *Section 11-Maximum Allowable Operating Pressures Establishment of MAOP/MOP Table 11-1 (page 11-5)* was revised in order to incorporate the above comments. See attached revised *Section 11-Maximum Allowable Operating*

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Pressures Establishment of MAOP/MOP Table 11-1 (page 11-5).

2. **§195.401 General requirements.**
... (b) An operator must make repairs on its pipeline system according to the following requirements:
(1) *Non Integrity management repairs.* Whenever an operator discovers any condition that could adversely affect the safe operation of its pipeline system, it must correct the condition within a reasonable time. However, if the condition is of such a nature that it presents an immediate hazard to persons or property, the operator may not operate the affected part of the system until it has corrected the unsafe condition.

Enmark's written O&M procedures in *Section 50 Pipeline Maintenance Activities: Pipeline Repair Procedures and Documentation* (page 50-2) required that a pressure reduction be made when there is a danger to life or property but the procedures did not require that the pipeline not be operated if a condition presents an immediate hazard to persons or property. The procedures also incorrectly restricted these actions to pipelines operating at or above 40% of the specified minimum yield strength (SMYS).

Additionally, Enmark's written O&M procedures in *Section 50 Pipeline Maintenance Activities: Pipeline Repair Procedures and Documentation* (page 50-1) did not require that any condition that could adversely affect the safe operation of the pipeline must be corrected within a reasonable time. That is, while Enmark's O&M procedures required that *"Each segment of pipeline that becomes unsafe must be replaced, repaired or removed from service"* the procedures did not specify that Enmark must correct such a condition within a reasonable time. Moreover, the procedures were limited by only requiring *"...leaks or damage caused by external forces, or detected during routine inspection[s]"* to be repaired promptly.

Also, Enmark's procedures under *Permanent Field Repair of Leaks, Imperfections, and Damage* (pages 50-2 and 50-3) incorrectly limited serious defects and damage only to pipelines operating at or above 40% SMYS.

Enmark's Amended Procedure
Enmark's O&M procedures in *Section 50-Pipeline Maintenance Activities: Pipeline Repair Procedures and Documentation (pages 50-1 and 50-2)* was revised in order to incorporate the above comments. See attached revised *Section 50-Pipeline Maintenance Activities: Pipeline Repair Procedures and Documentation (pages 50-1 and 50-2).*

3. **§195.402 Procedural manual for operations, maintenance, and emergencies.**
... (c) The manual required by paragraph (a) of this section must include procedures for the following to provide safety during maintenance and normal operations:
... (3) Operating, maintaining, and repairing the pipeline system in accordance with each of the requirements of this subpart and subpart H of this part.
Enmark's pipelines transport CO_2, yet Enmark's written O&M procedures in *Section 53 Drainup and Line fill for Liquid Pipelines* did not address the purging and subsequent filling

of CO_2 pipelines during repairs.

Enmark's Amended Procedure

Enmark's O&M procedures in *Section 44 Pipeline Maintenance Activities: Purging and Filling of Natural Gas and CO_2 Pipelines (pages 44-1 and 44-2)* was revised in order to address the purging and subsequent filling of CO_2 pipelines during repairs. See attached revised *Section 44 Pipeline Maintenance Activities: Purging and Filling of Natural Gas and CO_2 Pipelines (pages 44-1 and 44-2).*

4. **§195.402 Procedural manual for operations, maintenance, and emergencies.**
... (c) The manual required by paragraph (a) of this section must include procedures for the following to provide safety during maintenance and normal operations:
... (7) Starting up and shutting down any part of the pipeline system in a manner designed to assure operation within the limits prescribed by paragraph §195.406, consider the hazardous liquid or carbon dioxide in transportation, variations in altitude along the pipeline, and pressure monitoring and control devices.

Enmark relies on personnel from its CO_2 supplier Denbury Onshore, LLC, (Denbury) and its downstream customers (Sandhill and Air Liquide) to open and close valves, and to take other actions to start up and shut down its pipelines. Enmark's written O&M procedures in *Section 13 Maximum Allowable Operating Pressures: MAOP/MOP,* however, provided only the general guidance Enmark would follow to start up and shut down its pipelines.

