

DOT US Department of Transportation
PHMSA Pipeline and Hazardous Materials Safety Administration
OPS Office of Pipeline Safety
Eastern Region

Principal Investigator Robert Burrough
Senior Accident Investigator Michael Yazemboski
Region Director Byron Coy
Date of Report 07/25/2013
Subject Failure Investigation Report
Buckeye Partners Pipeline Gasoline Leak

Operator, Location, & Consequences

Date of Failure 12/10/2012
Commodity Released Hazardous Liquid (Gasoline)
City/County & State Hillsborough, Somerset County, New Jersey
OpID & Operator Name 1845 Buckeye Partners, LP
Unit # & Unit Name 3191 Linden Area - NJ
SMART Activity # 141992
Milepost / Location MP 26, Route 206 and New Amwell Road
Latitude 40.505602, Longitude -74.642893
Type of Failure Pinhole Leak / Other Outside Force Damage; Electrical Arcing from
Other Equipment or Facility
Fatalities None
Injuries None
Description of area impacted Local sewer impacted by gasoline. Soil remediation required up to
200 feet north of leak site. Leak location is within a High
Consequence Area.
Total Costs \$113,318

Executive Summary

On December 10, 2012, at 11:00 p.m., Buckeye Partners, LP (Buckeye) was notified by the Hillsborough Fire Department that gasoline was found in a local sewer that runs perpendicular to Lines 603 and 620 in Hillsborough, NJ. Lines 603 and 620 are located in the same right-of-way. The two lines were shut down, and Buckeye crew members and contractors were dispatched to locate the leak. Two pinhole leaks were discovered on the top of the pipe on Line 620 located near the casing vent at the Route 206 Crossing near Hillsborough, NJ. The cause of the leak was due to a Public Service Electric and Gas (PSE&G) high-power overhead electrical wire striking the casing vent. The arcing caused two pinholes in the pipeline and the release of approximately 48 barrels of gasoline. There were no evacuations and no reported injuries as a result of the incident. Two southbound lanes of Route 206 were closed from December 11, 2012, to December 14, 2012, while temporary pipe repairs were being made. On January 10, 2013, a permanent repair consisting of the replacement of pipe at the Route 206 crossing was completed and the pipeline was returned to service.

System Details

Unit 3191 Linden Area – NJ consists of the following segments:

1. 20-inch and 16-inch pipelines from Linden, NJ, to the Pennsylvania border (49.1 miles)
2. A 12-inch pipeline from Sewaren, NJ, to Linden Station (5.2 miles)
3. A 6-inch pipeline from Linden, NJ, (1 mile) that increases to an 8-inch pipeline to Newark Airport (6.1 miles), and two 12-inch pipelines from Linden, NJ, to Long Island, NY (2.8 miles).

The unit also includes 49 breakout tanks located at the Linden facility and 1 breakout tank located at Newark Airport. There is one pump station in the Linden facility.

Line 620 was installed in 1974 as a 20-inch-diameter, 0.325-inch wall thickness, X52 carbon steel pipeline with coal tar epoxy coating. Line 620 has a Maximum Operating Pressure (MOP) of 900 psig with a normal operating pressure between 500 to 600 psig. Line 620 runs west from the Linden Station, located in Linden NJ, to the NJ/PA border and continues into Pennsylvania where it terminates at the Macungie Terminal inlet manifold in Macungie, PA (Appendix A, page 3).

Events Leading up to the Failure

On December 8, 2012, prior to the incident, Line 620 was in normal operating mode with an estimated pressure of 362 psig at the site and a pressure of 418 psig at the Linden Station. This pressure is well below the established MOP of 900 psig for this line. The pressure at the Hamilton Road Valve Station (located at MP 25.12 – approximately 1 mile from release site (at approximately the same elevation)) was 362 psig.

