

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

**Principal Investigator** Michael Yazemboski  
**Region Director** Byron Coy  
**Date of Report** 08/05/2011  
**Subject** Failure Investigation Report – Buckeye External Corrosion Pit near Shippingport, PA

**Operator, Location, & Consequences**

**Date of Failure** 03/20/2011  
**Commodity Released** Diesel  
**City/County & State** Shippingport/Beaver County, PA  
**OpID & Operator Name** 1845 Buckeye Pipeline LP  
**Unit # & Unit Name** 3221 Coraopolis Area – PA  
**SMART Activity #** 133920  
**Milepost / Location** Latitude: 40.62252, Longitude: -80.4181  
**Type of Failure** Pipeline Leak due to localized external corrosion pit  
**Fatalities** 0  
**Injuries** 0  
**Description of area impacted** HCA area  
**Property Damage** \$118,617

### **Executive Summary**

On March 20, 2011, Buckeye Pipeline reported a leak on their 10" line 820 that runs from their Coraopolis Terminal to the Midland Terminal. The leak was located in a wooded area behind a Gypsum plant near the intersection of Ferry Hill Road and Shippingport Road in Shippingport, PA. The leak was due to an isolated external corrosion pit located in the 12:00 position on the pipe. Approximately 300 barrels of diesel fuel were spilled as a result of the leak and it was estimated that 238 barrels were recovered. The spill follow the natural terrain from the leak site to a stormwater drainage canal located behind the Gypsum plant, where it was contained and prevented from entering the Ohio River. Buckeye was able to isolate the line by closing block valves upstream and downstream of the leak site. Once isolated, Buckeye drained the leaking segment of line into tank trucks located at their Midland Terminal. On March 23, Buckeye repaired the leak by cutting out and replacing a 10' section of pipe with new pipe. The line was returned to full operation on March 23 around 10:00am.

### **System Details**

The leak was on Buckeye's Line 820. Line 820 is a 10" line running from Buckeye's Coraopolis Terminal to their Midland Terminal located in Shippingport, PA. (Appendix A / Appendix B)

The Coraopolis Unit contains 145 miles of 6", 10", and 12" pipe that runs from Midland Terminal to the Indiana Terminal located in Indiana, PA and to the Pittsburgh airport.

### **Events Leading up to the Failure**

The leak was initially reported to the NRC by a local resident (Appendix C).

Buckeye was in the process of pumping Ultra Low Sulfur Diesel (ULSD) fuel from Buckeye's Coraopolis Terminal to their Midland Terminal located in Shippingport, PA. The pressure at the site at the time of failure was 462 psig which was below the MAOP of 1147 psig. A resident reported a spray of product that could be seen rising above the trees in a wooded area behind the Gypsum plant. Buckeye responded and determined that it was their line 820 that was leaking.

### **Emergency Response**

On March 20, 2011, at approximately 14:02, Buckeye was notified by emergency responders of a possible leak on the Buckeye line in Shippingport, PA. Buckeye immediately dispatched local field personnel and began a controlled shutdown and isolation of the line. The appropriate internal and external notifications were made to report the release and dispatch teams of responders to contain the product and repair the defect in the line. Buckeye was able to isolate the line by closing block valves upstream and downstream of the leak site. Once isolated, Buckeye drained the leaking segment of line into tank trucks located at their Midland Terminal. Buckeye established a local command center on site. Local, State, and Federal agencies responded. Buckeye successfully implemented their Oil Spill Response Plan (dated 7/13/2010) and Emergency Plan Procedures.

### **Summary of Return-to-Service**

On March 23, 2011, Buckeye repaired the leak by cutting out and replacing a 10' section of pipe with new pipe. A successful pressure test was conducted prior to returning the line to service. During the start up phase, the pressure in the line was increased in incremental steps until final operating pressure was achieved. The line was returned to full operation on March 23, 2011.

### **Investigation Details**

In April 2010, Buckeye identified a washout condition near the leak location. A review of the records indicated that approximately 2' of pipe was exposed and that the coating was intact and not damaged. This washout area was scheduled to be monitored during future patrols of the area until permanent remediation could be implemented. This condition is not believed to be a contributing factor in causing the leak.

The damaged pipe was cut out and replaced on 3/23/2011. The pipe segment containing the defect was sent to a laboratory for metallurgical analysis to determine the exact cause of the release. Most of the product has been recovered as remediation efforts continue. A professional metallurgical analysis indicates it is likely that the corrosive low pH water directly contacting the exposed segment of pipeline caused the localized external pitting corrosion leading to the through wall defect and the surrounding metal loss.

### **Findings & Contributing Factors**

The cause has been determined to be due to low pH water directly contacting the exposed segment of pipeline causing the localized external pitting leading to the through wall defect and the surrounding metal loss (Appendix D). The corrosion is limited to the section of exposed piping where the coating had become disbonded.

