



U.S. Department
of Transportation
**Pipeline and
Hazardous Materials
Safety Administration**

820 Bear Tavern Road, Suite 103
West Trenton, NJ 08628
609.771.7800

**NOTICE OF PROBABLE VIOLATION
and
PROPOSED COMPLIANCE ORDER**

OVERNIGHT EXPRESS DELIVERY

September 10, 2018

Mr. Eric Amundsen
Senior Vice President, Operations
Rover Pipeline, LLC
1300 Main Street
Houston, TX 77002

CPF 1-2018-1018

Dear Mr. Amundsen:

On January 25, March 19-22, May 8-11, June 18, 2018; a representative of the Pipeline and Hazardous Materials Safety Administration (PHMSA) pursuant to Chapter 601 of 49 United States Code (U.S.C.) inspected your Rover Pipeline Project in Ohio.

As a result of the inspection, it is alleged that you have committed probable violations of the Pipeline Safety Regulations, Title 49, Code of Federal Regulations (CFR). The items inspected and the probable violation(s) are:

- 1. § 192.243 Nondestructive testing.**
 - (b) Nondestructive testing of welds must be performed:**
 - (1) In accordance with written procedures; and**
 - (2) By persons who have been trained and qualified in the established procedures and with the equipment employed in testing.**

Rover Pipeline LLC (Rover), a subsidiary of Energy Transfer Interstate Holdings, LLC (Energy Transfer), failed to nondestructively test welds in accordance with its written procedures. Specifically, Rover failed to follow its procedure, Energy Transfer Welding

Standards Document No. 060 (ETWS.060) effective 02/01/2017, which describes the nondestructive examination (NDE) requirements for welds.

ETWS.060 Section 4 Nondestructive Examination, paragraph 4.3 NDE Frequency General/Auditing states in part (emphasis added):

...

- *If NDE is performed by the pipeline contractor or by a subcontractor hired by the contractor, **NDE auditing is required.***
 - *The requirements for NDE auditors are as follows:*
 - *NDE auditors shall be independent from the company providing NDE services.*
 - ***Auditors shall be a qualified RT or RTFI Level II or III.***
 - *Auditors shall have a valid acceptable near-visual acuity test certificate within the previous 12 month period.*
 - *The NDE auditor is appointed by the Company and has authority for final acceptance/rejection of NDE interpretation.*

...

In addition, Paragraph 4.6 Nondestructive Examination Procedures and Personnel states (emphasis added):

*Nondestructive examination of welds must be performed in accordance with written and qualified procedures **by persons who have been trained and qualified in the established procedures and with the equipment employed in the examination.** The method of examination shall be such that discontinuities that adversely affect the integrity of the weld are clearly indicated.*

NDE personnel shall:

- ***Be certified as Level II or III in the applicable inspection method in accordance with American Society for Nondestructive Testing, Recommended Practice SNT-TC-1A.***
- ***Provide copies of their current certifications.***
- *Have in their possession and be familiar with the applicable acceptance criteria as defined herein.*
- *Have in their possession and be familiar with Energy Transfer's current welding standards that apply to their scope of work.*

During follow-up investigation of a 12/17/2017 girth weld failure that occurred during post construction hydrostatic testing on the Sherwood Lateral – South test segment SW-7, the inspector noted that a project NDE film auditor responsible for 100% review of weld radiographs on the Rover Project Sherwood Lateral was not SNT TC-1A certified nor RT qualified in the applicable RT inspection method, as required by ETWS.060. Further investigation and follow-up with Rover noted that the operator was unable to produce any verifiable RT qualification experience for said auditor, and the operator immediately commenced remediation efforts. The finding prompted expanded information requests which resulted in identification of an additional 9 Rover Pipeline project NDE auditors not

meeting the requirements of ETWS.060. (see Exhibit A-01_Rover NDE Auditing Rev_1c_Rover Pipeline NDE Auditor Qualifications Memo_Revised_04062018).

Therefore, Rover failed to nondestructively test welds in accordance with its written procedures, and by persons who have been trained and qualified in the established procedures and with the equipment employed in testing, per the requirement of § 192.243.

2. § 192.303 Compliance with specifications or standards.

Each transmission line or main must be constructed in accordance with comprehensive written specifications or standards that are consistent with this part.

Rover failed to incorporate comprehensive written specifications or standards that are consistent with 49 CFR Part 192 during construction of the Rover Pipeline Project (Project) - specifically, the requirements prescribed in § 192.309 Repair of steel pipe.

