

DOT U.S. Department of Transportation
PHMSA Pipeline and Hazardous Materials Safety Administration
OPS Office of Pipeline Safety
Eastern Region

Principal Investigator Michael Yazemboski
Senior Accident Investigator Michael Yazemboski
Region Director Byron E. Coy
Date of Report 2/24/2016
Subject Failure Investigation Report—Enterprise Products Operating, LLC:
ATEX Ethane Pipeline Failure, Follansbee, West Virginia

Operator, Location, & Consequences

Date of Failure 1/26/2015
Commodity Released Ethane
City/County & State Follansbee, Brook County, West Virginia
OpID & Operator Name 31618 Enterprise Products Operating, LLC
Unit # & Unit Name 3051 Greensburg
SMART Activity # 149469
Milepost/Location Latitude: 40.366817, Longitude: -80.584594
Type of Failure Girth Weld Failure Caused by Ductile Tensile Overload
Fatalities 0
Injuries 0
Description of area impacted Non-HCA
Total Costs \$6,910,591

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ATEX Ethane Pipeline Failure
Follansbee, Brook County, West Virginia
[Failure Date 1/26/2015]

Executive Summary

On January 26, 2015, an accident occurred on the Enterprise Products ATEX-1 20-inch nominal pipe size (NPS) pipeline resulting in the release of approximately 30,565 barrels of liquid ethane in a rural, wooded, non-high consequence area (HCA) area near Follansbee, West Virginia. The ATEX-1 pipeline is approximately 1,265 miles long and transports product from Washington County, Pennsylvania, to Mont Belvieu, Texas (ATEX-1). The accident occurred on a 255-mile section of ATEX-1 that runs from Washington County, Pennsylvania, to Seymour, Indiana. The Pipeline and Hazardous Materials Safety Administration’s (PHMSA) Office of Pipeline Safety (OPS) initiated an investigation on January 26, 2015, determining that the accident was caused by a girth weld failure due to a ductile tensile overload from stresses resulting from the weight of the surrounding soil. As a result, on January 29, 2015, OPS issued a Corrective Action Order (CAO) (CPF 1-2015-5002H) requiring Enterprise to take certain corrective actions pertaining to the safety and remediation of the ATEX-1 pipeline system. An Amended Corrective Action Order (ACAO) was issued on March 12, 2015. There were no injuries, deaths, or extensive property damage associated with this accident; however, fire from the rupture burned approximately 5 acres of woodlands and damaged the siding on one home located approximately 2,000 feet from the failure location. Enterprise reported the failure to the National Response Center on January 26, 2015, at 11:38 a.m. CST.



System Details

The ATEX-1 pipeline originates in Washington County, Pennsylvania, and is connected to four fractionators in the Marcellus/Utica shale plays: the MarkWest Houston plant in Pennsylvania, the Cadiz plant in Ohio, the Blue Racer Natrium plant in West Virginia, and the Utica East Ohio Scio plant in Ohio. The ATEX-1 pipeline has a capacity of 125,000 barrels per day (bpd), expandable to approximately 265,000 bpd. The ATEX-1 line terminates at Enterprise’s complex in Mont Belvieu, Texas, which includes over 100 million barrels of natural gas liquid (NGL) and petroleum liquid storage capacity, more than 750,000 bpd of fractionation capacity, and an extensive NGL distribution system.



The failure occurred near milepost (MP) 23.1 on Enterprise’s ATEX-1 20-inch NPS pipeline segment in West Virginia. This section of the ATEX-1 pipeline is part of the Greensburg-PA/WV unit, originating at the MarkWest Processing facility in Houston, Pennsylvania, and running west through West Virginia. The total length of the ATEX-1 line in the Greensburg-PA/WV unit is approximately 26 miles. The ATEX-1 Greensburg Unit passes through Washington County



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in Pennsylvania and Brooke and Hancock Counties in West Virginia, terminating at the Ohio/West Virginia state line (Appendix A, map 4).

Events Leading up to the Failure

The operating pressure at the time of failure was 1,183 psig, which was below the maximum operating pressure (MOP) of 1,440 psig for the affected segment.¹ On January 26, 2015, at approximately 9:38 a.m. CST, Enterprise’s control room observed a sudden pressure drop on its supervisory control and data acquisition (SCADA) screens, indicating a possible failure on the ATEX-1 pipeline near MP 23.1.

Emergency Response

Upon identifying a sudden pressure drop on the ATEX-1 Line, Enterprise’s control room began closing the automated block valves (Motor Operated Valve (MOV)-(b) (7)(F)) and MOV-(b) (7)(F) to isolate the segment. The control room then notified Enterprise field personnel, who responded by manually closing mainline block valves (MLV)-(b) (7)(F)) and MLV-(b) (7)(F) to further restrict product flow. A detailed map showing the ATEX-1 line and the location of valves can be found in Appendix A, map 4. Immediately after the accident, Line A-1, an 8-inch NPS propane line located in the vicinity of the rupture site, was also isolated as a precaution. It was later determined that Line A-1 was not impacted by the fire or explosion due to its location several hundred feet from the failure site (Appendix A, map 3). Line A-1 was later returned to normal service.



The fire departments in Wellsburg, West Virginia, and Follansbee, West Virginia, responded to incident, evacuating a nearby residence approximately 2,000 feet from the site and closing Lee Road and Scott Hollow Road to vehicle traffic. The residence suffered external damage to its siding due to radiant heat caused by the fire (Appendix A). The resulting explosion and fire from the rupture burned approximately 5 acres of woodland and damaged overhead powerlines located in the vicinity of the rupture (Appendix A). There were no reported injuries, fatalities, or permanent evacuations. A detailed timeline of events can be found in Appendix E.

Summary of Return-to-Service

On January 29, 2015, PHMSA issued a CAO requiring Enterprise to take certain corrective actions to verify the safety and integrity of the ATEX-1 Pipeline. An ACAO was later issued on March 12, 2015. The requirements of the order included the following elements (details of which are outlined in the order):

1. Repair Plan
2. Restart Plan
3. Contingency Plan (Operating and Monitoring of the Pipeline During Startup)
4. Records Verification (Confirmation of Maximum Operating Pressure)
5. Review of Prior In-line inspection (ILI) Results

¹ The term “Affected Segment” means the segment that runs from the MarkWest Processing Facility in Houston, Pennsylvania, to Seymour, Indiana.

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6. Mechanical and Metallurgical Testing
7. Root Cause Failure Analysis
8. Emergency Response Plan and Training Review
9. Public Awareness Program Review
10. Remedial Work Plan (RWP)

Repair and remediation work at the site was performed in accordance with Enterprise’s Repair Plan (Appendix I). Replacement pipe was installed and the damaged segments of pipe were removed and sent to Kiefner and Associates for metallurgical analysis (Appendix D).

On February 14, 2015, the ATEX pipeline section stretching from Houston, Pennsylvania, to the Ohio River resumed operations at a reduced MOP of 947 psig (20% pressure reduction from 1,183 psig at the time of the incident) in accordance with the PHMSA-approved Restart Plan submitted by Enterprise (Appendix H). Following the restart of the line, a series of ILI tools were run in accordance with the PHMSA-approved RWP submitted by Enterprise (Appendix G).

Enterprise completed analysis of the data, including bending strain across all segments, on August 14, 2015. All necessary excavations were completed on August 28, 2015. PHMSA conducted numerous on-site inspections throughout the course of the work to ensure that all requirements of the RWP were completed.

On September 8, 2015, PHMSA approved removal of the ACAO-initiated pressure restriction, and the ATEX-1 pipeline was permitted to return to 100% MOP.

Investigation Details

1. The ATEX-1 pipeline was placed into service on November 25, 2013.
2. The pipeline transports liquid ethane.
3. The line is 20-inch NPS, 0.312-inch wall thickness, API 5L X-70, high-frequency electric resistance welded pipe manufactured by American Pipe.
4. The pipe was externally coated with fusion bonded epoxy and protected since construction by an impressed current cathodic protection system.
5. Historical operation and maintenance records were reviewed during the investigation. There were no reported maintenance issues, incidents, or repairs made to the pipeline since it was placed in service.
6. Prior integrity assessments consisted of the original post-construction hydrostatic test and post-construction caliper ILI.
7. The MOP of the pipeline in the affected segment is 1,440 psig, as established by hydrostatic testing in 2013.
8. The explosion and fire that resulted from the pipeline rupture burned approximately 5 acres of woodlands. However, there was no impact to waterways due to the rapid vaporization of the liquid ethane, and the area is not considered an HCA.
9. Immediately after the accident, Line A-1, an 8-inch NPS propane line located in the vicinity of the rupture site, was also isolated as a precaution. It was later determined that Line A-1 was not impacted by the fire or explosion due to its location several hundred feet from the failure site (Appendix A, map 3). Line A-1 was later returned to normal service.
10. A nearby 6-inch NPS pipeline, Line A3, has been idle since 1972 and is not currently in operation.

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11. Prior to the failure, SCADA pressure records showed the MOP of the line was not exceeded. Operating pressure at the time of failure was 1,183 psig, below the MOP of 1,440 psig.
12. PHMSA reviewed the adequacy of emergency response related to the release, as well as applicable procedures pertaining to construction, operations, and maintenance of the ATEX-1 pipeline. No issues were identified.
13. Samples of the affected pipe were removed and sent to Kiefner for metallurgical analysis and testing. These samples included the upstream and downstream girth welds, upstream and downstream pipe joints, and 2 feet of the pipe immediately upstream and downstream of the failure location. Results of the testing and examination are outlined in Appendix D of this report.
14. A survey of the failure site comparing the elevation of the pipeline at the failure location to the as-built map elevations was conducted during the excavation and remediation process. The survey indicated that the pipe had dropped more than 3 feet since the line was originally constructed. A geotechnical survey conducted by Pennsylvania Soil and Rock determined that the failed pipe was installed across a transition area or “head wall” of an old underground mine and surface strip mine. In addition, the soil on which the pipeline was laid had undergone little consolidation since the mining was completed. Details of the geotechnical survey analysis can be found in the Enterprise Remedial Work Plan (Appendix G).
15. Depth of cover at the failure site was approximately 12 feet.
16. There were multiple complex bends near the failure location.
17. Buoyancy control weights were installed in the vicinity of the failure site during the original construction of the pipeline (Appendix A, photo 7).
18. The explosion and fire that resulted from the pipeline rupture burned approximately 5 acres of woodlands and damaged high tension power lines near the failure site (Appendix A, photo 2).
19. Due to the rapid vaporization of the liquid ethane there was no impact to waterways.
20. Approximately 30,565 barrels of liquid ethane were released.

Findings and Contributing Factors

Findings:

Metallurgical testing of the failed pipe section was conducted by Kiefner and Associates, and showed that the accident was caused by a girth weld failure due to a ductile tensile overload from stresses resulting from loads imposed by the surrounding soil. The data also indicated that the intact upstream and downstream girth welds met the quality requirements and mechanical properties of API 1104. The mechanical properties of the pipe joints immediately adjacent to the rupture location, as well as the next pipe joints upstream and downstream, also met the chemical and mechanical properties for Grade X70 pipe (Appendix D).