### **Appendices**

Appendix A - Site Maps

Appendix B - Photographs

Appendix C - NRC Reports

Appendix D - Buckeye Accident Report



80°25'16"W

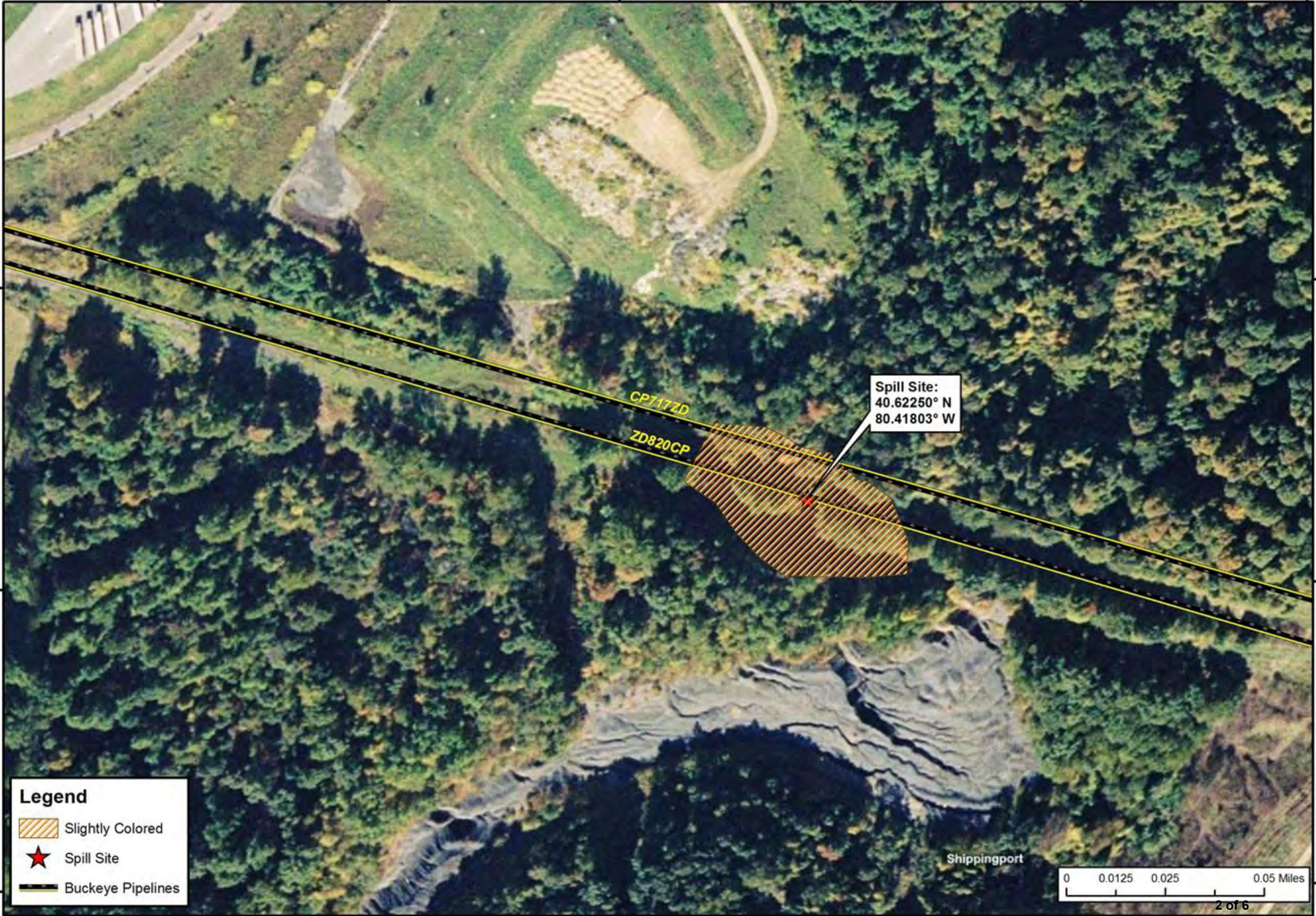
80°25'12"W

80°25'8"W

80°25'4"W

80°25'0"W

80°24'56"W

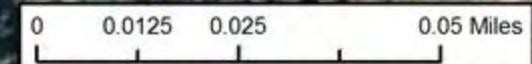


Spill Site:  
40.62250° N  
80.41803° W

CP717ZD  
ZD820CP

**Legend**

-  Slightly Colored
-  Spill Site
-  Buckeye Pipelines



80°25'16"W