Emergency Response

At 2:33 p.m. on December 8, 2012, Linden Station was notified by the Hillsborough Police Department that a PSE&G transformer malfunctioned, dropping the power lines onto a casing vent on Line 620 at the Route 206 crossing (Appendix A). Buckeye responded and shut down lines 620 and 603 to test the integrity of the lines (Appendix D). No leakage was identified, and the lines were cleared for restart at

Failure Investigation Report – Buckeye Partners Hillsborough, NJ [Pipeline Gasoline Leak]
[Failure Date 12/10/2012]

2:40 p.m. on December 8, 2012. On December 10, 2012, the New Jersey Department of Environmental Protection (NJDEP) was notified by the Hillsborough Municipal Authority (MUA) of the presence of gasoline in the sewer line. Buckeye responded to this notification and found high levels of Volatile Organic Compounds (VOC) in the casing vent on Line 620. Buckeye activated their emergency response and established an Incident Command Center at a local hotel. Emergency response procedures were successfully initiated and all proper notifications were made to the National Response Center (NRC) (Appendix B).

A detailed summary of the emergency response activities and actions performed by Buckeye in response to this incident is outlined in Appendix D of this report.

Summary of Return-to-Service

A full replacement of Line 620 at the Route 206 road crossing was completed by Buckeye on January 8, 2013. Integrity testing was successfully completed on January 9, 2013, and the line was restarted at 1:00 p.m. on January 10, 2013. The damaged pipe and casing were sent for metallurgical analysis to the Det Norske Veritas (DNV) Materials and Corrosion Technology Center in Dublin, Ohio.

Investigation Details

On December 11, 2012, at 7:45 a.m., Buckeye discovered product in the casing vent on Line 620, and the leak was reported to the NRC. Buckeye performed a hold test on Line 603, adjacent to line 620, and determined that the pressure in Line 603 was stable, and the line was not involved in the release.

On December 13, 2012, PHMSA responded to the site to begin an investigation into the cause of the product release. Upon arrival at the accident site, the PHMSA inspector observed the excavation operations on the west side of Route 206.

On December 15, 2012, using a remote camera, Buckeye discovered a pinhole leak on Line 620. The pinhole leak was found on the east side of the Line 620 crossing at Route 206, approximately 6 feet from the end of the casing, near the 12:00 position (top) of the pipeline.

On December 17, 2012, the PHMSA inspector observed the installation of a temporary PLIDCO-style repair sleeve on Line 620. Line 620 was restarted on December 18, 2012, and the excavation area was backfilled.

Additional follow-up meetings were held on December 18 and 20, 2012, by conference call and at Buckeye headquarters, respectively, to review Buckeye's response, procedures, and records and to follow-up on the proposed repair schedule.

Buckeye estimated that 48 barrels of gasoline were released and 16 barrels were recovered.

On January 8, 2013, a permanent repair was made by replacing approximately 40 feet of pipe. The damaged pipeline section, along with the section of casing pipe that was located at the leak site, was sent to DNV for failure analysis. The pipeline was then restarted, and the excavation was backfilled.

Findings and Contributing Factors

The final metallurgical analysis from DNV, received on June 6, 2013, concluded that the cause of the release was due to a high current arc discharging energy from the pipe wall to the ground. The source of the arcing was from nearby power lines that fell and came into contact with the casing vent pipe on Line 620 (Appendix E-Lab Analysis). PHMSA's accident investigation findings are consistent with this analysis.

Appendices

- A 141992-Appendix A - Maps and Photos
- B 141992-Appendix B - NRC Report 1032892
- C 141992-Appendix C- Operator Accident Report to PHMSA 20130004 - 18209
- D 141992-Appendix D - Operator Event Log
- E 141992-Appendix E - Lab Analysis Report
- F 141992-Appendix F - Operator Final Report