Contributing Factors:

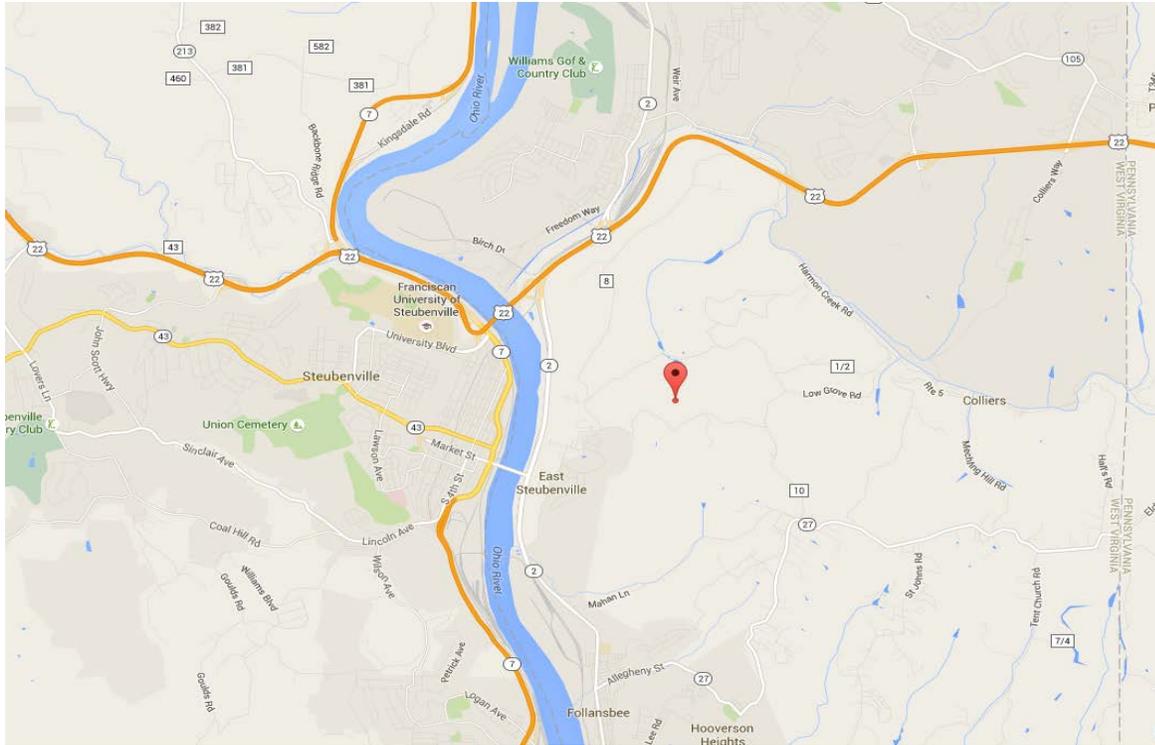
Previous mining activities were a contributing factor to the failure. The pipeline settlement in the failure location was likely caused by the consolidation of existing surface mine spoils during construction, added cover, and the placement of buoyancy control measures on the pipe.

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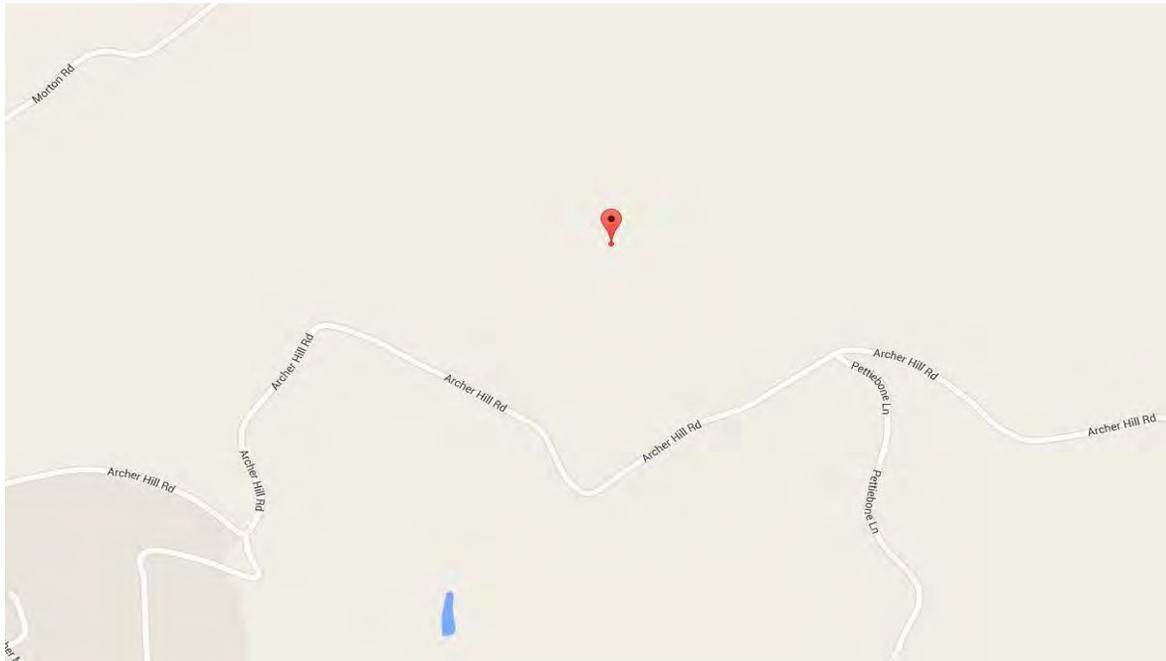
Appendices

- A 149469 Appendix A—Maps and Photographs
- B 149469 Appendix B—NRC Report 1106602
- C 149469 Appendix C—Incident Report Form 7000.1
- D 149469 Appendix D—Metallurgical Analysis Report
- E 149469 Appendix E—Timeline of Events
- F 149469 Appendix F—Amended CAO—CPF120155002H
- G 149469 Appendix G—ATEX Remedial Work Plan
- H 149469 Appendix H—ATEX Restart Plan
- I 149469 Appendix I—ATEX Repair Plan

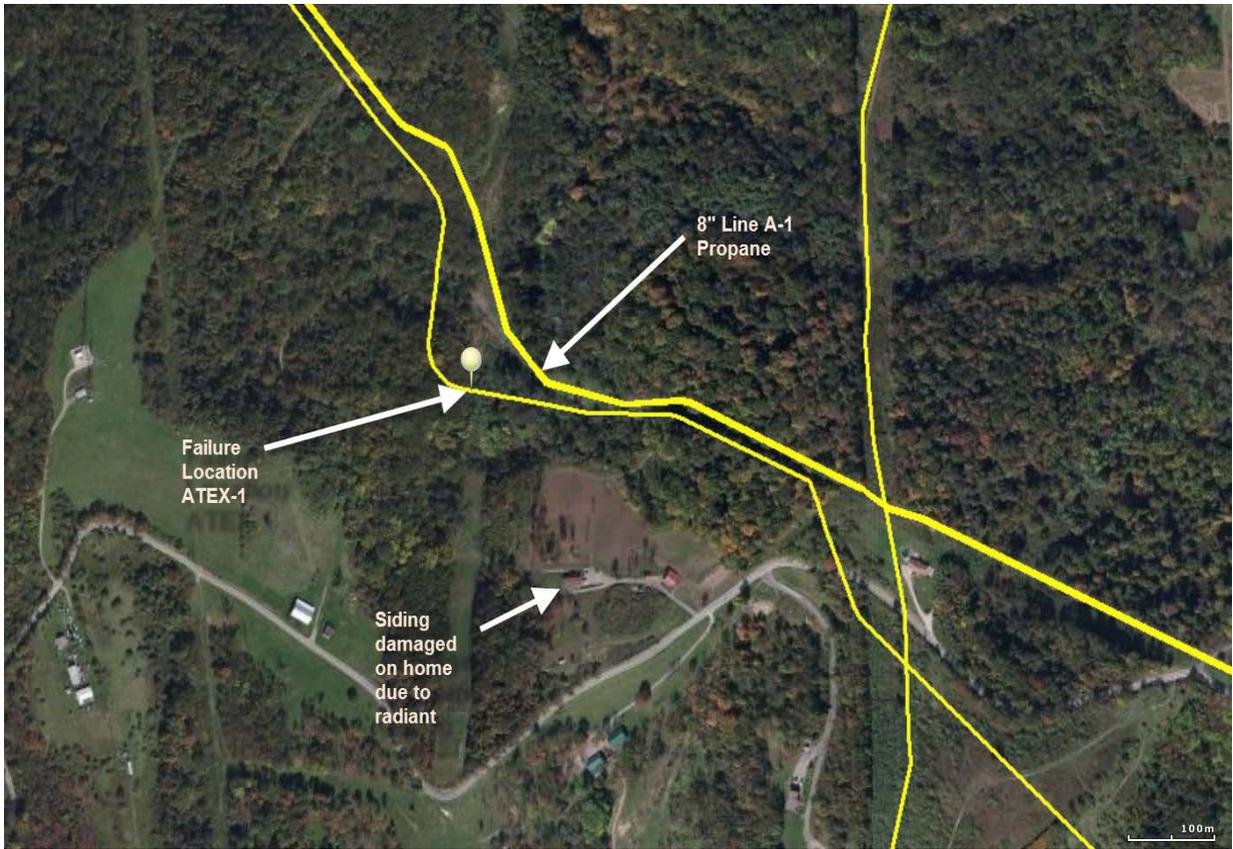
149469 Appendix A_Maps and Photographs



Map-1

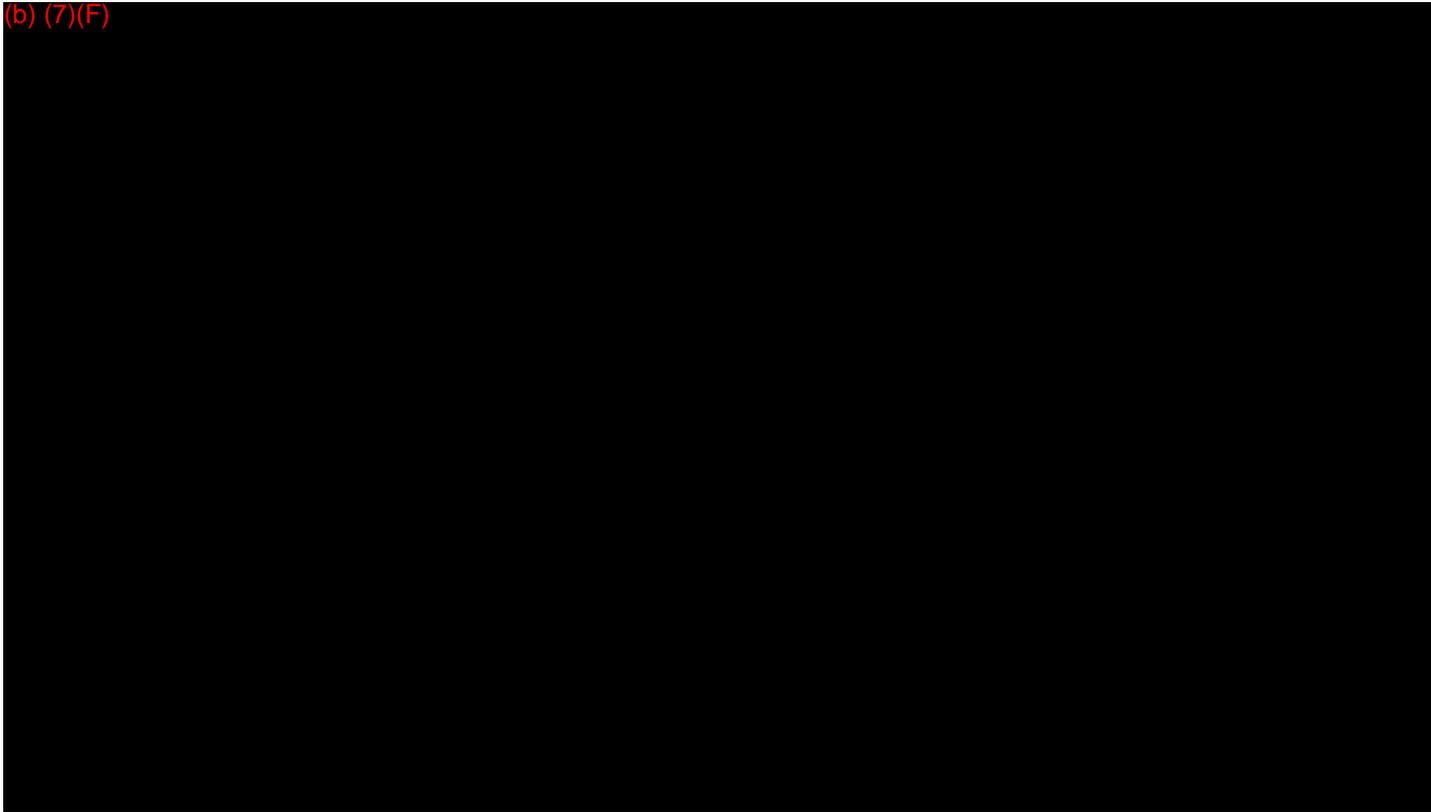


Map-2



Map-3

(b) (7)(F)



Map-4 : Atex-1 Pipeline





Photo 1 : (Jan 26, 2015)

The explosion and fire that resulted from the pipeline rupture burned approximately 5 acres of woodlands. There was no impact to waterways due to the rapid vaporization of the liquid ethane.