80°25'12"W

80°25'8"W

80°25'4"W

80°25'0"W

Shippingport

40°37'24"N

40°37'20"N

40°37'16"N

40°37'24"N

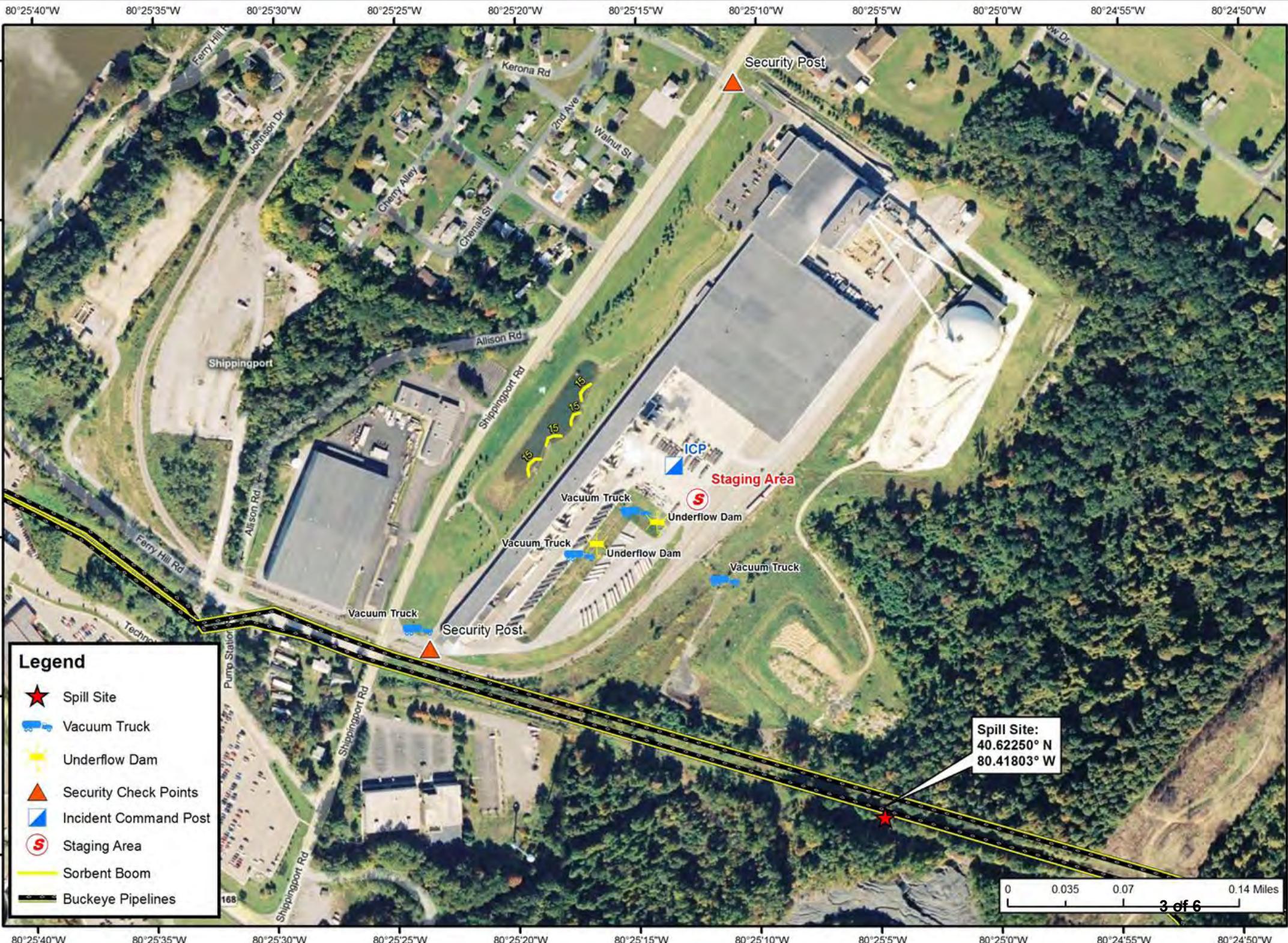
40°37'20"N

40°37'16"N



# SHIPPINGPORT PIPELINE RELEASE SITUATION MAP

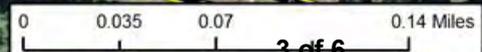
10:00 3/21/2011



**Legend**

- Spill Site
- Vacuum Truck
- Underflow Dam
- Security Check Points
- Incident Command Post
- Staging Area
- Sorbent Boom
- Buckeye Pipelines