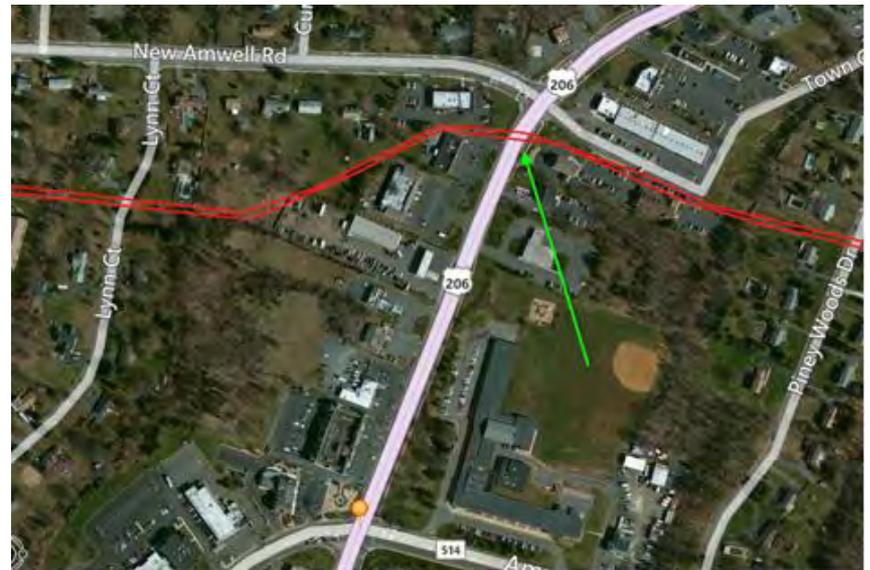
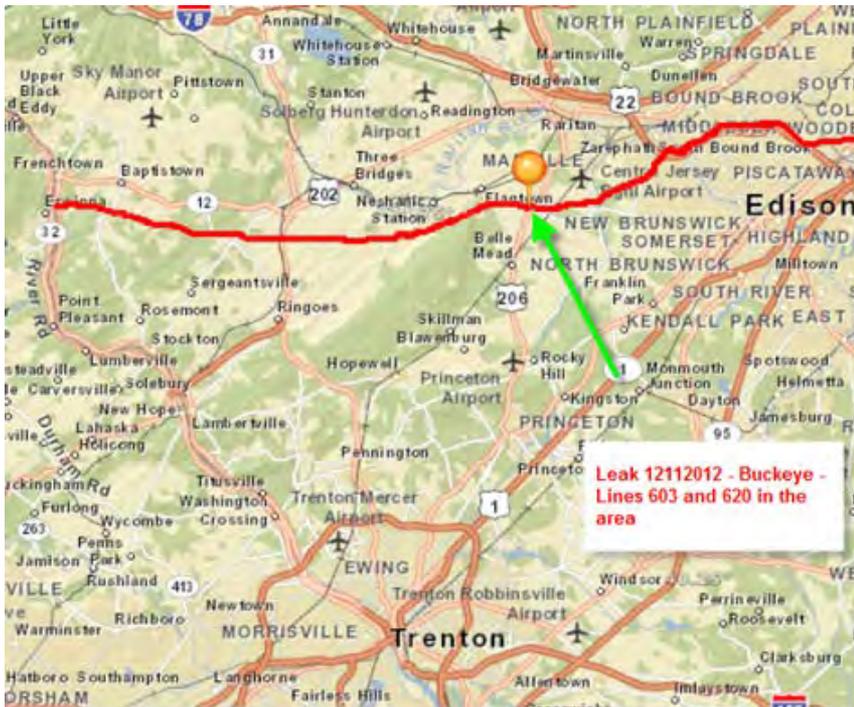
Buckeye Pipeline Partners, L.P

Line 620 Gasoline Leak

Hillsborough, NJ

New Amwell Road and Rt 206

Map of Hillsborough, NJ Area and Buckeye Pipelines 603 and 620



141992-Appendix A - Maps and Photos

West Side of Rt 206. Excavation of Line 620. PSE&G Nat Gas Distribution pipeline crosses above BPL's line at an angle. Looking from west to east under Rt 206. 20" pipeline with 24" casing. Date 12/13/2012



141992-Appendix A - Maps and Photos

Same excavation, top of road view. Backhoe is on Rt 206. Date 12/13/2012



141992-Appendix A - Maps and Photos

20" Plidco-style clamp repair fitting (was installed on 12/17/2012). Picture taken 12/13/2012



141992-Appendix A - Maps and Photos

Excavation on east side of Rt 206. Workers are facing east. Arrows on casing are pointing west, under Rt 206. Taken 12/17/2012.