Photo 2 – (Jan 26, 2015)

Power lines were damaged in the right-of-way that crosses the Atex-1 pipeline.



Photo 3 – (Jan 26, 2015)

Siding damaged from residual heat. This home is located approximately 2000 feet from the rupture site.



Photo 4 – (Jan 27, 2015)

Rupture site.



Photo 5 – (Jan 27, 2015)



Photo 6 – (Feb 1, 2015)

Excavating the pipe.

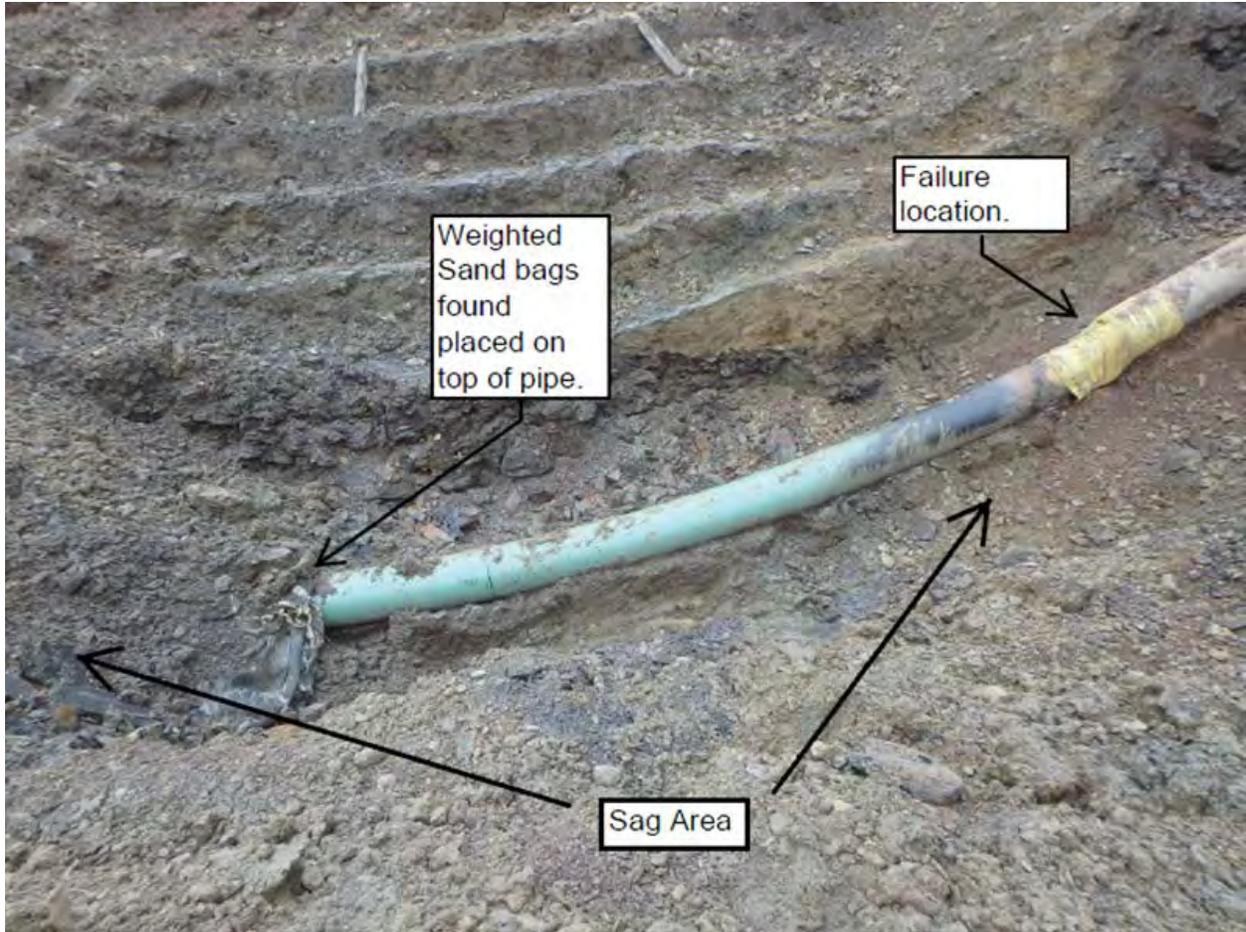


Photo 7 – (Feb 2, 2015)

Photo shows failure location wrapped with rock shield to protect the pipe ends during excavation. Weighted buoyancy control bags are shown on the pipe.



Photo 8 –(Feb 3, 2015)

Removal of ruptured pipe.



Photo 9 – (Feb 3, 2015)

Ruptured pipe section removed including upstream and downstream welds. Pipe and welds sent for metallurgical testing.



Photo 10 - (Feb 5, 2015)

Installing replacement pipe section.

Yazemboski, Mike (PHMSA)

From: HQS-PF-flidr-NRC@uscg.mil
Sent: Monday, January 26, 2015 11:44 AM
To: PHP Accident/Incident Cadre <PHMSA>; CMC-01 (OST)
Subject: NRC#1106602

NATIONAL RESPONSE CENTER 1-800-424-8802

GOVERNMENT USE ONLYGOVERNMENT USE ONLY***

Information released to a third party shall comply with any applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 1106602

INCIDENT DESCRIPTION

*Report taken by: E5 RUSSELL POST at 11:38 on 26-JAN-15
Incident Type: PIPELINE
Incident Cause: UNKNOWN
Affected Area:
Incident was discovered on 26-JAN-15 at 09:38 local incident time.
Affected Medium: AIR / ATMOSPHERE

REPORTING PARTY

Name: ROBIN VANDER
Organization: ENTERPRISE PRODUCTS PIPELINE
Address: 9420 W. SAM HOUSTON PKWY NORTH
HOUSTON, TX 77064

PRIMARY Phone: (281)8872641
Type of Organization: PRIVATE ENTERPRISE

SUSPECTED RESPONSIBLE PARTY

Name: ROBIN VANDER
Organization: ENTERPRISE PRODUCTS PIPELINE
Address: 9420 W. SAM HOUSTON PKWY NORTH
HOUSTON, TX 77064
PRIMARY Phone: (281)8872641

INCIDENT LOCATION

ARCHER HILL RD County: BROOKE
City: FOLLANASBEE State: WV

RELEASED MATERIAL(S)

CHRIS Code: ETH Official Material Name: ETHANE
Also Known As:
Qty Released: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT **149169 Appendix B_NRC Report 1106602**

CALLER STATED THAT THEY DISCOVERED A PRESSURE DROP IN A PIPELINE THEN RECEIVED A CALL FROM 9-1-1 ABOUT AN INCIDENT IN ANOTHER AREA. THE CALLER STATED THAT THERE WAS A RELEASE OF AN UNKNOWN AMOUNT OF ETHANE INTO THE ATMOSPHERE.

SENSITIVE INFORMATION

INCIDENT DETAILS

Pipeline Type: TRANSMISSION
DOT Regulated: YES
Pipeline Above/Below Ground: BELOW
Exposed or Under Water: NO
Pipeline Covered: UNKNOWN

IMPACT

Fire Involved: YES Fire Extinguished: UNKNOWN

INJURIES: NO Hospitalized: Empl/Crew: Passenger:
FATALITIES: NO Empl/Crew: Passenger: Occupant:
EVACUATIONS:NO Who Evacuated: Radius/Area:

Damages: NO

Closure Type	Description of Closure	Hours Closed	Direction of Closure
N			
Air:			
Y	UNKNOWN ROADS		Major
Road:			Artery:N
N			
Waterway:			
N			
Track:			

Environmental Impact: UNKNOWN

Media Interest: UNKNOWN Community Impact due to Material:

REMEDIAL ACTIONS

THE LINE WAS BLOCKED OFF.
Release Secured: YES
Release Rate:
Estimated Release Duration:

WEATHER

Weather: UNKNOWN, °F

ADDITIONAL AGENCIES NOTIFIED

Federal:

State/Local:

State/Local On Scene:

State Agency Number:

NOTIFICATIONS BY NRC

CENTERS FOR DISEASE CONTROL (GRASP)

26-JAN-15 11:43 (770)4887100

CG INVESTIGATIVE SERVICE BALTIMORE (MAIN OFFICE)

26-JAN-15 11:43 (410)5762555

CGIS RAO ST. LOUIS (COMMAND CENTER)

26-JAN-15 11:43 (314)2692420

DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)

26-JAN-15 11:43 (202)3661863

DOT OFFICE OF INSPECTOR GENERAL (OFFICE OF INVESTIGATORS)

26-JAN-15 11:43 (202)3295487

U.S. EPA III (MAIN OFFICE)

(215)8143255

USCG NATIONAL COMMAND CENTER (MAIN OFFICE)

(202)3722100

NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)

26-JAN-15 11:43 (202)2829201

NOAA RPTS FOR WV (MAIN OFFICE)

26-JAN-15 11:43 (206)5264911

NATIONAL RESPONSE CENTER HQ (MAIN OFFICE)

(202)2671136

NATIONAL RESPONSE CENTER HQ (AUTOMATIC REPORTS)

26-JAN-15 11:43 (202)2671136

NTSB PIPELINE (MAIN OFFICE)

26-JAN-15 11:43 (202)3146293

ORSANCO (MAIN OFFICE)

26-JAN-15 11:43 (513)2317719

PA STATE POLICE (BUREAU OF CRIMINAL INVESTIGATION)

26-JAN-15 11:43 (717)5255260

PIPELINE & HAZMAT SAFETY ADMIN (OFFICE OF PIPELINE SAFETY (AUTO))

26-JAN-15 11:43 (202)3660568

SECTOR OHIO VALLEY (COMMAND CENTER)

26-JAN-15 11:43 (502)7795424

SECTOR OHIO VALLEY (MSU PITTSBURGH AUTOMATICS)

26-JAN-15 11:43 (412)6445808

OFFICE OF ENV. POLICY & COMPLIANCE (MAIN OFFICE)

26-JAN-15 11:43 (215)5975012

OH EPA ATTN: DUTY OFFICER (MAIN OFFICE)

26-JAN-15 11:43 (614)2240946

PA EMERG MGMT AGCY (MAIN OFFICE)

26-JAN-15 11:43 (717)6512001

USCG DISTRICT 8 (MAIN OFFICE)

26-JAN-15 11:43 (504)5896225

WEST VIRGINIA DEP (MAIN OFFICE)

26-JAN-15 11:43 (304)5585938

WV DEP ATTN: DUTY OFFICER (MAIN OFFICE)

26-JAN-15 11:43 (800)6423074

WV DEP SPILL LINE (MAIN OFFICE) **149469 Appendix B_NRC Report 1106602**

26-JAN-15 11:43 (304)3683960

WV INTELLIGENCE/FUSION CENTER (COMMAND CENTER)

26-JAN-15 11:43 (304)5584831

ADDITIONAL INFORMATION

*** END INCIDENT REPORT #1106602 ***

Report any problems by calling 1-800-424-8802

PLEASE VISIT OUR WEB SITE AT <http://www.nrc.uscg.mil>

149469 Appendix C Incident Report Form 7000.1

NOTICE: This report is required by 49 CFR Part 195. Failure to report can result in a civil penalty not to exceed \$100,000 for each violation for each day that such violation persists except that the maximum civil penalty shall not exceed \$1,000,000 as provided in 49 USC 60122.		OMB NO: 2137-0047 EXPIRATION DATE: 07/31/2015
 U.S Department of Transportation Pipeline and Hazardous Materials Safety Administration	Original Report Date:	02/24/2015
	No.	20150071 - 20723 ----- (DOT Use Only)

ACCIDENT REPORT - HAZARDOUS LIQUID PIPELINE SYSTEMS

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2137-0047. All responses to the collection of information are mandatory. Send comments regarding this burden or any other aspect of this collection of information, including suggestions for reducing the burden to: Information Collection Clearance Officer, PHMSA, Office of Pipeline Safety (PHP-30) 1200 New Jersey Avenue, SE, Washington, D.C. 20590.