Section 192.309 Repair of steel pipe states in part:

...

(b) Each of the following dents must be removed from steel pipe to be operated at a pressure that produces a hoop stress of 20 percent, or more, of SMYS, unless the dent is repaired by a method that reliable engineering tests and analyses show can permanently restore the serviceability of the pipe:

- (1) A dent that contains a stress concentrator such as a scratch, gouge, groove, or arc burn.
- (2) A dent that affects the longitudinal weld or a circumferential weld.
- (3) In pipe to be operated at a pressure that produces a hoop stress of 40 percent or more of SMYS, a dent that has a depth of:
 - (i) More than ¼ inch (6.4 millimeters) in pipe 12¾ inches (324 millimeters) or less in outer diameter; or
 - (ii) More than 2 percent of the nominal pipe diameter in pipe over 12 3/4 inches (324 millimeters)

...

During review of post construction caliper run data for the Project and associated construction standards titled Energy Transfer Engineering Standards—Interstate/Intrastate, Volume 4 Pipeline Construction, Effective Date 02/01/2017 the inspector noted that Rover failed to incorporate the code requirements for the disposition of dents meeting criteria prescribed under § 192.309 (b)(2) within its construction standards. Specifically, the construction standards failed to include a requirement for the removal or repair of any dent that affects the longitudinal weld or a circumferential weld.

Therefore, Rover failed to construct the Project in accordance with comprehensive written specifications or standards that are consistent with 49 CFR Part 192.

3. § 192.319 Installation of pipe in a ditch

- (a) **When installed in a ditch, each transmission line that is to be operated at a pressure producing a hoop stress of 20 percent or more of SMYS must be installed so that the pipe fits the ditch so as to minimize stresses and protect the pipe coating from damage.**

Rover failed to install portions of the Rover Pipeline Project (Project) in such a manner so as to minimize stresses and protect the pipe coating from damage by installing pipe under excessive axial, tensile or bending stresses.

During hydrostatic testing of the Project, Rover experienced 3 girth weld failures, two of which were attributable to large axial and/or residual stresses. Independent third party analysis concluded that improper installation practices were contributing factors to these failures.

The project experienced a girth weld failure on the Sherwood Lateral on December 18, 2017 at Station 648+94 in Tyler County WV. Rover's investigation into the failure included an independent metallurgical analysis by Det Norske Veritas Germanischer Lloyd (DNV GL). The DNV GL analysis concluded:

“The failure occurred primarily due to overload from hydrostatic stresses and relatively large axial stresses. Supporting evidence for the presence of relatively large axial stresses include various locations of necking around the circumference of the girth weld, a relatively large opening between the failed ends, cracks in the epoxy field girth weld coating, and the overload nature on the fracture surface. Possible contributing factors to relatively large axial stresses acting on girth welds include stresses associated with tie-in configurations, settlement, and overburden.”

The presence of large axial/residual stresses acting on the weld was also evident by a post failure photo noting extensive separation of pipe ends. Evidence of extensive stress induced coating damage was also captured in post incident analysis photos labeled as Figure 5 through 8, and 59 through 63 in the final DNV GL report.

The project also experienced a girth weld failure on the Burgettstown Lateral on January 15, 2018 at Station 2243+37 in Carrel County OH. Rover's investigation into the failure included an independent metallurgical analysis by DNV GL. The DNV GL analysis concluded:

Supporting evidence for the conclusion that the cause of the pre-existing crack was HACC include the location of the crack on the OD surface, adjacent to the toe of the weld, the high hardness and coarse grain/bainitic microstructure of the HAZ of the elbow near the weld toe; the large degree of weld misalignment following the failure, indicating possibly high residual stresses; and the use of cellulosic-coated electrodes. Hydrogen-assisted cold cracks most typically occur in the HAZ of girth welds in steels with high carbon equivalent (CE) values. The CE of the elbow fitting base metal was higher than the CE of the pipe material, but was at a level that typically indicates moderately good resistance to HACC. The external toe of the girth weld is a likely location for crack initiation because of the stress concentration associated with the toe and what could have been a high cooling rate,

which tends to promote the formation of crack-susceptible high-hardness microstructures. The weld misalignment, as well as a possible axial misalignment, could both be significant stress risers.