141992-Appendix A - Maps and Photos

Close-up of casing pipe and casing vent. Drip pan for collecting water, water/gasoline mixture shown under the pipeline. Vac Truck hose is present, but hard to see. Taken 12/17/2012.



141992-Appendix A - Maps and Photos

Picture taken from north side of excavation. Picture shows cold cutting tool on casing. Blue pipe (under Line 620) is a sewer pipeline that was believed to be abandoned, but was found to be active when it was hit. The blue pipe is the replacement section that was installed early 12/17/2012. Taken 12/17/2012



NATIONAL RESPONSE CENTER 1-800-424-8802

*** For Public Use ***

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

Incident Report # 1032892

INCIDENT DESCRIPTION

*Report taken at 07:45 on 11-DEC-12

Incident Type: PIPELINE

Incident Cause: UNKNOWN

Affected Area:

The incident was discovered on 10-DEC-12 at 11:00 local time.

Affected Medium: LAND UNDERGROUND INTO THE GROUND

SUSPECTED RESPONSIBLE PARTY

Organization: BUCKEYE PIPELINE
MACUNGIE, PA

Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION

County: SOMERSET

City: HILLSBOROUGH State: NJ

INTERSECTION OF ROUTE 206 AND NEW AMNELL ROAD

RELEASED MATERIAL(S)

CHRIS Code: GAS Official Material Name: GASOLINE: AUTOMOTIVE (UNLEADED)

Also Known As:

Qty Released: 25 GALLON(S)

DESCRIPTION OF INCIDENT

CALLER STATED THERE WAS A SPILL OF GASOLINE POSSIBLY FROM A 20 INCH STEEL PIPELINE DUE TO UNKNOWN CAUSES.

INCIDENT DETAILS

Pipeline Type: FLOW

DOT Regulated: YES

Pipeline Above/Below Ground: BELOW

Exposed or Under Water: NO

Pipeline Covered: UNKNOWN

DAMAGES

Fire Involved: NO Fire Extinguished: UNKNOWN
 INJURIES: NO Hospitalized: Empl/Crew: Passenger:
 FATALITIES: NO Empl/Crew: Passenger:
 EVACUATIONS: NO Who Evacuated: Radius/Area:
 Damages: NO

<u>Closure Type</u>	<u>Description of Closure</u>	<u>Length of Closure</u>	<u>Direction of Closure</u>
Air: N			Major Artery:
Road: N			N
Waterway: N			
Track: N			

Passengers Transferred: NO
 Environmental Impact: UNKNOWN
 Media Interest: NONE Community Impact due to Material:

REMEDIAL ACTIONS

CALLER STATED THEY HAVE A CONTRACTOR COMING TO THE SCENE TO EXCAVATE THE GROUND ALONG WITH A VACUUM TRUCK. THE PIPELINE HAS BEEN SHUTDOWN.
 Release Secured: YES
 Release Rate:
 Estimated Release Duration:

WEATHER

ADDITIONAL AGENCIES NOTIFIED

Federal: NONE
 State/Local: NJ DEP
 State/Local On Scene: NJ DEP, LOCAL PD & FD
 State Agency Number: 12-12-10-104104

NOTIFICATIONS BY NRC

ATLANTIC STRIKE TEAM (MAIN OFFICE)
 11-DEC-12 07:56
 USCG ICC (ICC ONI)
 11-DEC-12 07:56
 DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)
 11-DEC-12 07:56