INSTRUCTIONS

Important: Please read the separate instructions for completing this form before you begin. They clarify the information requested and provide specific examples. If you do not have a copy of the instructions, you can obtain one from the PHMSA Pipeline Safety Community Web Page at <http://www.phmsa.dot.gov/pipeline/library/forms>.

PART A - KEY REPORT INFORMATION

Report Type: (select all that apply)	Original:	Supplemental:	Final:
		Yes	
Last Revision Date:	09/08/2015		
1. Operator's OPS-issued Operator Identification Number (OPID):	31618		
2. Name of Operator	ENTERPRISE PRODUCTS OPERATING LLC		
3. Address of Operator:			
3a. Street Address	1100 Louisiana Street		
3b. City	HOUSTON		
3c. State	Texas		
3d. Zip Code	77002		
4. Local time (24-hr clock) and date of the Accident:	01/26/2015 09:38		
5. Location of Accident:			
Latitude:	40.366817		
Longitude:	-80.584594		
6. National Response Center Report Number (if applicable):	1106602		
7. Local time (24-hr clock) and date of initial telephonic report to the National Response Center (if applicable):	01/26/2015 11:38		
8. Commodity released: (select only one, based on predominant volume released)	HVL or Other Flammable or Toxic Fluid which is a Gas at Ambient Conditions		
- Specify Commodity Subtype:	Other HVL		
- If "Other" Subtype, Descr be:	Ethane		
- If Biofuel/Alternative Fuel and Commodity Subtype is Ethanol Blend, then % Ethanol Blend:			
- If Biofuel/Alternative Fuel and Commodity Subtype is Biodiesel, then Biodiesel Blend e.g. B2, B20, B100			
9. Estimated volume of commodity released unintentionally (Barrels):	30,565.00		
10. Estimated volume of intentional and/or controlled release/blowdown (Barrels):			
11. Estimated volume of commodity recovered (Barrels):			
12. Were there fatalities?	No		
- If Yes, specify the number in each category:			
12a. Operator employees			
12b. Contractor employees working for the Operator			
12c. Non-Operator emergency responders			
12d. Workers working on the right-of-way, but NOT associated with this Operator			
12e. General public			
12f. Total fatalities (sum of above)			
13. Were there injuries requiring inpatient hospitalization?	No		
- If Yes, specify the number in each category:			
13a. Operator employees			
13b. Contractor employees working for the Operator			
13c. Non-Operator emergency responders			
13d. Workers working on the right-of-way, but NOT associated with this Operator			
13e. General public			

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13f. Total injuries (sum of above)	
14. Was the pipeline/facility shut down due to the Accident?	Yes
- If No, Explain:	
- If Yes, complete Questions 14a and 14b: (use local time, 24-hr clock)	
14a. Local time and date of shutdown:	01/26/2015 09:39
14b. Local time pipeline/facility restarted:	02/14/2015 13:30
- Still shut down? (* Supplemental Report Required)	
15. Did the commodity ignite?	Yes
16. Did the commodity explode?	Yes
17. Number of general public evacuated:	1
18. Time sequence (use local time, 24-hour clock):	
18a. Local time Operator identified Accident - effective 7- 2014 changed to "Local time Operator identified failure":	01/26/2015 09:39
18b. Local time Operator resources arrived on site:	01/26/2015 11:00

PART B - ADDITIONAL LOCATION INFORMATION

1. Was the origin of the Accident onshore?	Yes
	<i>If Yes, Complete Questions (2-12)</i>
	<i>If No, Complete Questions (13-15)</i>
- If Onshore:	
2. State:	West Virginia
3. Zip Code:	26035
4. City:	Colliers
5. County or Parish:	Brooke
6. Operator-designated location:	Milepost/Valve Station
	Specify: 23.1
7. Pipeline/Facility name:	ATEX-1
8. Segment name/ID:	Greensburg - Pennsylvania/West Virginia
9. Was Accident on Federal land, other than the Outer Continental Shelf (OCS)?	No
10. Location of Accident:	Pipeline Right-of-way
11. Area of Accident (as found):	Underground
	Specify: Under soil
	- If Other, Descr be:
	Depth-of-Cover (in): 168
12. Did Accident occur in a crossing?	No
- If Yes, specify type below:	
- If Bridge crossing –	
Cased/ Uncased:	
- If Railroad crossing –	
Cased/ Uncased/ Bored/drilled	
- If Road crossing –	
Cased/ Uncased/ Bored/drilled	
- If Water crossing –	
Cased/ Uncased	
- Name of body of water, if commonly known:	
- Approx. water depth (ft) at the point of the Accident:	
- Select:	
- If Offshore:	
13. Approximate water depth (ft) at the point of the Accident:	
14. Origin of Accident:	
- In State waters - Specify:	
- State:	
- Area:	
- Block/Tract #:	
- Nearest County/Parish:	
- On the Outer Continental Shelf (OCS) - Specify:	
- Area:	
- Block #:	
15. Area of Accident:	

PART C - ADDITIONAL FACILITY INFORMATION

1. Is the pipeline or facility:	Interstate
2. Part of system involved in Accident:	Onshore Pipeline, Including Valve Sites
- If Onshore Breakout Tank or Storage Vessel, Including Attached Appurtenances, specify:	
3. Item involved in Accident:	Pipe
- If Pipe, specify:	Pipe Body
3a. Nominal diameter of pipe (in):	20

149469 Appendix C Incident Report Form 7000.1

3b. Wall thickness (in):	.312
3c. SMYS (Specified Minimum Yield Strength) of pipe (psi):	70,000
3d. Pipe specification:	API-5L X70
3e. Pipe Seam , specify:	Longitudinal ERW - High Frequency
- If Other, Descr be:	
3f. Pipe manufacturer:	American Pipe
3g. Year of manufacture:	2013
3h. Pipeline coating type at point of Accident, specify:	Fusion Bonded Epoxy
- If Other, Descr be:	
- If Weld, including heat-affected zone, specify. If Pipe Girth Weld, 3a through 3h above are required:	
- If Other, Descr be:	
- If Valve, specify:	
- If Mainline, specify:	
- If Other, Descr be:	
3i. Manufactured by:	
3j. Year of manufacture:	
- If Tank/Vessel, specify:	
- If Other - Descr be:	
- If Other, descr be:	
4. Year item involved in Accident was installed:	2013
5. Material involved in Accident:	Carbon Steel
- If Material other than Carbon Steel, specify:	
6. Type of Accident Involved:	Rupture
- If Mechanical Puncture – Specify Approx. size:	
in. (axial) by	
in. (circumferential)	
- If Leak - Select Type:	
- If Other, Descr be:	
- If Rupture - Select Orientation:	Circumferential
- If Other, Describe:	
Approx. size: in. (widest opening) by	1
in. (length circumferentially or axially)	20
- If Other – Describe:	
PART D - ADDITIONAL CONSEQUENCE INFORMATION	
1. Wildlife impact:	No
1a. If Yes, specify all that apply:	
- Fish/aquatic	
- Birds	
- Terrestrial	
2. Soil contamination:	No
3. Long term impact assessment performed or planned:	No
4. Anticipated remediation:	Yes
4a. If Yes, specify all that apply:	
- Surface water	
- Groundwater	
- Soil	
- Vegetation	Yes
- Wildlife	
5. Water contamination:	No
5a. If Yes, specify all that apply:	
- Ocean/Seawater	
- Surface	
- Groundwater	
- Drinking water: (Select one or both)	
- Private Well	
- Public Water Intake	
5b. Estimated amount released in or reaching water (Barrels):	
5c. Name of body of water, if commonly known:	
6. At the location of this Accident, had the pipeline segment or facility been identified as one that "could affect" a High Consequence Area (HCA) as determined in the Operator's Integrity Management Program?	No
7. Did the released commodity reach or occur in one or more High Consequence Area (HCA)?	No
7a. If Yes, specify HCA type(s): (Select all that apply)	
- Commercially Navigable Waterway:	
Was this HCA identified in the "could affect" determination for this Accident site in the Operator's	

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Integrity Management Program?	
- High Population Area:	
Was this HCA identified in the "could affect" determination for this Accident site in the Operator's Integrity Management Program?	
- Other Populated Area	
Was this HCA identified in the "could affect" determination for this Accident site in the Operator's Integrity Management Program?	
- Unusually Sensitive Area (USA) - Drinking Water	
Was this HCA identified in the "could affect" determination for this Accident site in the Operator's Integrity Management Program?	
- Unusually Sensitive Area (USA) - Ecological	
Was this HCA identified in the "could affect" determination for this Accident site in the Operator's Integrity Management Program?	
8. Estimated cost to Operator – effective 12-2012, changed to "Estimated Property Damage":	
8a. Estimated cost of public and non-Operator private property damage paid/reimbursed by the Operator – effective 12-2012, "paid/reimbursed by the Operator" removed	\$ 95,000
8b. Estimated cost of commodity lost	\$ 194,000
8c. Estimated cost of Operator's property damage & repairs	\$ 1,821,591
8d. Estimated cost of Operator's emergency response	\$ 0
8e. Estimated cost of Operator's environmental remediation	\$ 0
8f. Estimated other costs	\$ 4,800,000
Descr be:	Costs to implement Remedial Work Plan
8g. Estimated total costs (sum of above) – effective 12-2012, changed to "Total estimated property damage (sum of above)"	\$ 6,910,591
PART E - ADDITIONAL OPERATING INFORMATION	
1. Estimated pressure at the point and time of the Accident (psig):	1,183.00
2. Maximum Operating Pressure (MOP) at the point and time of the Accident (psig):	1,440.00
3. Describe the pressure on the system or facility relating to the Accident (psig):	Pressure did not exceed MOP
4. Not including pressure reductions required by PHMSA regulations (such as for repairs and pipe movement), was the system or facility relating to the Accident operating under an established pressure restriction with pressure limits below those normally allowed by the MOP?	No
- If Yes, Complete 4.a and 4.b below:	
4a. Did the pressure exceed this established pressure restriction?	
4b. Was this pressure restriction mandated by PHMSA or the State?	
5. Was "Onshore Pipeline, Including Valve Sites" OR "Offshore Pipeline, Including Riser and Riser Bend" selected in PART C, Question 2?	Yes
- If Yes - (Complete 5a. – 5f below) effective 12-2012, changed to "(Complete 5.a – 5.e below)"	
5a. Type of upstream valve used to initially isolate release source:	Remotely Controlled
5b. Type of downstream valve used to initially isolate release source:	Remotely Controlled
5c. Length of segment isolated between valves (ft):	112,094
5d. Is the pipeline configured to accommodate internal inspection tools?	Yes
- If No, Which physical features limit tool accommodation? (select all that apply)	
- Changes in line pipe diameter	
- Presence of unsuitable mainline valves	
- Tight or mitered pipe bends	
- Other passage restrictions (i.e. unbarred tee's, projecting instrumentation, etc.)	
- Extra thick pipe wall (applicable only for magnetic flux leakage internal inspection tools)	
- Other -	
- If Other, Descr be:	
5e. For this pipeline, are there operational factors which significantly complicate the execution of an internal inspection tool run?	No
- If Yes, Which operational factors complicate execution? (select all that apply)	