The procedures did not describe the actions that personnel from Denbury and the downstream customers would undertake to start up and shut down Enmark's pipelines nor did the procedures describe Enmark's own required actions relating to pipeline start up and shut down.

Enmark's Amended Procedure

Enmark's O&M procedures in *Section 13-Maximum Allowable Operating Pressures: MAOP/MOP (pages 13-2, 13-3, and 13-4)* was revised in order to address the above comments. See revised *Section 13-Maximum Allowable Operating Pressures: MAOP/MOP (pages 13-2, 13-3, and 13-4).*

5. **§195.402 Procedural manual for operations, maintenance, and emergencies.**
... (e) *Emergencies.* The manual required by paragraph (a) of this section must include procedures for the following to provide safety when an emergency condition occurs;
... (7) Notifying fire, police, and other appropriate public officials of hazardous liquid or carbon dioxide pipeline emergencies and coordinating with them preplanned and actual responses during an emergency, including additional precau7tions necessary for an emergency involving a pipeline system transporting a highly volatile liquid.

Enmark's written emergency procedures did not require the notification of fire departments or other emergency response agencies in case of an emergency.

Enmark's Amended Procedure

Enmark's Emergency procedures in *Section 3-Emergency Plan – Notice of Emergency (page 3-17)* was revised in order to address the above comments. See revised *Section 3-Emergency Plan – Notice of Emergency (page 3-17).*

6. **§195.402 Procedural manual for operations, maintenance, and emergencies.**
... (e) *Emergencies.* The manual required by paragraph (a) of this section must include procedures for the following to provide safety when an emergency condition occurs;
... (9) Providing for a post-accident review of employee activities to determine whether the procedures were effective in each emergency and taking corrective action where deficiencies are found.

Enmark's written O&M procedures in *Section 6 Incident/Accident Analysis* for the post-accident investigation addressed reviewing the cause of an accident but did not provide for a post- accident review of employee activities to determine whether the procedures were effective in the emergency and for taking corrective actions where deficiencies are found.

Enmark's Amended Procedure

Enmark's Emergency procedures in *Section 6-Incident/Accident Analysis (page 6-31)* was revised in order to address the above comments. See revised *Section 6-Incident/Accident Analysis (page 6-31).*

7. **§195.406 Maximum operating pressure.**
(a) Except for surge pressures and other variations from normal operations, no operator may operate a pipeline at a pressure that exceeds any of the following:
(1) The internal design pressure of the pipe determined in accordance with §195.106. However, for steel pipe in pipelines being converted under §195.5, if one or more factors of the design formula (§195.106) are unknown, one of the following pressures is to be used as design pressure:

Enmark's written O&M procedures in *Section 11 Maximum Allowable Operating Pressures: Establishment of MAOP/MOP* did not include the internal design pressure of the pipe when determining the MOP for its pipelines.

Enmark's Amended Procedure

Enmark's Emergency procedures *Section 11 Maximum Allowable Operating Pressures: Establishment of MAOP/MOP (page 11-4)* was revised in order to address the above comments. See revised *Section 6-Incident/Accident Analysis (page 11-4).*

8. **§195. 410 Line markers.**
(a) Except as provided in paragraph (b) of this section, each operator shall place and maintain line markers over each buried pipeline in accordance with the following:
(1) Markers must be located at each public road crossing, at each railroad crossing, and in sufficient number along the remainder of each buried line so that its location is accurately known.

Enmark's written O&M procedures in *Section 49 Pipeline Maintenance Activities: Line Markers for Transmission and Gathering Lines* required *"Pipeline markers ... to be installed over all Company pipelines at each crossing of a public road, railroad, and water crossing."* However, Enmark's procedures did not require that line markers be located in sufficient number along the remainder of its buried pipelines so that the location of these pipelines is accurately known.