U.S. EPA II (MAIN OFFICE)
11-DEC-12 07:58
NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)
11-DEC-12 07:56
NJ DEPT OF HEALTH & SENIOR SVC (COMMAND CENTER)
11-DEC-12 07:56
NJ OFC HMLND SECURITY & PREPAREDNES (COMMAND CENTER)
11-DEC-12 07:56
NJ STATE POLICE (MARINE SERVICES BUREAU)
11-DEC-12 07:56
NOAA RPTS FOR NJ (MAIN OFFICE)
11-DEC-12 07:56
NATIONAL RESPONSE CENTER HQ (AUTOMATIC REPORTS)
11-DEC-12 07:56
PIPELINE & HAZMAT SAFETY ADMIN (OFFICE OF PIPELINE SAFETY (AUTO))
11-DEC-12 07:56
SECTOR DELAWARE BAY (RESPONSE)
11-DEC-12 07:56
NJ DEP POC: DUTY OFFICER (MAIN OFFICE)
11-DEC-12 07:56
USCG DISTRICT 1 (COMMAND CENTER)
11-DEC-12 07:56
USCG DISTRICT 5 (D5 DRAT)
11-DEC-12 07:56

ADDITIONAL INFORMATION

*** END INCIDENT REPORT # 1032892 ***

141992-Appendix C- Operator Accident Report to PHMSA 20130004 - 18209

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: 01/31/2014	
 U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration	Original Report Date:	01/07/2013	
	No.	20130004 - 18209 ----- (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. Public reporting for this collection of information is estimated to be approximately 10 hours per response (5 hours for a small release), including the time for reviewing instructions, gathering the data needed, and completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, PHMSA, Office of Pipeline Safety (PHP-30) 1200 New Jersey Avenue, SE, Washington, D.C. 20590.			
INSTRUCTIONS			
<i>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.</i>			
PART A - KEY REPORT INFORMATION			
Report Type: (select all that apply)	Original:	Supplemental:	Final:
		Yes	
Last Revision Date:	06/20/2013		
1. Operator's OPS-issued Operator Identification Number (OPID):	1845		
2. Name of Operator	BUCKEYE PARTNERS, LP		
3. Address of Operator:			
3a. Street Address	FIVE TEK PARK		
3b. City	BREINIGSVILLE		
3c. State	Pennsylvania		
3d. Zip Code	18031		
4. Local time (24-hr clock) and date of the Accident:	12/10/2012 11:00		
5. Location of Accident:			
Latitude:	40.505602		
Longitude:	-74.642893		
6. National Response Center Report Number (if applicable):	1032892		
7. Local time (24-hr clock) and date of initial telephonic report to the National Response Center (if applicable):	12/11/2012 07:45		
8. Commodity released: (select only one, based on predominant volume released)	Refined and/or Petroleum Product (non-HVL) which is a Liquid at Ambient Conditions		
- Specify Commodity Subtype:	Gasoline (non-Ethanol)		
- If "Other" Subtype, Describe:			
- 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):	B		
9. Estimated volume of commodity released unintentionally (Barrels):	48.00		
10. Estimated volume of intentional and/or controlled release/blowdown (Barrels):			
11. Estimated volume of commodity recovered (Barrels):	16.00		
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			

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13d. Workers working on the right-of-way, but NOT associated with this Operator	
13e. General public	
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:	12/10/2012 11:00
14b. Local time pipeline/facility restarted:	12/18/2012 07:19
- Still shut down? (* Supplemental Report Required)	
15. Did the commodity ignite?	No
16. Did the commodity explode?	No
17. Number of general public evacuated:	
18. Time sequence (use local time, 24-hour clock):	
18a. Local time Operator identified Accident:	12/10/2012 11:00
18b. Local time Operator resources arrived on site:	
PART B - ADDITIONAL LOCATION INFORMATION	
1. Was the origin of Accident onshore?	Yes
<i>If Yes, Complete Questions (2-12)</i>	
<i>If No, Complete Questions (13-15)</i>	
- If Onshore:	
2. State:	New Jersey
3. Zip Code:	08844
4. City:	Hillsborough
5. County or Parish:	Somerset
6. Operator-designated location:	Survey Station No.
Specify:	138450
7. Pipeline/Facility name:	LN620FZ
8. Segment name/ID:	
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 pavement
- If Other, Describe:	
Depth-of-Cover (in):	108
12. Did Accident occur in a crossing?	Yes
- If Yes, specify below:	
- If Bridge crossing –	
Cased/ Uncased:	
- If Railroad crossing –	
Cased/ Uncased/ Bored/drilled	
- If Road crossing –	Yes
Cased/ Uncased/ Bored/drilled	Cased
- 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