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- Excessive debris or scale, wax, or other wall buildup	
- Low operating pressure(s)	
- Low flow or absence of flow	
- Incompatible commodity	
- Other -	
- If Other, Descr be:	
5f. Function of pipeline system:	> 20% SMYS Regulated Trunkline/Transmission
6. Was a Supervisory Control and Data Acquisition (SCADA)-based system in place on the pipeline or facility involved in the Accident?	Yes
If Yes -	
6a. Was it operating at the time of the Accident?	Yes
6b. Was it fully functional at the time of the Accident?	Yes
6c. Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume calculations) assist with the detection of the Accident?	Yes
6d. Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume calculations) assist with the confirmation of the Accident?	Yes
7. Was a CPM leak detection system in place on the pipeline or facility involved in the Accident?	Yes
- If Yes:	
7a. Was it operating at the time of the Accident?	Yes
7b. Was it fully functional at the time of the Accident?	Yes
7c. Did CPM leak detection system information (such as alarm(s), alert(s), event(s), and/or volume calculations) assist with the detection of the Accident?	Yes
7d. Did CPM leak detection system information (such as alarm(s), alert(s), event(s), and/or volume calculations) assist with the confirmation of the Accident?	Yes
8. How was the Accident initially identified for the Operator?	CPM leak detection system or SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume calculations)
- If Other, Specify:	
8a. If "Controller", "Local Operating Personnel", including contractors", "Air Patrol", or "Ground Patrol by Operator or its contractor" is selected in Question 8, specify:	
9. Was an investigation initiated into whether or not the controller(s) or control room issues were the cause of or a contributing factor to the Accident?	No, the Operator did not find that an investigation of the controller(s) actions or control room issues was necessary due to: (provide an explanation for why the Operator did not investigate)
- If No, the Operator did not find that an investigation of the controller(s) actions or control room issues was necessary due to: (provide an explanation for why the operator did not investigate)	Line ruptured while in steady-state operation below MOP. No investigation into controller actions necessary.
- If Yes, specify investigation result(s): (select all that apply)	
- Investigation reviewed work schedule rotations, continuous hours of service (while working for the Operator), and other factors associated with fatigue	
- Investigation did NOT review work schedule rotations, continuous hours of service (while working for the Operator), and other factors associated with fatigue	
Provide an explanation for why not:	
- Investigation identified no control room issues	
- Investigation identified no controller issues	
- Investigation identified incorrect controller action or controller error	
- Investigation identified that fatigue may have affected the controller(s) involved or impacted the involved controller(s) response	
- Investigation identified incorrect procedures	
- Investigation identified incorrect control room equipment operation	
- Investigation identified maintenance activities that affected control room operations, procedures, and/or controller response	
- Investigation identified areas other than those above:	
Descr be:	
PART F - DRUG & ALCOHOL TESTING INFORMATION	

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1. As a result of this Accident, were any Operator employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?	No
- If Yes:	
1a. Specify how many were tested:	
1b. Specify how many failed:	
2. As a result of this Accident, were any Operator contractor employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?	No
- If Yes:	
2a. Specify how many were tested:	
2b. Specify how many failed:	
PART G – APPARENT CAUSE	
<i>Select only one box from PART G in shaded column on left representing the APPARENT Cause of the Accident, and answer the questions on the right. Describe secondary, contributing or root causes of the Accident in the narrative (PART H).</i>	
Apparent Cause:	G5 - Material Failure of Pipe or Weld
G1 - Corrosion Failure - only one sub-cause can be picked from shaded left-hand column	
Corrosion Failure – Sub-Cause:	
- If External Corrosion:	
1. Results of visual examination:	
- If Other, Descr be:	
2. Type of corrosion: <i>(select all that apply)</i>	
- Galvanic	
- Atmospheric	
- Stray Current	
- Microbiological	
- Selective Seam	
- Other:	
- If Other, Descr be:	
3. The type(s) of corrosion selected in Question 2 is based on the following: <i>(select all that apply)</i>	
- Field examination	
- Determined by metallurgical analysis	
- Other:	
- If Other, Descr be:	
4. Was the failed item buried under the ground?	
- If Yes :	
<input type="checkbox"/> 4a. Was failed item considered to be under cathodic protection at the time of the Accident?	
If Yes - Year protection started:	
4b. Was shielding, tenting, or disbonding of coating evident at the point of the Accident?	
4c. Has one or more Cathodic Protection Survey been conducted at the point of the Accident?	
If "Yes, CP Annual Survey" – Most recent year conducted:	
If "Yes, Close Interval Survey" – Most recent year conducted:	
If "Yes, Other CP Survey" – Most recent year conducted:	
- If No:	
4d. Was the failed item externally coated or painted?	
5. Was there observable damage to the coating or paint in the vicinity of the corrosion?	
- If Internal Corrosion:	
6. Results of visual examination:	
- Other:	
7. Type of corrosion <i>(select all that apply):</i> -	
- Corrosive Commodity	
- Water drop-out/Acid	
- Microbiological	
- Erosion	
- Other:	
- If Other, Descr be:	
8. The cause(s) of corrosion selected in Question 7 is based on the following <i>(select all that apply):</i> -	
- Field examination	
- Determined by metallurgical analysis	
- Other:	

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- If Other, Descr be:	
9. Location of corrosion (select all that apply): -	
- Low point in pipe	
- Elbow	
- Other:	
- If Other, Descr be:	
10. Was the commodity treated with corrosion inhibitors or biocides?	
11. Was the interior coated or lined with protective coating?	
12. Were cleaning/dewatering pigs (or other operations) routinely utilized?	
13. Were corrosion coupons routinely utilized?	
Complete the following if any Corrosion Failure sub-cause is selected AND the "Item Involved in Accident" (from PART C, Question 3) is Tank/Vessel.	
14. List the year of the most recent inspections:	
14a. API Std 653 Out-of-Service Inspection	
- No Out-of-Service Inspection completed	
14b. API Std 653 In-Service Inspection	
- No In-Service Inspection completed	
Complete the following if any Corrosion Failure sub-cause is selected AND the "Item Involved in Accident" (from PART C, Question 3) is Pipe or Weld.	
15. Has one or more internal inspection tool collected data at the point of the Accident?	
15a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run: -	
- Magnetic Flux Leakage Tool	Most recent year:
- Ultrasonic	Most recent year:
- Geometry	Most recent year:
- Caliper	Most recent year:
- Crack	Most recent year:
- Hard Spot	Most recent year:
- Combination Tool	Most recent year:
- Transverse Field/Triaxial	Most recent year:
- Other	Most recent year:
Descr be:	
16. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Accident?	
If Yes -	
Most recent year tested:	
Test pressure:	
17. Has one or more Direct Assessment been conducted on this segment?	
- If Yes, and an investigative dig was conducted at the point of the Accident::	
Most recent year conducted:	
- If Yes, but the point of the Accident was not identified as a dig site:	
Most recent year conducted:	
18. Has one or more non-destructive examination been conducted at the point of the Accident since January 1, 2002?	
18a. If Yes, for each examination conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted:	
- Radiography	Most recent year conducted:
- Guided Wave Ultrasonic	Most recent year conducted:
- Handheld Ultrasonic Tool	Most recent year conducted:
- Wet Magnetic Particle Test	Most recent year conducted:
- Dry Magnetic Particle Test	Most recent year conducted:
- Other	Most recent year conducted:
Descr be:	

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G2 - Natural Force Damage - only one sub-cause can be picked from shaded left-handed column	
Natural Force Damage – Sub-Cause:	
- If Earth Movement, NOT due to Heavy Rains/Floods:	
1. Specify:	
- If Other, Descr be:	
- If Heavy Rains/Floods:	
2. Specify:	
- If Other, Descr be:	
- If Lightning:	
3. Specify:	
- If Temperature:	
4. Specify:	
- If Other, Descr be:	
- If Other Natural Force Damage:	
5. Describe:	
Complete the following if any Natural Force Damage sub-cause is selected.	
6. Were the natural forces causing the Accident generated in conjunction with an extreme weather event?	
6a. If Yes, specify: <i>(select all that apply)</i>	
- Hurricane	
- Tropical Storm	
- Tornado	
- Other	
- If Other, Descr be:	
G3 - Excavation Damage - only one sub-cause can be picked from shaded left-hand column	
Excavation Damage – Sub-Cause:	
- If Previous Damage due to Excavation Activity: Complete Questions 1-5 ONLY IF the "Item Involved in Accident" (from PART C, Question 3) is Pipe or Weld.	
1. Has one or more internal inspection tool collected data at the point of the Accident?	
1a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run: -	
- Magnetic Flux Leakage	Most recent year conducted:
- Ultrasonic	Most recent year conducted:
- Geometry	Most recent year conducted:
- Caliper	Most recent year conducted:
- Crack	Most recent year conducted:
- Hard Spot	Most recent year conducted:
- Combination Tool	Most recent year conducted:
- Transverse Field/Triaxial	Most recent year conducted:
- Other	Most recent year conducted:
Descr be:	
2. Do you have reason to believe that the internal inspection was completed BEFORE the damage was sustained?	
3. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Accident?	
- If Yes:	Most recent year tested:
	Test pressure (psig):
4. Has one or more Direct Assessment been conducted on the pipeline segment?	
- If Yes, and an investigative dig was conducted at the point of the Accident:	Most recent year conducted:
- If Yes, but the point of the Accident was not identified as a dig site:	Most recent year conducted:
5. Has one or more non-destructive examination been conducted at the point of the Accident since January 1, 2002?	