Spill Site:  
40.62250° N  
80.41803° W

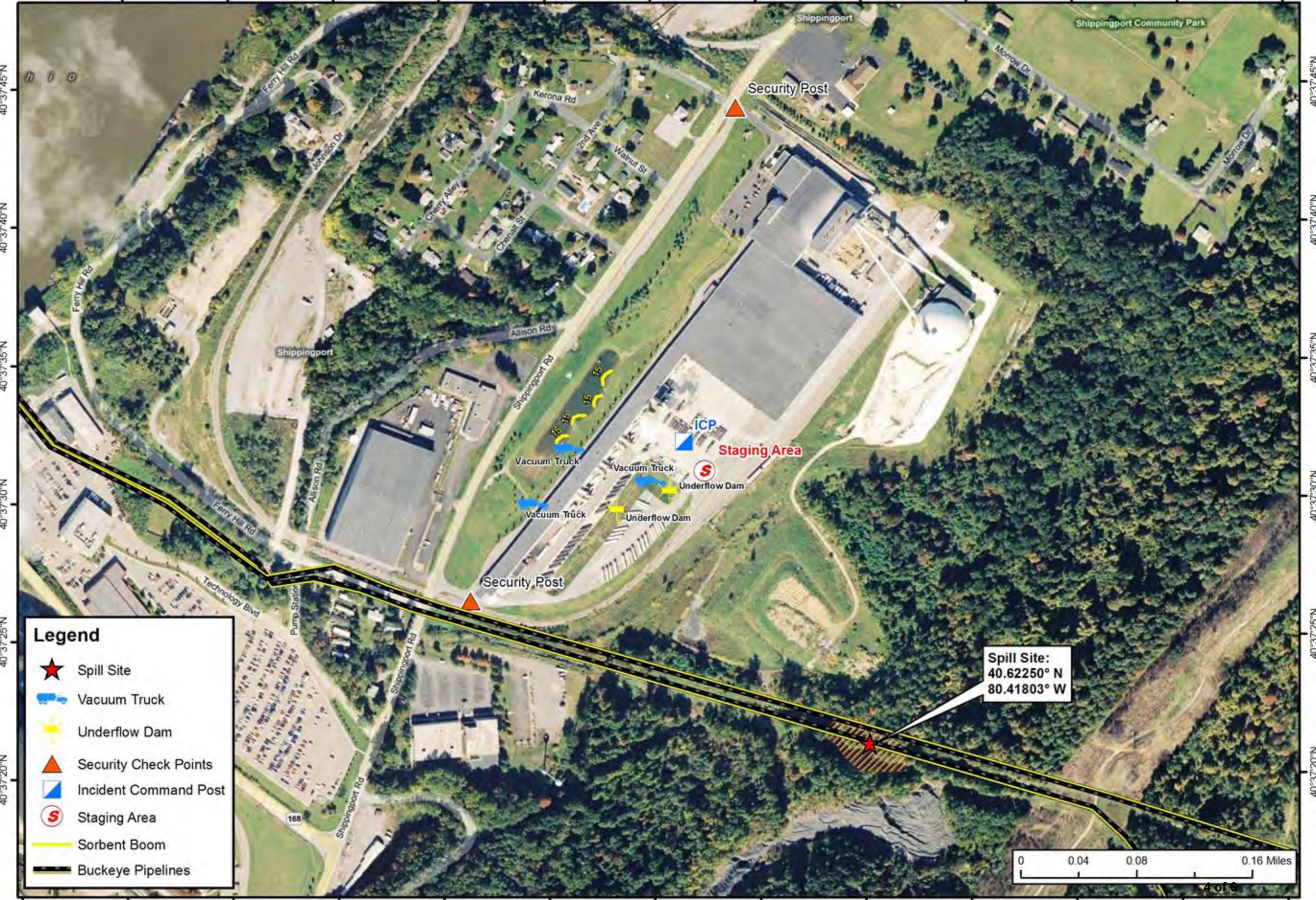




# SHIPPINGPORT PIPELINE RELEASE SITUATION MAP

12:30 3/22/2011

80°25'40"W 80°25'35"W 80°25'30"W 80°25'25"W 80°25'20"W 80°25'15"W 80°25'10"W 80°25'5"W 80°25'0"W 80°24'55"W 80°24'50"W 80°24'45"W



**Legend**

- Spill Site
- Vacuum Truck
- Underflow Dam
- Security Check Points
- Incident Command Post
- Staging Area
- Sorbent Boom
- Buckeye Pipelines

Spill Site:  
40.62250° N  
80.41803° W

0 0.04 0.08 0.16 Miles

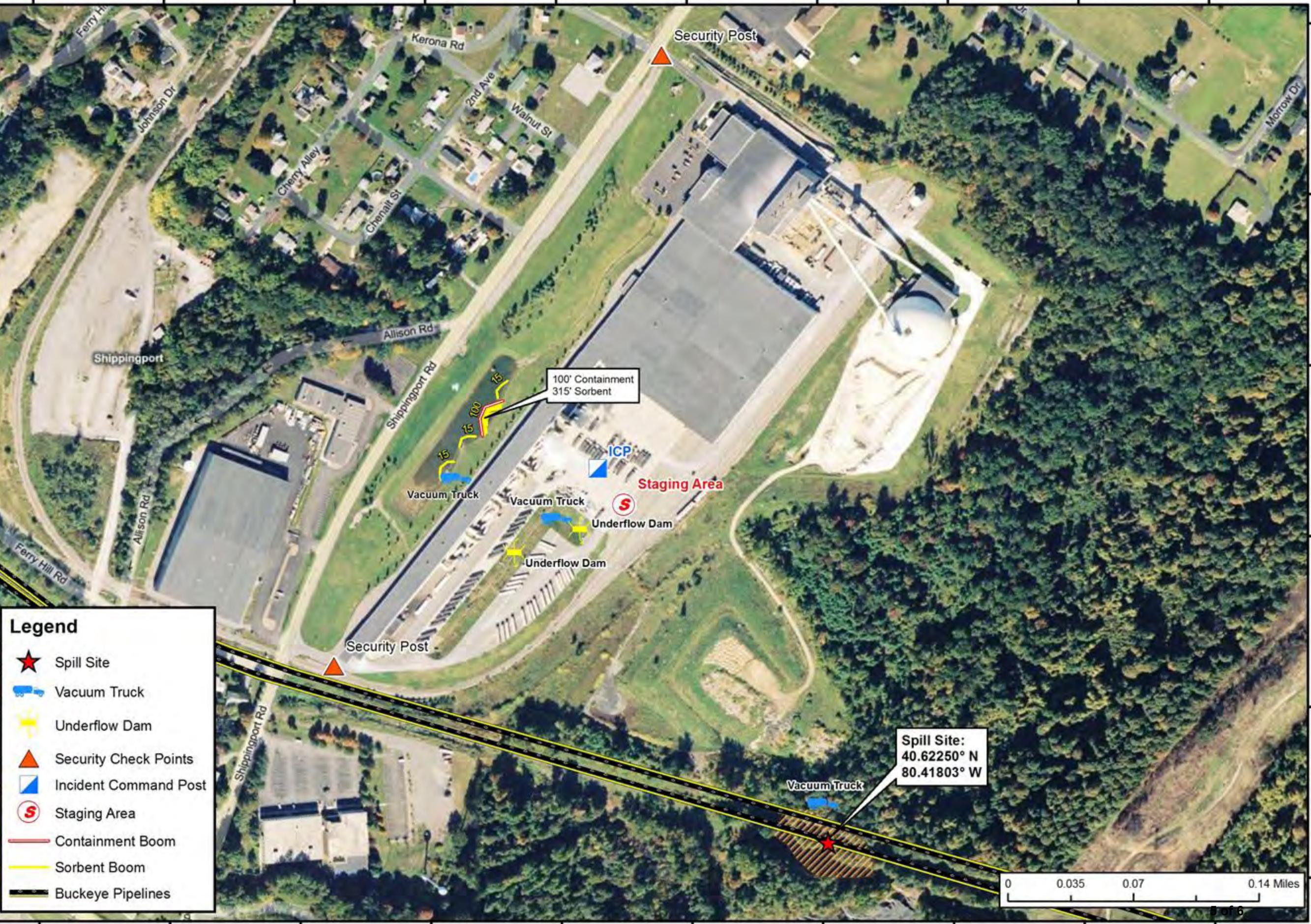
80°25'45"W 80°25'40"W 80°25'35"W 80°25'30"W 80°25'25"W 80°25'20"W 80°25'15"W 80°25'10"W 80°25'5"W 80°25'0"W 80°24'55"W 80°24'50"W 80°24'45"W