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- If Pipe, specify:	Pipe Body
3a. Nominal diameter of pipe (in):	20
3b. Wall thickness (in):	.325
3c. SMYS (Specified Minimum Yield Strength) of pipe (psi):	52,000
3d. Pipe specification:	X52
3e. Pipe Seam , specify:	Longitudinal ERW - Unknown Frequency
- If Other, Describe:	
3f. Pipe manufacturer:	US Steel
3g. Year of manufacture:	1974
3h. Pipeline coating type at point of Accident, specify:	Coal Tar
- If Other, Describe:	
- If Weld, including heat-affected zone, specify:	
- If Other, Describe:	
- If Valve, specify:	
- If Mainline, specify:	
- If Other, Describe:	
3i. Manufactured by:	
3j. Year of manufacture:	
- If Tank/Vessel, specify:	
- If Other - Describe:	
- If Other, describe:	
4. Year item involved in Accident was installed:	1974
5. Material involved in Accident:	Carbon Steel
- If Material other than Carbon Steel, specify:	
6. Type of Accident Involved:	Leak
- If Mechanical Puncture – Specify Approx. size:	
in. (axial) by	
in. (circumferential)	
- If Leak - Select Type:	Pinhole
- If Other, Describe:	
- If Rupture - Select Orientation:	
- If Other, Describe:	
Approx. size: in. (widest opening) by	
in. (length circumferentially or axially)	
- 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:	Yes
3. Long term impact assessment performed or planned:	Yes
4. Anticipated remediation:	Yes
4a. If Yes, specify all that apply:	
- Surface water	
- Groundwater	Yes
- Soil	Yes
- Vegetation	
- Wildlife	
5. Water contamination:	Yes
5a. If Yes, specify all that apply:	
- Ocean/Seawater	
- Surface	
- Groundwater	Yes
- Drinking water: (Select one or both)	
- Private Well	
- Public Water Intake	
5b. Estimated amount released in or reaching water (Barrels):	1.00
5c. Name of body of water, if commonly known:	Unknown
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?	Yes
7. Did the released commodity reach or occur in one or more High Consequence Area (HCA)?	Yes
7a. If Yes, specify HCA type(s): (Select all that apply)	
- Commercially Navigable Waterway:	
Was this HCA identified in the "could affect"	

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determination for this Accident site in the Operator's Integrity Management Program?	
- High Population Area:	Yes
Was this HCA identified in the "could affect" determination for this Accident site in the Operator's Integrity Management Program?	Yes
- 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	Yes
Was this HCA identified in the "could affect" determination for this Accident site in the Operator's Integrity Management Program?	Yes
- 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 Property Damage:	
8a. Estimated cost of public and non-Operator private property damage	\$ 0
8b. Estimated cost of commodity lost	\$ 0
8c. Estimated cost of Operator's property damage & repairs	\$ 65,735
8d. Estimated cost of Operator's emergency response	\$ 47,583
8e. Estimated cost of Operator's environmental remediation	\$ 0
8f. Estimated other costs	\$ 0
Describe:	
8g. Total estimated property damage (sum of above)	\$ 113,318
PART E - ADDITIONAL OPERATING INFORMATION	
1. Estimated pressure at the point and time of the Accident (psig):	362.00
2. Maximum Operating Pressure (MOP) at the point and time of the Accident (psig):	900.00
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. - 5e. 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):	69,493
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, Describe:	
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)	
- Excessive debris or scale, wax, or other wall buildup	