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5a. If Yes, for each examination, conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted:	
- Radiography	Most recent year conducted:
- Guided Wave Ultrasonic	Most recent year conducted:
- Handheld Ultrasonic Tool	Most recent year conducted:
- Wet Magnetic Particle Test	Most recent year conducted:
- Dry Magnetic Particle Test	Most recent year conducted:
- Other	Most recent year conducted:
	Descr be:
Complete the following if Excavation Damage by Third Party is selected as the sub-cause.	
6. Did the operator get prior notification of the excavation activity?	
6a. If Yes, Notification received from: <i>(select all that apply)</i> -	
- One-Call System	
- Excavator	
- Contractor	
- Landowner	
Complete the following mandatory CGA-DIRT Program questions if any Excavation Damage sub-cause is selected.	
7. Do you want PHMSA to upload the following information to CGA-DIRT (www.cga-dirt.com)?	
8. Right-of-Way where event occurred: <i>(select all that apply)</i> -	
- Public	- If "Public", Specify:
- Private	- If "Private", Specify:
- Pipeline Property/Easement	
- Power/Transmission Line	
- Railroad	
- Dedicated Public Utility Easement	
- Federal Land	
- Data not collected	
- Unknown/Other	
9. Type of excavator:	
10. Type of excavation equipment:	
11. Type of work performed:	
12. Was the One-Call Center notified?	
12a. If Yes, specify ticket number:	
12b. If this is a State where more than a single One-Call Center exists, list the name of the One-Call Center notified:	
13. Type of Locator:	
14. Were facility locate marks visible in the area of excavation?	
15. Were facilities marked correctly?	
16. Did the damage cause an interruption in service?	
16a. If Yes, specify duration of the interruption (hours)	
17. Description of the CGA-DIRT Root Cause <i>(select only the one predominant first level CGA-DIRT Root Cause and then, where available as a choice, the one predominant second level CGA-DIRT Root Cause as well):</i>	
Root Cause:	
- If One-Call Notification Practices Not Sufficient, specify:	
- If Locating Practices Not Sufficient, specify:	
- If Excavation Practices Not Sufficient, specify:	
- If Other/None of the Above, explain:	
G4 - Other Outside Force Damage - only one sub-cause can be selected from the shaded left-hand column	
Other Outside Force Damage – Sub-Cause:	
- If Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation:	
1. Vehicle/Equipment operated by:	
- If Damage by Boats, Barges, Drilling Rigs, or Other Maritime Equipment or Vessels Set Adrift or Which Have Otherwise Lost Their Mooring:	
2. Select one or more of the following IF an extreme weather event was a factor:	
- Hurricane	
- Tropical Storm	
- Tornado	

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- Heavy Rains/Flood	
- Other	
- If Other, Descr be:	
- If Previous Mechanical Damage NOT Related to Excavation: Complete Questions 3-7 ONLY IF the "Item Involved in Accident" (from PART C, Question 3) is Pipe or Weld.	
3. Has one or more internal inspection tool collected data at the point of the Accident?	
3a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run:	
- Magnetic Flux Leakage	Most recent year conducted:
- Ultrasonic	Most recent year conducted:
- Geometry	Most recent year conducted:
- Caliper	Most recent year conducted:
- Crack	Most recent year conducted:
- Hard Spot	Most recent year conducted:
- Combination Tool	Most recent year conducted:
- Transverse Field/Triaxial	Most recent year conducted:
- Other	Most recent year conducted:
Descr be:	
4. Do you have reason to believe that the internal inspection was completed BEFORE the damage was sustained?	
5. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Accident?	
- If Yes:	
Most recent year tested:	
Test pressure (psig):	
6. Has one or more Direct Assessment been conducted on the pipeline segment?	
- If Yes, and an investigative dig was conducted at the point of the Accident:	
Most recent year conducted:	
- If Yes, but the point of the Accident was not identified as a dig site:	
Most recent year conducted:	
7. Has one or more non-destructive examination been conducted at the point of the Accident since January 1, 2002?	
7a. If Yes, for each examination conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted:	
- Radiography	Most recent year conducted:
- Guided Wave Ultrasonic	Most recent year conducted:
- Handheld Ultrasonic Tool	Most recent year conducted:
- Wet Magnetic Particle Test	Most recent year conducted:
- Dry Magnetic Particle Test	Most recent year conducted:
- Other	Most recent year conducted:
Descr be:	
- If Intentional Damage:	
8. Specify:	
- If Other, Descr be:	
- If Other Outside Force Damage:	
9. Describe:	
G5 - Material Failure of Pipe or Weld - only one sub-cause can be selected from the shaded left-hand column	
Use this section to report material failures ONLY IF the "Item Involved in Accident" (from PART C, Question 3) is "Pipe" or "Weld."	
Material Failure of Pipe or Weld – Sub-Cause:	Construction-, Installation-, or Fabrication-related
1. The sub-cause shown above is based on the following: <i>(select all that apply)</i>	

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- Field Examination	
- Determined by Metallurgical Analysis	
- Other Analysis	
- If "Other Analysis", Descr be:	
- Sub-cause is Tentative or Suspected; Still Under Investigation (Supplemental Report required)	Yes
- If Construction, Installation, or Fabrication-related:	
2. List contributing factors: <i>(select all that apply)</i>	
- Fatigue or Vibration-related	
Specify:	
- If Other, Descr be:	
- Mechanical Stress:	
- Other	Yes
- If Other, Descr be:	Under investigation
- If Environmental Cracking-related:	
3. Specify:	
- If Other - Describe:	
Complete the following if any Material Failure of Pipe or Weld sub-cause is selected.	
4. Additional factors: <i>(select all that apply)</i> :	
- Dent	
- Gouge	
- Pipe Bend	
- Arc Burn	
- Crack	
- Lack of Fusion	
- Lamination	
- Buckle	
- Wrinkle	
- Misalignment	
- Burnt Steel	
- Other:	Yes
- If Other, Descr be:	Under investigation
5. Has one or more internal inspection tool collected data at the point of the Accident?	No
5a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run:	
- Magnetic Flux Leakage	
Most recent year run:	
- Ultrasonic	
Most recent year run:	
- Geometry	
Most recent year run:	
- Caliper	
Most recent year run:	
- Crack	
Most recent year run:	
- Hard Spot	
Most recent year run:	
- Combination Tool	
Most recent year run:	
- Transverse Field/Triaxial	
Most recent year run:	
- Other	
Most recent year run:	
Descr be:	
6. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Accident?	No
- If Yes:	
Most recent year tested:	
Test pressure (psig):	
7. Has one or more Direct Assessment been conducted on the pipeline segment?	No
- If Yes, and an investigative dig was conducted at the point of the Accident -	
Most recent year conducted:	
- If Yes, but the point of the Accident was not identified as a dig site -	
Most recent year conducted:	
8. Has one or more non-destructive examination(s) been conducted at the point of the Accident since January 1, 2002?	No
8a. If Yes, for each examination conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted: -	

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- Radiography	Most recent year conducted:	
- Guided Wave Ultrasonic	Most recent year conducted:	
- Handheld Ultrasonic Tool	Most recent year conducted:	
- Wet Magnetic Particle Test	Most recent year conducted:	
- Dry Magnetic Particle Test	Most recent year conducted:	
- Other	Most recent year conducted:	
	Descr be:	

G6 – Equipment Failure - only one **sub-cause** can be selected from the shaded left-hand column

Equipment Failure – Sub-Cause:

- If Malfunction of Control/Relief Equipment:

1. Specify: *(select all that apply)* -

- Control Valve	
- Instrumentation	
- SCADA	
- Communications	
- Block Valve	
- Check Valve	
- Relief Valve	
- Power Failure	
- Stopple/Control Fitting	
- ESD System Failure	
- Other	
	- If Other – Descr be:

- If Pump or Pump-related Equipment:

2. Specify:

	- If Other – Descr be:
--	------------------------

- If Threaded Connection/Coupling Failure:

3. Specify:

	- If Other – Descr be:
--	------------------------

- If Non-threaded Connection Failure:

4. Specify:

	- If Other – Descr be:
--	------------------------

- If Other Equipment Failure:

5. Describe:

--	--

Complete the following if any Equipment Failure sub-cause is selected.

6. Additional factors that contributed to the equipment failure: *(select all that apply)*

- Excessive vibration	
- Overpressurization	
- No support or loss of support	
- Manufacturing defect	
- Loss of electricity	
- Improper installation	
- Mismatched items (different manufacturer for tubing and tubing fittings)	
- Dissimilar metals	
- Breakdown of soft goods due to compatibility issues with transported commodity	
- Valve vault or valve can contributed to the release	
- Alarm/status failure	
- Misalignment	
- Thermal stress	
- Other	
	- If Other, Descr be:

G7 - Incorrect Operation - only one **sub-cause** can be selected from the shaded left-hand column

Incorrect Operation – Sub-Cause:

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- If Tank, Vessel, or Sump/Separator Allowed or Caused to Overfill or Overflow	
1. Specify:	
- If Other, Describe:	
- If Other Incorrect Operation	
2. Describe:	
Complete the following if any Incorrect Operation sub-cause is selected.	
3. Was this Accident related to <i>(select all that apply)</i> : -	
- Inadequate procedure	
- No procedure established	
- Failure to follow procedure	
- Other:	
- If Other, Describe:	
4. What category type was the activity that caused the Accident?	
5. Was the task(s) that led to the Accident identified as a covered task in your Operator Qualification Program?	
5a. If Yes, were the individuals performing the task(s) qualified for the task(s)?	
G8 - Other Accident Cause - only one sub-cause can be selected from the shaded left-hand column	
Other Accident Cause – Sub-Cause:	
- If Miscellaneous:	
1. Describe:	
- If Unknown:	
2. Specify:	
PART H - NARRATIVE DESCRIPTION OF THE ACCIDENT	
<p>At approximately 9:40 a.m. C.S.T. on January 26, 2015, the ATEX pipeline failed near Follansbee, West Virginia, resulting in the release of approximately 30,565 barrels of liquid ethane into a wooded area. There were no injuries or impacted waterways, though the explosion and resulting fire burned approximately five acres of woodlands. The fire in the surrounding area was extinguished at 7:10 p.m. E.S.T. in the evening of January 27, 2015. The failure was reported to the National Response Center (#1106602) on January 26, 2015, at 11:38 a.m. Metallurgical analysis indicates that the pipe failed from ductile tensile overload. The two primary sources for this strain are bending stress and sag-tension from pipe settlement. The pipeline was repaired and returned to service at a reduced maximum operating pressure on February 14, 2015. A Remedial Work Plan was developed and is being implemented per Amended Corrective Action Order (ACAO) CPF 1-2015-5002H. Additionally, periodic updates are being provided to PHMSA as prescribed by the ACAO.</p>	
PART I - PREPARER AND AUTHORIZED SIGNATURE	
Preparer's Name	Michael Pavlak
Preparer's Title	Sr. Compliance Specialist
Preparer's Telephone Number	713-381-5897
Preparer's E-mail Address	mjpavlak@eprod.com
Preparer's Facsimile Number	
Authorized Signer Name	Michael Pavlak
Authorized Signer Title	Sr. Compliance Specialist
Authorized Signer Telephone Number	713-381-5897
Authorized Signer Email	mjpavlak@eprod.com
Date	09/08/2015

Appendix D
Metallurgical Analysis Report

This document is on file at PHMSA

Appendix E

Timeline of Events

This document is on file at PHMSA



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue SE
Washington, DC 20590

March 12, 2015

VIA CERTIFIED MAIL AND FAX TO: (281)887-7000

Mr. Michael A. Creel
Chief Executive Officer
Enterprise Products Partners, LP
1100 Louisiana Street
Houston, TX 77002

Re: CPF No. 1-2015-5002H

Dear Mr. Creel:

Enclosed is an Amended Corrective Action Order issued in the above-referenced case. It requires your subsidiary, Enterprise Products Operating, LLC, to take certain corrective actions with respect to the ATEX-1 pipeline that failed on January 26, 2015, near Follansbee, West Virginia. Service is being made by certified mail and facsimile. Service of the Amended Corrective Action Order by electronic transmission is deemed complete upon transmission and acknowledgement of receipt, or as otherwise provided under 49 C.F.R. § 190.5. The terms and conditions of this Order are effective upon completion of service.

Thank you for your cooperation in this matter.

Sincerely,

Jeffrey D. Wiese
Jeffrey D. Wiese
Associate Administrator
for Pipeline Safety

Enclosure

cc: Mr. Byron Coy, Regional Director, Eastern Region, OPS

U.S. DEPARTMENT OF TRANSPORTATION
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION
OFFICE OF PIPELINE SAFETY
WASHINGTON, D.C. 20590

In the Matter of)
)
Enterprise Products Operating LLC,) CPF No. 1-2015-5002H
)
Respondent.)
_____)

AMENDED CORRECTIVE ACTION ORDER

Purpose and Background:

This Amended Corrective Action Order (Order) is being issued, under the authority of 49 U.S.C. § 60112, to require Enterprise Products Operating LLC (Enterprise or Respondent), to take the necessary corrective action to protect the public, property, and the environment from potential hazards associated with the recent failure on Enterprise’s ATEX-1 pipeline.