Evidence of extensive stress induced coating damage was also captured in post incident analysis photos detailed in the following except:

Figure 5 through Figure 9 are photographs of the external pipe surface at the U/S (failed) girth weld. The figures are sequential photographs around the circumference of the failure opening at the girth weld and show numerous circumferential cracks in the field applied girth weld coating, indicating there was significant deformation of the pipe prior to failure. The axial extent of the cracks is quite severe (several inches) near the ends of the failure opening and is less severe near the middle of the opening, between 8.8 (11: 11 orientation) and 1.6 (2:02 orientation) feet CW of TDC. Also indicated is the location of the top button of the girth weld in Figure 5, which is at the 9:00 orientation, and confirms that the weld was not completed in the ditch.

The project also experienced 3 additional girth weld failures (cracks) during remediation efforts stemming from PHMSA findings associated with non-conformance with API-1104. The three welds identified as CGTI0011JJ, SWTI0219V and SWML5233D cracked subsequent the removal of a portion of original weld metal to facilitate repairs, and prior to deposit of new weld metal. Two of the three welds involved tie-in welds, with one (SWTI0219V) requiring approximately 300' of mainline excavation to facilitate proper alignment and a stress-free installation of a short replacement section. These occurrences also suggest that very high external tensile or bending stress may have been introduced at the time of installation on the Project and as the weld cross-section was reduced by grinding during repair efforts, localized stress is increased.

Further analysis of the Project caliper tool data by the PHMSA inspector noted uninvestigated instances where the tool vendor identified pipe sections that appeared to be experiencing undue stress. As a result, Rover conducted an analysis and selected two locations for re-excavation. Confirmation Dig SWFB0307E noted cracking that was limited to the girth weld coating only and the result of stress exerted on the pipe. It was determined that the pipe was being forced against a ditch bank comprised of rock with enough force to produce ovality. Per the operator, a rock hammer was brought in and the ditch sides and bottom were excavated away to allow the pipe to rest in a neutral position in the ditch.

Therefore, Rover failed to install pipe in such a manner so as to minimize stresses and protect the pipe coating from damage.

Proposed Compliance Order

Under 49 U.S.C. § 60122 and 49 CFR § 190.223, you are subject to a civil penalty not to exceed \$209,002 per violation per day the violation persists, up to a maximum of \$2,090,022 for a related series of violations. For violations occurring prior to November 2, 2015, the maximum penalty may not exceed \$200,000 per violation per day, with a maximum penalty not to exceed \$2,000,000

for a related series of violations. We have reviewed the circumstances and supporting documents involved in this case, and have decided not to propose a civil penalty assessment at this time.

With respect to items 1, 2 & 3 pursuant to 49 U.S.C. § 60118, the Pipeline and Hazardous Materials Safety Administration proposes to issue a Compliance Order to Rover Pipeline, LLC. Please refer to the *Proposed Compliance Order*, which is enclosed and made a part of this Notice.

Response to this Notice

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, or request a hearing under 49 CFR § 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 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. This period may be extended by written request for good cause.

Please submit all correspondence in this matter to Robert Burrough, Director, PHMSA Eastern Region, 820 Bear Tavern Road, Suite 103, West Trenton, New Jersey 08628. Please refer to **CPF 1- 2018-1018** on each document you submit, and whenever possible provide a signed PDF copy in electronic format. Smaller files may be emailed to robert.burrough@dot.gov. Larger files should be sent on a CD accompanied by the original paper copy to the Eastern Region Office.

Additionally, if you choose to respond to this (or any other case), please ensure that any response letter pertains solely to one CPF case number.

Sincerely,



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

Enclosures: *Proposed Compliance Order*
Response Options for Pipeline Operators in Compliance Proceedings

PROPOSED COMPLIANCE ORDER

Pursuant to 49 U.S.C. § 60118, the Pipeline and Hazardous Materials Safety Administration (PHMSA) proposes to issue to Rover Pipeline, LLC (Rover) a Compliance Order incorporating the following remedial requirements to ensure the compliance of Rover with the pipeline safety regulations:

1. With respect to Item Number 1 of the Notice pertaining to Rover's failure to perform NDE in accordance with written procedures and by persons who have been trained and qualified in the established procedures and with the equipment employed in testing, Rover shall complete at a minimum, the following actions:
 - a. For all weld radiographs that were the responsibility of the two unqualified NDE auditors identified under Mitigation Proposal Paragraph 4 of Exhibit A-01, a 100% re-audit of said weld radiographs, totaling 9117, shall be completed by independent and appropriately certified Level II or III personnel in accordance with recommended practice ASNT SNT-TC-1A and ETWS.060.
 - b. For all weld radiographs that were the responsibility of the 5 improperly qualified NDE auditors identified under Mitigation Proposal Paragraph 3 of Exhibit A-01, a 10% re-audit of weld radiographs each auditor was responsible for, totaling 385, shall be completed by independent and appropriately certified Level II or III personnel in accordance with recommended practice ASNT SNT-TC-1A and ETWS.060. The 10% sampling and re-audit shall, at minimum, include film produced by each NDE Rig operating on the Spreads that each NDE auditor was responsible for.
 - c. For all weld radiographs that were the responsibility of the 3 industry qualified NDE auditors not meeting ETWS.060 requirements identified under Mitigation Proposal Paragraph 2 of Exhibit A-01, a 10% re-audit of weld radiographs each auditor was responsible for, totaling 419, shall be completed by independent and appropriately certified Level II or III personnel in accordance with recommended practice ASNT SNT-TC-1A and ETWS.060. The 10% sampling and re-audit shall, at minimum, include film produced by each NDE Rig operating on the Spreads that each NDE auditor was responsible for.
 - d. For all overturned calls made by the NDE auditors covered under Mitigation Proposal Paragraph 5 of Exhibit A-01, a 100% re-audit of said weld radiographs, totaling 31, shall be completed by independent and appropriately certified Level II or III personnel in accordance with recommended practice ASNT SNT-TC-1A and ETWS.060.
 - e. Within 30 days of the issuance of the Final Order, provide a written plan addressing implementation of the compliance order, including NDE auditor original weld counts, specified re-audit sample sizes, and results. A protocol detailing the process for final disposition of any rejects and/or remedial action required by 49 CFR 192 as a result of re-audit findings shall be included.
2. With respect to Item Number 2 of the Notice pertaining to Rover's failure to construct the Project in accordance with comprehensive written specifications or standards that are consistent with 49 CFR Part 192, specifically § 192.309(b)(2), Rover shall complete at a minimum, the following actions:

- a. Conduct a re-examination of all caliper run data and corresponding records for the entire Rover Pipeline Project to determine if any instances of dents affecting longitudinal (seam) or circumferential (girth welds) exist, and if so, expedite remediation in accordance with 192.309.
 - b. Revise Rover/Energy Transfer Construction Standard - Volume 4 accordingly to ensure it is consistent with the requirements of § 192.309(b)(2). Revised procedures and standards shall be provided to Director, Eastern Region for review and approval within 60 days of issuance of the Final Order.
3. With respect to Item Number 3 of the Notice pertaining to Rover's failure to install pipe in such a manner so as to minimize stresses and protect the pipe coating from damage, Rover shall complete at a minimum, the following actions:
- a. Conduct a re-examination and evaluation of all caliper run data and records for the Rover Pipeline Project to determine locations where newly constructed pipe may have been installed with undue stress. Investigation shall include field evaluations and remediation as necessary. Emphasis should be placed on areas highlighted by tool vendor, tie-ins welds, bends, offsets and areas where pipe is suspected of improperly fitting the ditch.
 - b. Within 270 days of commissioning of segments of the Project, run an ILI tool with longitudinal MFL, Deformation, and Inertial Mapping (IMU) capability in effort to more accurately identify potential overstress areas that may warrant further investigation. Any identified locations shall be remediated as necessary, and a detailed work plan and schedule shall be submitted to Director, Eastern Region within 30 days of discovery.
4. For any Rover Project pipeline segment or lateral affected by Items 1, 2, or 3 of this order which has not been placed into service at the time of receipt of this notice shall have its commissioning delayed until such time the re-audit is complete, results are submitted and any actionable findings under 49 CFR 192 have been remediated.
5. Except for Item 3 (b), all items under this order shall be completed within 90 days of the issuance of the Final Order, unless otherwise directed above.
6. All documentation demonstrating compliance with each of the items outlined in this Compliance Order must be submitted to Robert Burrough, Director, Eastern Region, PHMSA, Bear Tavern Road, Suite 103, West Trenton, NJ 08628.
7. It is requested (not mandated) that Rover maintain documentation of the safety improvement costs associated with fulfilling this Compliance Order and submit the total to Robert Burrough, Director, Eastern Region, Pipeline and Hazardous Materials Safety Administration. It is requested that these costs be reported in two categories: 1) total cost associated with preparation/revision of plans, procedures, studies and analyses, and 2) total cost associated with replacements, additions and other changes to pipeline infrastructure.