# SHIPPINGPORT PIPELINE RELEASE SITUATION MAP

17:00 3/22/2011

80°25'35"W 80°25'30"W 80°25'25"W 80°25'20"W 80°25'15"W 80°25'10"W 80°25'5"W 80°25'0"W 80°24'55"W 80°24'50"W



**Legend**

- Spill Site
- Vacuum Truck
- Underflow Dam
- Security Check Points
- Incident Command Post
- Staging Area
- Containment Boom
- Sorbent Boom
- Buckeye Pipelines

Spill Site:  
40.62250° N  
80.41803° W

0 0.035 0.07 0.14 Miles

80°25'35"W 80°25'30"W 80°25'25"W 80°25'20"W 80°25'15"W 80°25'10"W 80°25'5"W 80°25'0"W 80°24'55"W 80°24'50"W

40°37'45"N  
40°37'40"N  
40°37'35"N  
40°37'30"N  
40°37'25"N  
40°37'20"N

40°37'45"N  
40°37'40"N  
40°37'35"N  
40°37'30"N  
40°37'25"N  
40°37'20"N



# BUCKEYE PIPELINE INCIDENT DETAILED OVERVIEW MAP 3/20/2011

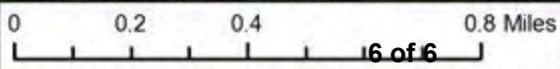
80°27'30"W 80°27'0"W 80°26'30"W 80°26'0"W 80°25'30"W 80°25'0"W 80°24'30"W 80°24'0"W



Initial Reported Incident Location  
Shippingport, PA

**LEGEND**

- Incident Location
- Buckeye Pipelines



80°27'30"W 80°27'0"W 80°26'30"W 80°26'0"W 80°25'30"W 80°25'0"W 80°24'30"W 80°24'0"W

Photo 1

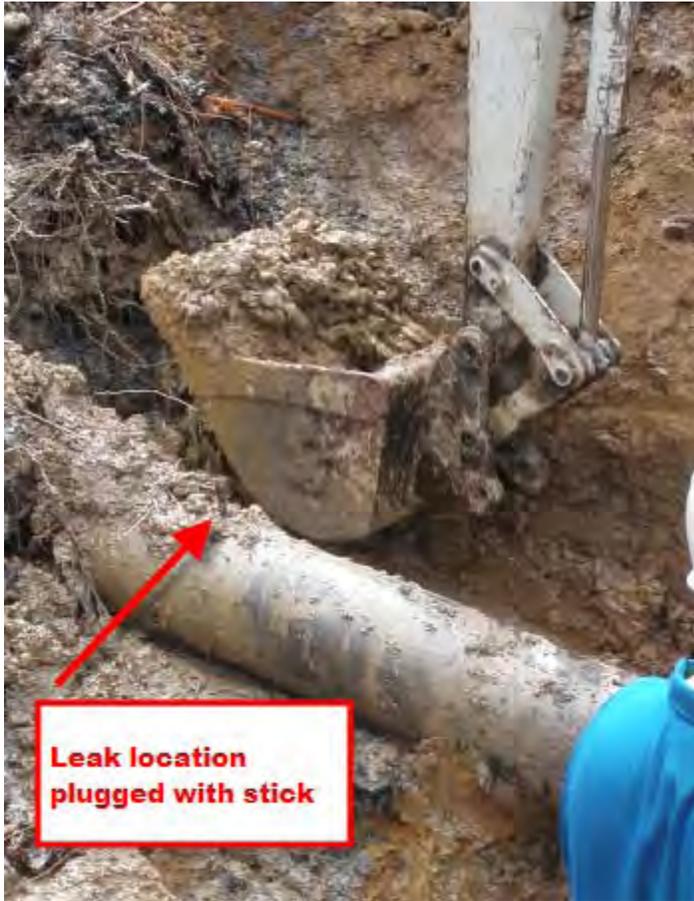


Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



133920 Appendix C - NRC Report 970587



HMIS->INCIDENTS->TELEPHONICS

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**NRC Number:** 970587  
**Call Date:** 03/20/2011 **Call Time:** 14:24:10