On January 26, 2015, a reportable accident occurred on the ATEX-1 pipeline, resulting in the release of approximately 23,901 barrels of liquid ethane (Failure). This pipeline is approximately 1,265 miles in length and transports product from Washington County, Pennsylvania, to Mont Belvieu, Texas (ATEX-1). The accident occurred on a 255-mile unit of ATEX -1 that runs from Washington County, Pennsylvania to Seymour, Indiana. Based on a visual inspection of the ruptured pipe, the failure occurred in or very near a circumferential girth weld on the pipe. The cause of the Failure has not yet been determined. Pursuant to 49 U.S.C. § 60117, the Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS), initiated an investigation of the accident. On January 29, 2015, OPS issued a Corrective Action Order requiring Enterprise to take certain corrective actions. Enterprise filed a Request for Hearing on February 26, 2015, and a telephonic hearing was held on March 3, 2015. The preliminary findings of the ongoing investigation are as follows.

Preliminary Findings:

- Respondent is a wholly-owned subsidiary of Enterprise Products Partners, LP, which operates roughly 50,000 miles of natural gas, natural gas liquid, crude oil, refined products and petrochemical pipelines throughout the United States.¹
- The failed pipeline is a 20-inch diameter line segment that is part of the company’s Greensburg- Pennsylvania/West Virginia (liquid) unit that transports liquid ethane, and

¹ <http://www.enterpriseproducts.com/corpProfile/businessProfile.shtm>.

runs from the Mark West Processing Facility in Houston, Pennsylvania to the Ohio River, a distance of approximately 26 miles. The Affected Segment, as that term is defined below on page 4 (under “Definitions”) and used throughout this Order, means the segment from Houston, Pennsylvania to Seymour, Indiana. The Failure occurred near milepost 23.1, and near Follansbee, West Virginia (Failure Site).

- The Affected Segment was constructed in November 2013 and is composed of 20-inch diameter, 0.312” wall thickness (generally), API-5L pipe, Grade X-70 and is high frequency electric resistance welded (HF ERW) pipe manufactured by American Pipe.
- The maximum operating pressure (MOP) of the pipeline in the Affected Segment is 1440 psig, as established by hydrostatic testing in 2013. At the time of the Failure, the actual operating pressure of the Affected Segment was 1150 psi g.
- At approximately 9:40 a.m. C.S.T. on January 26, 2015, the Respondent’s ATEX-1 pipeline failed near Follansbee, West Virginia, resulting in the release of approximately 23,901 barrels of liquid ethane into a wooded area. There was no impact to people or to waterways, though the explosion and resulting fire burned approximately five acres of woodlands. The fire in the surrounding area was extinguished at 7:10 p.m. E.S.T., in the evening of January 27, 2015. Enterprise reported the Failure to the National Response Center (NRC Report No. 1106602) on January 26, 2015, at 11:38 a.m.
- After observing a sudden drop in pressure in its control room, Enterprise closed the automated block valves MOV-2001 (mile post 4.05) and MOV-2004 (mile post 25.28) in order to isolate the segment. Thereafter, the control room notified Enterprise personnel, who responded to the rupture location and manually closed Main Line Valve (MLV)2002 (mile post 13.01) and MLV-2003 (mile post 16.42) in an attempt to further restrict product flow to the failure location (mile post 23.1). As a precaution, Line A-1, which shares a right-of-way with ATEX-1, was also isolated. Since Line A-1 is several hundred feet from the Failure Site, Line A-1 was later returned to normal service.
- The Wellsburg Fire Department and Follansbee Police Department responded to the rupture.
- An OPS investigator arrived at the Failure Site on January 26, 2015.
- Based on a visual examination of the pipeline at the rupture location, OPS has preliminarily determined that the rupture occurred in or very near a circumferential girth weld. However, the cause of the failure is still undetermined and the investigation is ongoing. The pipe at the location of the Failure has not been excavated, as of January 28, 2015.
- The accident caused no known injuries, but burned approximately five acres of woodland. One residence, approximately 2,000 feet from the rupture location, sustained external damage to the house siding from radiant heat.

- The ATEX-1 pipeline from block valve MOV-2001 (mile post 4.05) to MOV-2004 (mile post 25.28) is currently out-of-service.
- PHMSA Advisory Bulletin 2010-6528 (75 FED. RES. BULL. 56 (Mar. 2010) provided notification to owners and operators of recently constructed large diameter, high strength (API SL X70 and X80) hazardous liquid pipeline systems of potential girth weld failures due to welding quality issues.

Determination of Necessity for Corrective Action Order and Right to Hearing:

Section 60112 of Title 49, United States Code, provides for the issuance of a Corrective Action Order, after reasonable notice and the opportunity for a hearing, requiring corrective action, which may include the suspended or restricted use of a pipeline facility, physical inspection, testing, repair, replacement, or other action, as appropriate. The basis for making the determination that a pipeline facility is or would be hazardous, requiring corrective action, is set forth both in the above-referenced statute and 49 C.F.R. § 190.233, a copy of which is enclosed.

Section 60112 and the regulations promulgated thereunder provide for the issuance of a Corrective Action Order, without prior notice and opportunity for hearing, upon a finding that failure to issue the Order expeditiously would result in the likelihood of serious harm to life, property, or the environment. In such cases, an opportunity for a hearing and expedited review will be provided as soon as practicable after the issuance of the Order.

After evaluating the foregoing preliminary findings of fact, I find that continued operation of the pipeline without corrective measures is or would be hazardous to life, property, or the environment. As noted in the preliminary findings above, operators of newly constructed large diameter pipelines were advised of potential girth weld failures due to welding quality issues. The bulletin advised operators to review these girth welds, particularly in terrains involving sloping hill sides with potentially unstable soils. Given that the location of the rupture appears to be at a circumferential weld and that the pipeline runs across hilly terrain, there is an increased risk that other vulnerabilities exist. While no definitive explanation for the Failure exists at this time, I find that failure to issue this Order expeditiously would result in the likelihood of serious harm to life, property, or the environment.

Accordingly, this Corrective Action Order mandating immediate corrective action is issued without prior notice and opportunity for a hearing. The terms and conditions of this Order are effective upon receipt.

Within 10 days of receipt of this Order, Respondent may contest its issuance obtain expedited review either by answering in writing or requesting a hearing under 49 C.F.R. § 190.211, to be held as soon as practicable under the terms of such regulation, by notifying the Associate Administrator for Pipeline Safety in writing, with a copy to the Director, Eastern Region,

PHMSA (Director). If Respondent requests a hearing, it will be held telephonically or in-person in the Eastern Region or Washington, D.C.

After receiving and analyzing additional data in the course of this investigation, PHMSA may identify other corrective measures that need to be taken. In that event, PHMSA will notify Respondent of any additional measures that are required and an amended Order issued, if necessary. To the extent consistent with safety, Respondent will be afforded notice and an opportunity for a hearing prior to the imposition of any additional corrective measures.

Required Corrective Actions:

Pursuant to 49 U.S.C. § 60112, I hereby order Enterprise to immediately take the following corrective actions for the Affected Segment and Isolated Segment:

Definitions

The term “Affected Segment” means the segment that runs from the Mark West Processing Facility in Houston, Pennsylvania to Seymour, Indiana.

The term “Isolated Segment” means the 21.23 mile segment of ATEX-1 20-inch line from main line valve MOV-2001 (mile post 4.05) to MOV-2004 (mile post 25.28).

The “Director” means the Director, Eastern Region, Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety.

Corrective Actions

1. Shut-In Segment. Enterprise may not restart or operate the Isolated Segment until it receives prior written authorization from the Director.
2. Repair Plan. Enterprise must establish a plan to repair the Failure Site in accordance with applicable pipeline safety regulations. The plan must be submitted to the Director for approval. Enterprise may not restart the Isolated Segment until it receives written notification from the Director that the Repair Plan has been approved in its entirety.
3. Restart Plan. Before resuming operation of the Isolated Segment, Enterprise must develop and submit a written “Restart Plan” to the Director for approval.
 - a. Approval. The Director may approve certain portions of the Restart Plan before approving the entire plan. However, Enterprise may not resume operation of the Isolated Segment until it receives written notification from the Director that the Restart Plan has been approved in its entirety.
 - b. Incorporated by Reference. The Restart Plan, once approved by the Director, will be incorporated by reference into this Order.

- c. Required Elements. The Restart Plan must include the following elements: (1) Provide for adequate patrolling of the Isolated Segment during the restart process; (2) Include incremental pressure increases during start up, with each increment to be held for at least two hours; (3) Include sufficient surveillance of the pipeline during each pressure increment to ensure that no leaks are present when operation of the line resumes; (4) Specify a start time between the hours of 8 a.m. and 3 p.m. and provide twenty-four hour notice to local emergency response officials; (5) Provide for a review of construction, operating and maintenance (O&M) and integrity management records (e.g. ILI results), hydrostatic tests, root cause failure analyses of prior failures, aerial and ground patrols, corrosion, cathodic protection, excavations and pipe replacements, and address any findings that require remedial measures to be implemented prior to restart; (6) Documentation of the completion of all mandated actions, and a management of change plan to ensure that all procedural modifications are incorporated into Enterprise's O&M manual; (7) Enterprise will run an ILI tool with longitudinal Magnetic Flux Leakage (MFL), Deformation, and Inertial Mapping (IMU) capability in an effort to identify potential overstress areas that may warrant further investigation. The deformation and IMU data from the tool run should be used to detect curvature of the pipe (caused by bending strain) and should allow the Company to detect areas of concentrated external loading. As soon as practical after the restart of the pipeline in ethane service, but no later than April 1, 2015, Enterprise will schedule and complete the 45 mile ILI assessment and initiate the ILI analysis on the Houston, PA to Hopedale, OH segment. Enterprise will complete the remaining ILI assessment between Hopedale, OH and Seymour, IN within 120 days of restart. Restart is established at the time the Affected Segment has been fully loaded and flowing with liquid ethane; (8) In addition to the ILI assessment in Item 7, Enterprise will develop a detailed ATEX Remedial Work Plan (RWP) to identify conditions similar to those contributing to the January 26, 2015 failure that could potentially exist elsewhere in the Affected Segment. The ILI data will be correlated with other criteria to establish a matrix to determine where to perform field investigative digs for further analysis. Enterprise must perform a specified number² of field investigative digs along the Affected Segment. These RWP activities will be completed on the Affected Segment to ensure the integrity and safe operation of the pipeline. Restoring operating pressure to the original MOP will be pending PHMSA's approval once all ILI runs, analysis, excavations and remediation activities have been completed.; and (9) Enterprise will prepare a Patrol Plan to be implemented on the Houston, PA to Hopedale, OH segment until successful ILI tool runs are completed, meaning good data has been collected from the ILI tools, for the entire said segment, to include weekly patrolling of all

² In order to determine the total number of investigative digs, Enterprise must perform an engineering analysis.. Enterprise must perform at least three (3) digs. Enterprise must submit the total number of digs with supporting analysis for approval by the Director by May 1, 2015.

mainline valve stations and all public road crossings to inspect for leaks and visual ground movement.³

4. *Contingency Plan.* Prior to restart, Enterprise must submit to the Director a contingency plan to operate and monitor the Isolated Segment, including enhanced patrolling and surveillance. This contingency plan must be submitted to the Director and approved by the Director.
5. *Return to Service.* Following approval of the Restart Plan, Enterprise may return the Isolated Segment to service, but the operating pressure may not exceed 80% of the actual operating pressure that was in effect immediately prior to the Failure.
6. *Removal of Pressure Restriction.* Upon written request from Enterprise, the Director may allow the removal or modification of the pressure restriction when a reliable engineering analysis demonstrates that the pressure increase is safe, taking into consideration all known defects, anomalies, and the operating parameters of the pipeline.
7. *Temporary Removal or Modification.* The Director may allow the pressure restrictions to be temporarily removed or modified upon written application from Enterprise. In order to justify such a removal or modification, Enterprise must demonstrate that mitigative and preventive measures will have been implemented prior to and during the temporary removal or modification of the pressure restriction. Enterprise may appeal any determination of under this Section to the Associate Administrator for Pipeline Safety.
8. *Records Verification.* Verify the records for the Affected Segment to confirm the maximum operating pressure (MOP). Enterprise must submit documentation of this record verification to the Director within 45 days of receipt of this Order.⁴
9. *Review of Prior In-line Inspection (ILI) Results.* Within 30 days of receipt of this Order, conduct a review of the previous construction caliper ILI results of the Affected Segment, including a review of the ILI vendors' raw data and analysis. Determine whether any features were present in the failed pipe joint and/or any other pipe removed. Also, determine if any features with similar characteristics are present elsewhere on the Affected Segment. Enterprise must submit documentation of this ILI review to the Director within 45 days of receipt of this Order as follows:
 - a. Identify the calendar dates of the completion of the construction caliper tool run.