Enmark's Amended Procedure

Enmark's Emergency procedures *Section 49 Pipeline Maintenance Activities: Line Markers for Transmission and Gathering Lines (page 49-1)* was revised in order to address the above comments. See revised *Section 49 Pipeline Maintenance Activities: Line Markers for Transmission and Gathering Lines (page 49-1)*

9. **§195. 555 What are the qualifications for supervisors?**
You must require and verify that supervisors maintain a thorough knowledge of that portion of the corrosion control procedures established under §195.402(c) (3) for which they are responsible for insuring compliance.

Enmark's written O&M procedures in *Section 75 Corrosion Control: Requirements: General* required that *"These procedures, including those for the design, installation, operation, and maintenance of cathodic protection systems, must be carried out or directed by qualified personnel who have demonstrated their knowledge in pipeline corrosion control methods through applicable training and experience."* Enmark's procedures, however, did not address how Enmark requires and verifies that supervisors maintain a thorough knowledge of that portion of the corrosion control procedures established under § 195.402(c)(3) for which they are responsible for insuring compliance.

Enmark's Amended Procedure

Enmark's Emergency procedures *Section 75 Corrosion Control Requirements: General (page 75-1)* was revised in order to address the above comments. See revised *Section 75 Corrosion Control Requirements: General (page 75-1).*

10. **§195. 569 Do I have to examine exposed portions of buried pipelines?**
Whenever you have knowledge that any portion of a buried pipeline is exposed, you must examine the exposed portion for evidence of external corrosion if the pipe is bare, or if the coating is deteriorated. If you find external corrosion requiring corrective action under §195.585, you must investigate circumferentially and longitudinally beyond the exposed portion (by visual examination, indirect method, or both) to determine whether additional corrosion requiring remedial action exists in the vicinity of the exposed portion.

Enmark's written O&M procedures in *Section 76 Corrosion Control: External Corrosion Control* did not require Enmark to investigate circumferentially and longitudinally beyond the exposed portion of a pipeline (by visual examination, indirect method, or both) to determine whether additional corrosion requiring remedial action exists in the vicinity of the exposed portion when external corrosion requiring corrective action under §195.585 was found on an

exposed buried pipeline.

Enmark's Amended Procedure
Enmark's Emergency procedures *Section 76 Corrosion Control: External Corrosion Control (page 76-2)* was revised in order to address the above comments. See revised *Section 76 Corrosion Control: External Corrosion Control (page 76-2).*

11. **§195. 571 What criteria must I use to determine the adequacy of cathodic protection? Cathodic protection required by this Subpart must comply with one or more of the applicable criteria and other considerations for cathodic protection contained in paragraphs 6.2 and 6.3 of NACE SP 0169 (incorporated by reference, see § 195.3).**

Enmark's written O&M procedures in *Section 76 Corrosion Control: External Corrosion Control* stated in *Levels of Cathodic Protection and Monitoring (192.463, 192.465, 195.571)* that *"While the 300 mV shift criteria and the Tafel slope of the E log I curve criteria are not currently being used by the Company, the Company reserves the right to reconsider the application of these criteria should the need arise."* This procedure did not make it clear that these two criteria (i.e. the 300 mV shift criteria and the Tafel slope of the E log I curve) are not acceptable for use on hazardous liquid pipelines regulated under Part 195 because they are not included in the criteria in paragraphs 6.2 and 6.3 of NACE SP 0169 (incorporated by reference, see §195.3).

Additionally, Enmark's written O&M procedures in *Section 76 Corrosion Control: External Corrosion Control* required that all voltage drops be considered in evaluating the cathodic protection (CP) with the protective current applied; however, the procedure did not address how Enmark would specifically consider or determine voltage drop.

Enmark's Amended Procedure
Enmark's Emergency procedures *Section 76 Corrosion Control: External Corrosion Control (page 76-5)* was revised in order to address the above comments. See revised *Section 76 Corrosion Control: External Corrosion Control (page 76-5).*

If you should have any questions, please contact me at your convenience. Thank you for your thorough inspection of our records. Pipeline Safety is extremely important to Enmark Energy, Inc.

Sincerely yours,

Connell Rader
President
Enmark Energy, Inc.

Enclosures
cc: Michael.Schwarzkopf@dot.gov (Via E-Mail)