**Caller Information**

First Name: TERRY Last Name: ERICKSON  
 Company Name: BEAVER COUNTY 911  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: PA  
 Country: USA Zip: \_\_\_\_\_  
 Phone 1: 7247750880 Phone 2: \_\_\_\_\_  
 Organization Type: LOCAL Is caller the spiller?  Yes  No  No Response  
 Confidential:  Yes  No  No Response

**Discharger Information**

First Name: \_\_\_\_\_ Last Name: UNKNOWN  
 Company Name: BUCKEYE PIPELINE  
 Address: \_\_\_\_\_  
 City: SHIPPINGPORT State: PA  
 Country: USA Zip: \_\_\_\_\_  
 Phone 1: \_\_\_\_\_ Phone 2: \_\_\_\_\_  
 Organization Type: PRIVA1

**Spill Information**

State: PA County: BEAVER  
 Nearest City: SHIPPINGPORT Zip Code: \_\_\_\_\_  
Location

Spill Date: 03/20/2011 (mm/dd/yyyy) Spill Time: 14:00:00 (24hh:mm:ss)  
 DTG Type: OCCURRED  
 Incident Type: PIPELINE Reported Incident Type: PIPELINE

Description

CALLER STATED DUE TO UNKNOWN CAUSES A PIPELINE RUPTURED AND IS SHOOTING OIL ABOUT 40 FEET INTO THE AIR AND IT IS GOING INTO THE OHIO RIVER. NO INJURIES WERE REPORTED.

Materials Involved

Material / Chris Name	Chris Code	Total Qty.	Water Qty.
UNKNOWN OIL	OUN	0 UNKNOWN AMOUNT	0 UNKNOWN AMOUNT

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Medium Type: WATER

Additional Medium Information:

OHIO RIVER

Injuries:  Yes  No  Unknown      Fatalites:  Yes  No  Unknown  
 Evacuations:  Yes  No  Unknown      No. of Evacuations:   
 Damages:  Yes  No  Unknown      Damage Amount:   
 Federal Agency Notified:  Yes  No  Unknown      State Agency Notified:  Yes  No  Unknown  
 Other Agency Notified:  Yes  No  Unknown

Remedial Actions

FIRE DEPT IS ON SCENE AND HAZMAT IS EN ROUTE.

Additional Info

NONE GIVEN.

Latitude

Degrees:  Minutes:  Seconds:  Quadrant:

Longitude

Degrees:  Minutes:  Seconds:  Quadrant:

Distance from City:  Direction:

Section:  Township:

Range:  Milepost:

Rescinded    Comments (max 250 characters)

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**NRC Number:** 970594  
**Call Date:** 03/20/2011 **Call Time:** 15:33:36

**Caller Information**

First Name: CARL Last Name: OSTACH  
 Company Name: BUCKEYE PARTNERS  
 Address: 469 MOON CLINTON ROAD  
 City: CORAOPOLIS State: PA  
 Country: USA Zip: 15108  
 Phone 1: 4122929019 Phone 2: 4122997010  
 Organization Type: PRIVA1 Is caller the spiller?  Yes  No  No Response  
 Confidential:  Yes  No  No Response

**Discharger Information**

First Name: CARL Last Name: OSTACH  
 Company Name: BUCKEYE PARTNERS  
 Address: 469 MOON CLINTON ROAD  
 City: CORAOPOLIS State: PA  
 Country: USA Zip: 15108  
 Phone 1: 4122929019 Phone 2: 4122997010  
 Organization Type: PRIVA1

**Spill Information**

State: PA County: BEAVER  
 Nearest City: SHIPPINGPORT Zip Code:  
Location

Spill Date: 03/20/2011 (mm/dd/yyyy) Spill Time: 15:10:00 (24hh:mm:ss)  
 DTG Type: DISCOVERED  
 Incident Type: PIPELINE Reported Incident Type: PIPELINE

Description

CALLER STATED ULTRA LOW SULFUR DIESEL FUEL RELEASED FROM A PIPELINE DUE TO UNKNOWN CAUSES AND HAS ENTERED INTO THE OHIO RIVER.

Materials Involved

Material / Chris Name	Chris Code	Total Qty.	Water Qty.
OIL: DIESEL	ODS	0 UNKNOWN AMOUNT	0 UNKNOWN AMOUNT

133920 Appendix C - NRC Report 970594

Medium Type: WATER

Additional Medium Information:

OHIO RIVER

Injuries:  Yes  No  Unknown      Fatalities:  Yes  No  Unknown

Evacuations:  Yes  No  Unknown      No. of Evacuations:

Damages:  Yes  No  Unknown      Damage Amount:

Federal Agency Notified:  Yes  No  Unknown      State Agency Notified:  Yes  No  Unknown

Other Agency Notified:  Yes  No  Unknown

Remedial Actions

PIPELINE HAS BEEN SHUTDOWN, CLOSING VALVES TO ISOLATE PIPELINE SECTION, ACTIVATED CONTRACTORS FOR CLEANUP, PUBLIC RESPONDERS SUCH AS POLICE, FIRE AND OTHER AGENCIES ARE ON SITE.