³ Enterprise must develop a plan for patrolling and conducting leak inspections. This plan must reference relevant procedures from Enterprise's Operations and Maintenance procedures, and include specific references to the method of patrolling, the personnel involved, and the maintenance of patrolling records. Enterprise must submit these procedures for approval by the Director and obtain approval prior to March 13, 2015.

⁴ See PHMSA Advisory Bulletin 2012-06.

- b. List, describe (type, size, wall loss, etc.), and identify the specific location of all ILI MOP-impacting, crack, dent, or other integrity-impacting features present in the failed joint and/or pipe in the Affected Segment.
 - c. List, describe (type, size, wall loss, etc.), and identify the specific location of all ILI features with similar characteristics present elsewhere on the Affected Segment.
 - d. Explain the process used to review the ILI results and the results of the reevaluation.
10. *Mechanical and Metallurgical Testing.* Within 90 days of receipt of this Order, complete mechanical and metallurgical testing and failure analysis of the failed pipe, including an analysis of soil samples and any foreign materials. Complete the testing and analysis as follows:
- a. Document the chain of custody when handling and transporting the failed pipe section and any other evidence from the Failure site.
 - b. Within 10 days of receipt of this Order, develop and submit the testing protocol and the proposed testing laboratory to the Director for prior approval.
 - c. One business day prior to beginning any mechanical and metallurgical testing, provide the Director with the scheduled date, time, and location of the testing to allow for OPS to attend the testing.
 - d. Ensure the testing laboratory sends all reports, whether in draft or final form to the Director, in their entirety at the same time these reports are made available to the Operator.
11. *Root Cause Failure Analysis.* Within 90 days following receipt of this Order, complete a root cause failure analysis (RCFA) and submit a final report of this RCFA to the Director. The RCFA must be supplemented/facilitated by an independent third-party acceptable to the Director and must document the decision making process and all factors contributing to the failure. The final report must evaluate any causal or contributing factors identified in Enterprise's Accident Investigation Report, and if so, create a detailed plan for addressing such issues.
12. *Emergency Response Plan and Training Review.* Enterprise must review and assess the effectiveness of its emergency response plan with regards to the failure. Include in the review and assessment the on-scene response and support, coordination, and communication with emergency responders and public officials. Also, include a review and assessment of the effectiveness of its emergency training program. Enterprise must amend its emergency response plan and emergency training, if necessary, to reflect the results of this review. The documentation of this plan and review must be available for inspection by OPS or provided to the Director, if requested.

13. *Public Awareness Program Review.* Enterprise must review and confirm whether its most recent Public Awareness Program notifications were mailed to the Affected Public within the buffer (as defined in Enterprise's Public Awareness Program) of the Houston, PA to Hopedale, OH segment within 90 days following receipt of this Order. This review must also determine whether Enterprise's most recent Public Awareness Program notification was mailed to the residence that sustained external damage.⁵ If this review finds that Enterprise failed to notify the Affected Public within the buffer or the resident whose home sustained damage in this accident (constituencies), Enterprise must amend its program so that these constituencies are covered by their Public Awareness Program in the future.. Documentation of this review must be made available to OPS upon request and to the Director.

14. *Remedial Work Plan (RWP).*

- a. Within 90 days following receipt of this Order, Enterprise must submit an RWP to the Director for approval.
- b. The Director may approve the RWP incrementally without approving the entire RWP.
- c. Once approved by the Director, the RWP will be incorporated by reference into this Order.
- d. The RWP must specify the tests, inspections, assessments, evaluations, and remedial measures Enterprise will use to verify the integrity of the Affected Segment. It must address all known or suspected factors and causes of the Failure. Enterprise should consider both the risk of another failure and the consequence of another failure to develop a prioritized schedule for RWP related work along the Affected Segment.
- e. The RWP must include a procedure or process to:
 1. Identify pipe in the Affected Segment with characteristics similar to the contributing factors identified for the Failure.
 2. Gather all data necessary to review the failure history (in service and pressure test failures) of the Affected Segment and to prepare a written report containing all the available information such as the locations, dates, and causes of leaks and failures.
 3. Integrate the results of the metallurgical testing, RCFA, and other corrective actions required by this Order with all relevant pre-existing operational and assessment data for the Affected Segment. Pre-existing operational data

⁵ CPF No.: 1-2015-5002H at 2.

includes, but is not limited to, construction, operations, maintenance, testing, repairs, prior metallurgical analyses, and any third party consultation information. Pre-existing assessment data includes, but is not limited to, ILI tool runs, hydrostatic pressure testing, direct assessments, close interval surveys, and DCVG/ACVG surveys.

4. Determine if conditions similar to those contributing to the Failure are likely to exist elsewhere on the Affected Segment.
5. Conduct additional field tests, inspections, assessments, and/or evaluations to determine whether, and to what extent, the conditions associated with the Failure and other failures from the operating history or any other integrity threats are present elsewhere on the Affected Segment. At a minimum, this process must consider all failure causes and specify the use of one or more of the following:
 - a. ILI tools that are technically appropriate for assessing the pipeline system based on the cause of failure and that can reliably detect and identify anomalies;
 - b. Hydrostatic pressure testing;
 - c. Close-interval surveys;
 - d. Cathodic protection surveys, to include interference surveys in coordination with other utilities (e.g. underground utilities, overhead power lines, etc.) in the area;
 - e. Coating surveys;
 - f. Stress corrosion cracking surveys;
 - g. Selective seam corrosion surveys; and
 - h. Other tests, inspections, assessments, and evaluations appropriate for the failure causes.

Note: Respondent may include the results of previous tests, inspections, assessments, and evaluations, if approved by the Director, provided the results of the tests, inspections, assessments, and evaluations are analyzed with regard to the factors known or suspected to have caused the January 26, 2015 failure.

6. Describe the inspection and repair criteria Enterprise will use to prioritize, excavate, evaluate, and repair anomalies, imperfections, and other identified integrity threats. Include a description of how any defects will be graded and a schedule for repairs or replacement.
7. Implement continuing long-term periodic testing and integrity verification measures to ensure the ongoing safe operation of the Affected Segment

considering the results of the analyses, inspections, evaluations, and corrective measures undertaken pursuant to this Order.

8. Include a proposed schedule for completion of the RWP.
9. Enterprise must revise the RWP as necessary to incorporate new information obtained during the failure investigation and remedial activities, to incorporate the results of actions undertaken pursuant to this Order, and/or to incorporate modifications required by the Director.
 - a. Submit any plan revisions to the Director for prior approval.
 - b. The Director may approve plan revisions incrementally.
 - c. Any and all revisions to the RWP after it has been approved and incorporated by reference into this Order will be fully described and documented in the CAO Documentation Report (CDR).
10. Implement the RWP as it is approved by the Director, including any revisions to the plan.
15. *CAO Documentation Report.* Enterprise must create and revise, as necessary, a CAO Documentation Report (CDR). When Enterprise has concluded all the items in this Order it will submit the final CDR in its entirety to the Director. This will allow the Director to complete a thorough review of all actions taken by Enterprise with regards to this Order prior to approving the closure of this Order. The intent is for the CDR to summarize all activities and documentation associated with this Order in one document.
 - a. The Director may approve the CDR incrementally without approving the entire CDR.
 - b. Once approved by the Director, the CDR will be incorporated by reference into this Order.
 - c. The CDR must include but not be limited to:
 - i. A Table of Contents;
 - ii. A summary of the Failure events and the response activities;
 - iii. A summary of pipe data/properties and all prior assessments of the Affected Segment;
 - iv. A summary of all tests, inspections, assessments, evaluations, and analysis required by this Order;
 - v. A summary of the Mechanical and Metallurgical Testing as required by this Order;
 - vi. A summary of the RCFA with all root causes as required by this Order;
 - vii. Documentation of all actions taken by Enterprise to implement the RWP,

- the results of those actions, and the inspection and repair criteria used;
- viii. Documentation of any revisions to the RWP including those necessary to incorporate the results of actions undertaken pursuant to this Order and whenever necessary to incorporate new information obtained during the failure investigation and remedial activities; and
 - ix. Appendices (if required).

Other Requirements:

1. *Reporting.* Submit monthly reports to the Director that: (1) include all available data and results of the testing and evaluations required by this Order; and (2) describe the progress of the repairs or other remedial actions being undertaken. The first quarterly report is due on March 31, 2015. The Director may change the interval for the submission of these reports.
2. *Documentation of Costs.* It is requested but not required that Respondent maintain documentation of the costs associated with implementation of this Order. Include in each monthly report the to-date total costs associated with: (1) preparation and revision of procedures, studies and analyses; (2) physical changes to pipeline infrastructure, including repairs, replacements and other modifications; and (3) environmental remediation, if applicable.
3. *Approvals.* With respect to each submission requiring the approval of the Director, the Director may: (a) approve the submission in whole or in part; (b) approve the submission on specified conditions; (c) modify the submission to cure any deficiencies; (d) disapprove the submission in whole or in part and direct Respondent to modify the submission; or (e) any combination of the above. In the event of approval, approval upon conditions, or modification by the Director, Respondent shall proceed to take all action required by the submission, as approved or modified by the Director. If the Director disapproves all or any portion of a submission, Respondent must correct all deficiencies within the time specified by the Director and resubmit it for approval.
4. *Extensions of Time.* The Director may grant an extension of time for compliance with any of the terms of this Order upon a written request timely submitted and demonstrating good cause for an extension.

The actions required by this Amended Corrective Action Order are in addition to and do not waive any requirements that apply to Respondent's pipeline system under 49 C.F.R. Part 195, under any other order issued to Respondent under authority of 49 U.S.C. § 60101, *et seq.*, or under any other provision of Federal or State law.

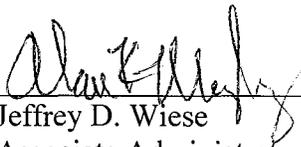
Respondent may appeal any decision of the Director to the Associate Administrator for Pipeline Safety. Decisions of the Associate Administrator shall be final.

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).

Failure to comply with this Order may result in the assessment of civil penalties and in referral to the Attorney General for appropriate relief in United States District Court pursuant to 49 U.S.C. § 60120.

In your correspondence on this matter, please refer to CPF No. 1-2015-5002H and for each document you submit, please provide a copy in electronic format whenever possible.

The terms and conditions of this Amended Corrective Action Order are effective upon receipt.

for: 

Jeffrey D. Wiese
Associate Administrator
for Pipeline Safety

March 12, 2015
Date Issued

Appendix G

ATEX Remedial Work Plan

This document is on file at PHMSA

Appendix H

ATEX Restart Plan

This document is on file at PHMSA

Appendix I

ATEX Repair Plan

This document is on file at PHMSA