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- Low operating pressure(s)	
- Low flow or absence of flow	
- Incompatible commodity	
- Other -	
- If Other, Describe:	
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?	No
6d. Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume calculations) assist with the confirmation of the Accident?	No
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?	No
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?	No
8. How was the Accident initially identified for the Operator?	Notification From Public
- If Other, Specify:	
8a. If "Controller", "Local Operating Personnel", including contractors", "Air Patrol", or "Guard Patrol by Operator or its contractor" is selected in Question 8, specify the following:	
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?	Yes, specify investigation result(s): (select all that apply)
- 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)	
- 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	Yes
- 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	Yes
- Investigation identified no controller issues	Yes
- 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:	
Describe:	
PART F - DRUG & ALCOHOL TESTING INFORMATION	
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? - If Yes:	No
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:	G4 - Other Outside Force Damage
G1 - Corrosion Failure - only one sub-cause can be picked from shaded left-hand column	
External Corrosion:	
Internal Corrosion:	
- If External Corrosion:	
1. Results of visual examination: - If Other, Describe:	
2. Type of corrosion: <i>(select all that apply)</i>	
- Galvanic	
- Atmospheric	
- Stray Current	
- Microbiological	
- Selective Seam	
- Other:	
- If Other, Describe:	
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, Describe:	
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, Describe:	
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:	
- If Other, Describe:	
9. Location of corrosion <i>(select all that apply):</i> -	
- Low point in pipe	
- Elbow	
- Other:	

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- If Other, Describe:	
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:
	Describe:
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:
	Describe:
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:	

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- If Other, Describe:	
- If Heavy Rains/Floods:	
2. Specify:	
- If Other, Describe:	
- If Lightning:	
3. Specify:	
- If Temperature:	
4. Specify:	
- If Other, Describe:	
- If High Winds:	
- 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, Describe:	
G3 - Excavation Damage - only one sub-cause can be picked from shaded left-hand column	
Excavation Damage – Sub-Cause:	
- If Excavation Damage by Operator (First Party):	
- If Excavation Damage by Operator's Contractor (Second Party):	
- If Excavation Damage by Third Party:	
- 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:
Describe:	
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:	

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5. Has one or more non-destructive examination been conducted at the point of the Accident since January 1, 2002?	
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:
Describe:	
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:	Electrical Arcing from Other Equipment or Facility
- If Nearby Industrial, Man-made, or Other Fire/Explosion as Primary Cause of Incident:	
- 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:	

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2. Select one or more of the following IF an extreme weather event was a factor:	
- Hurricane	
- Tropical Storm	
- Tornado	
- Heavy Rains/Flood	
- Other	
- If Other, Describe:	
- If Routine or Normal Fishing or Other Maritime Activity NOT Engaged in Excavation:	
- If Electrical Arcing from Other Equipment or Facility:	
- 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:
Describe:	
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:
Describe:	
- If Intentional Damage:	
8. Specify:	
	- If Other, Describe:
- 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:	
1. The sub-cause selected below is based on the following: <i>(select all that apply)</i>	
- Field Examination	
- Determined by Metallurgical Analysis	
- Other Analysis	
- If "Other Analysis", Describe:	
- Sub-cause is Tentative or Suspected; Still Under Investigation (Supplemental Report required)	
- If Construction, Installation, or Fabrication-related:	
2. List contributing factors: <i>(select all that apply)</i>	
- Fatigue or Vibration-related	
Specify:	
- If Other, Describe:	
- Mechanical Stress:	
- Other	
- If Other, Describe:	
- If Original Manufacturing-related (NOT girth weld or other welds formed in the field):	
2. List contributing factors: <i>(select all that apply)</i>	
- Fatigue or Vibration-related:	
Specify:	
- If Other, Describe:	
- Mechanical Stress:	
- Other	
- If Other, Describe:	
- If Environmental Cracking-related:	
3. Specify:	
- 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:	
- If Other, Describe:	
5. Has one or more internal inspection tool collected data at the point of the Accident?	
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:

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	Describe:	
6. 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):	
7. 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:	
8. Has one or more non-destructive examination(s) been conducted at the point of the Accident since January 1, 2002?		
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: -		
- 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:	
	Describe:	
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: <i>(select all that apply)</i> -		
- Control Valve		
- Instrumentation		
- SCADA		
- Communications		
- Block Valve		
- Check Valve		
- Relief Valve		
- Power Failure		
- Stopple/Control Fitting		
- ESD System Failure		
- Other		
	- If Other – Describe:	
- If Pump or Pump-related Equipment:		
2. Specify:		
	- If Other – Describe:	
- If Threaded Connection/Coupling Failure:		
3. Specify:		
	- If Other – Describe:	
- If Non-threaded Connection Failure:		
4. Specify:		
	- If Other – Describe:	
- If Defective or Loose Tubing or Fitting:		
- If Failure of Equipment Body (except Pump), Tank Plate, or other Material:		
- 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: <i>(select all that apply)</i>		
- Excessive vibration		
- Overpressurization		
- No support or loss of support		
- Manufacturing defect		

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- 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, Describe:	

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

Incorrect Operation – Sub-Cause:

Damage by Operator or Operator’s Contractor NOT Related to Excavation and NOT due to Motorized Vehicle/Equipment Damage

No

Tank, Vessel, or Sump/Separator Allowed or Caused to Overfill or Overflow

No

1. Specify:

- If Other, Describe:

Valve Left or Placed in Wrong Position, but NOT Resulting in a Tank, Vessel, or Sump/Separator Overflow or Facility Overpressure

No

Pipeline or Equipment Overpressured

No

Equipment Not Installed Properly

No

Wrong Equipment Specified or Installed

No

Other Incorrect Operation

No

2. Describe:

Complete the following if any Incorrect Operation sub-cause is selected.

3. Was this Accident related to (*select all that apply*): -

- 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

AT APPROXIMATELY 11:00 AM ON 12/10/12, BUCKEYE WAS INFORMED GASOLINE WAS FOUND IN A SEWER THAT RUNS PERPENDICULAR TO THE 620 LINE IN HILLSBOROUGH, NJ. THE 603 AND 620 LINES WERE SHUT DOWN IN A SAFE AND CONTROLLED MANNER. WHILE INVESTIGATING THE AREA, HIGH LEVELS OF VOCs WERE MEASURED AT THE CASING VENT AT THE ROUTE 206 CROSSING. EMERGENCY RESPONSE PROCEDURES WERE INITIATED AND ALL PROPER NOTIFICATIONS WERE MADE.

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INITIAL INVESTIGATION CONCLUDED THE 603 LINE WAS NOT INVOLVED, AND SUBSEQUENTLY RESTARTED.

ON 12/15/12, A PINHOLE WAS FOUND ON THE 620 LINE INSIDE THE CASING. THE PINHOLE WAS NEAR THE 12:00 POSITION. A BOLT-ON SLEEVE WAS INSTALLED TO STOP THE RELEASE OF PRODUCT. A PERMANENT REPAIR WILL BE PERFORMED IN JANUARY 2013. THE DAMAGED PIPE WILL BE REMOVED AND SENT FOR METALLURGICAL ANALYSIS. REMEDIATION IS ONGOING.

Update June 20, 2013 - Root Cause

Metallurgical analysis final report of June 6, 2013 concluded that the release was caused by a high current arc discharging energy from the pipe wall to the ground. Attributed source was from nearby power lines.

File Full Name

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PART I - PREPARER AND AUTHORIZED SIGNATURE

Preparer's Name	Hope Sandler
Preparer's Title	Compliance Specialist
Preparer's Telephone Number	610-904-4958
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Authorized Signature's Name	JOHN REINBOLD
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Authorized Signature Email	JREINBOLD@BUCKEYE.COM
Date	06/20/2013

Appendix D
Operator Event Log
Removed

File Available at PHMSA

Appendix E
Lab Analysis Report
Removed
File Available at PHMSA

Appendix F
Operator Final Report
Removed

File Available at PHMSA