Additional Info

CALLER HAD NO ADDITIONAL INFORMATION AT THIS TIME.

Latitude

Degrees:  Minutes:  Seconds:  Quadrant:

Longitude

Degrees:  Minutes:  Seconds:  Quadrant:

Distance from City:  Direction:

Section:  Township:

Range:  Milepost:

Rescinded    Comments (max 250 characters)

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NRC Number: 970718  
 Call Date: 03/21/2011 Call Time: 17:11:57

**Caller Information**

First Name: CARL Last Name: OSTACH  
 Company Name: BUCKEYE PARTNERS  
 Address: 469 MOON CLINTON ROAD  
 City: CORAOPOLIS State: PA  
 Country: USA Zip: 15108  
 Phone 1: 4122929019 Phone 2: 4122997010  
 Organization Type: PRIVA1 Is caller the spiller?  Yes  No  No Response  
 Confidential:  Yes  No  No Response

**Discharger Information**

First Name: CARL Last Name: OSTACH  
 Company Name: BUCKEYE PARTNERS  
 Address: 469 MOON CLINTON ROAD  
 City: CORAOPOLIS State: PA  
 Country: USA Zip: 15108  
 Phone 1: 4122929019 Phone 2: 4122997010  
 Organization Type: PRIVA1

**Spill Information**

State: PA County: BEAVER  
 Nearest City: SHIPPINGPORT Zip Code: 15077

Location

ROUTE 168 SHIPPINGPORT RD.

Spill Date: 03/20/2011 (mm/dd/yyyy) Spill Time: 15:10:00 (24h:mm:ss)

DTG Type: DISCOVERED

Incident Type: PIPELINE Reported Incident Type: PIPELINE

Description

\*\*\* THIS IS A QUANTITY UPDATE REPORT; REFER TO NRC REPORT # 970594\*\*\* THE QUANTITY HAS BEEN UPDATED FROM AN UNKNOWN AMOUNT TO 300 BARRELS DUE TO A DISCHARGE OF LOW SULFUR DIESEL FUEL FROM A TRANSMISSION PIPELINE THAT OCCURRED ON 20MAR2011. THE CALLER STATED THAT THE AMOUNT RECOVERED WAS 238 BARRELS.

Materials Involved

Material / Chris Name	Chris Code	Total Qty.	Water Qty.
OIL: DIESEL	ODS	300 BARREL(S)	

133920 Appendix C - NRC Report 970718

Medium Type:

Additional Medium Information:

/ NO OFF SITE IMPACT

Injuries:  Yes  No  Unknown

Fatalites:  Yes  No  Unknown

Evacuations:  Yes  No  Unknown

No. of Evacuations:

Damages:  Yes  No  Unknown

Damage Amount:

Federal Agency Notified:  Yes  No  Unknown

State Agency Notified:  Yes  No  Unknown

Other Agency Notified:  Yes  No  Unknown

Remedial Actions

238 BARRELS HAS BEEN RECOVERED, ALL PRODUCT IS CONTAINED AT THIS TIME AND NO ADDITIONAL ASSISTANCE IS REQUESTED.

Additional Info

\*\*\* THIS IS AN UPDATED REPORT; REFER TO NRC REPORT #970594\*\*\* CALLER HAD NO ADDITIONAL INFORMATION.

Latitude

Degrees:  Minutes:  Seconds:  Quadrant:

Longitude

Degrees:  Minutes:  Seconds:  Quadrant:

Distance from City:  Direction:

Section:  Township:

Range:  Milepost:

Rescinded **Comments** (max 250 characters)

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**133920 Appendix D - Buckeye Accident Supplemental Report**

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:	03/20/2011 14:10
14b. Local time pipeline/facility restarted:	03/23/2011 15:23
- Still shut down? (* Supplemental Report Required)	
15. Did the commodity ignite?	No
16. Did the commodity explode?	No
17. Number of general public evacuated:	0
18. Time sequence (use local time, 24-hour clock):	
18a. Local time Operator identified Accident:	03/20/2011 14:02
18b. Local time Operator resources arrived on site:	03/20/2011 15:16

**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>	
<b>- If Onshore:</b>	
2. State:	Pennsylvania
3. Zip Code:	15077
4. City:	Shippingport
5. County or Parish:	Beaver
6. Operator-designated location:	Milepost/Valve Station
Specify:	MP 1.46
7. Pipeline/Facility name:	
8. Segment name/ID:	IP820CP
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):	Aboveground
Specify:	Other
- If Other, Describe:	washout
Depth-of-Cover (in):	
12. Did Accident occur in a crossing?	No
- If Yes, specify 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:	
<b>- If Offshore:</b>	
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

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3a. Nominal diameter of pipe (in):	10
3b. Wall thickness (in):	.279
3c. SMYS (Specified Minimum Yield Strength) of pipe (psi):	42,000
3d. Pipe specification:	X42
3e. Pipe Seam , specify:	Seamless
- If Other, Describe:	
3f. Pipe manufacturer:	
3g. Year of manufacture:	
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:	1951
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:	
<b>PART D - ADDITIONAL CONSEQUENCE INFORMATION</b>	
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:	No
4a. If Yes, specify all that apply:	
- Surface water	
- Groundwater	
- Soil	
- Vegetation	
- Wildlife	
5. Water contamination:	No
5a. If Yes, specify all that apply:	
- Ocean/Seawater	
- Surface	
- Groundwater	
- Drinking water: <i>(Select one or both)</i>	
- 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?	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): <i>(Select all that apply)</i>	
- 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?	Yes
- 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?	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 cost to Operator :	
8a. Estimated cost of public and non-Operator private property damage paid/reimbursed by the Operator	\$ 0
8b. Estimated cost of commodity lost	\$ 0
8c. Estimated cost of Operator's property damage & repairs	\$ 111,959
8d. Estimated cost of Operator's emergency response	\$ 0
8e. Estimated cost of Operator's environmental remediation	\$ 6,658
8f. Estimated other costs	\$ 0
Describe:	
8g. Estimated total costs (sum of above)	\$ 118,617
<b>PART E - ADDITIONAL OPERATING INFORMATION</b>	
1. Estimated pressure at the point and time of the Accident (psig):	462.00
2. Maximum Operating Pressure (MOP) at the point and time of the Accident (psig):	1,147.00
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)	
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):	88,806
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	
- Low operating pressure(s)	

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- 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 Emergency Responder
- 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, but the investigation of the control room and/or controller actions has not yet been completed by the operator (Supplemental Report Required)
- If No, the Operator did not find that an investigation of the controller(s) actions or control room issues was necessary due to: <i>(provide an explanation for why the operator did not investigate)</i>	
- If Yes, specify investigation result(s): <i>(select all that apply)</i>	
- 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:	
Describe:	
<b>PART F - DRUG &amp; ALCOHOL TESTING INFORMATION</b>	
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:	

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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:	
<b>PART G – APPARENT CAUSE</b>	
<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>	
<b>Apparent Cause:</b>	G1 - Corrosion Failure
<b>G1 - Corrosion Failure</b> - only one sub-cause can be picked from shaded left-hand column	
<b>Corrosion Failure – Sub Cause:</b>	
<b>- If External Corrosion:</b>	
1. Results of visual examination: - If Other, Describe:	Localized Pitting
2. Type of corrosion: <i>(select all that apply)</i>	
- Galvanic	
- Atmospheric	
- Stray Current	
- Microbiological	
- Selective Seam	
- Other:	Yes
- If Other, Describe:	A professional metallurgical analysis claims it is likely that the corrosive low pH water directly contacting the exposed segment of pipeline caused the localized external pitting corrosion leading to the through wall defect and the surrounding metal loss.
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	Yes
- Other:	
- If Other, Describe:	
4. Was the failed item buried under the ground? - If Yes :	No
<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?	Yes
5. Was there observable damage to the coating or paint in the vicinity of the corrosion?	No
<b>- If Internal Corrosion:</b>	
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	

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- Elbow	
- Other:	
- 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?	
<b>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.</b>	
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	
<b>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.</b>	
15. Has one or more internal inspection tool collected data at the point of the Accident?	Yes
15a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run: -	
- Magnetic Flux Leakage Tool	Yes
Most recent year:	2006
- Ultrasonic	
Most recent year:	
- Geometry	
Most recent year:	
- Caliper	
Most recent year:	
- Crack	
Most recent year:	
- Hard Spot	
Most recent year:	
- Combination Tool	Yes
Most recent year:	2011
- Transverse Field/Triaxial	Yes
Most recent year:	2009
- 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?	Yes
If Yes -	
Most recent year tested:	2007
Test pressure:	
17. Has one or more Direct Assessment been conducted on this 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:	
18. Has one or more non-destructive examination been conducted at the point of the Accident since January 1, 2002?	No
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:	
<b>G2 - Natural Force Damage - only one sub-cause can be picked from shaded left-handed column</b>	
<b>Natural Force Damage – Sub-Cause:</b>	

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<b>- If Earth Movement, NOT due to Heavy Rains/Floods:</b>	
1. Specify:	- If Other, Describe:
<b>- If Heavy Rains/Floods:</b>	
2. Specify:	- If Other, Describe:
<b>- If Lightning:</b>	
3. Specify:	
<b>- If Temperature:</b>	
4. Specify:	- If Other, Describe:
<b>- If High Winds:</b>	
<b>- If Other Natural Force Damage:</b>	
5. Describe:	
<b>Complete the following if any Natural Force Damage sub-cause is selected.</b>	
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:
<b>G3 - Excavation Damage - only one sub-cause can be picked from shaded left-hand column</b>	
<b>Excavation Damage – Sub-Cause:</b>	
<b>- If Excavation Damage by Operator (First Party):</b>	
<b>- If Excavation Damage by Operator's Contractor (Second Party):</b>	
<b>- If Excavation Damage by Third Party:</b>	
<b>- If Previous Damage due to Excavation Activity:</b>	
<b>Complete Questions 1-5 ONLY IF the "Item Involved in Accident" (from PART C, Question 3) is Pipe or Weld.</b>	
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:

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- 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?	
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:	
<b>Complete the following if Excavation Damage by Third Party is selected as the sub-cause.</b>	
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	
<b>Complete the following mandatory CGA-DIRT Program questions if any Excavation Damage sub-cause is selected.</b>	
7. Do you want PHMSA to upload the following information to CGA-DIRT ( <a href="http://www.cga-dirt.com">www.cga-dirt.com</a> )?	
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:	
<b>G4 - Other Outside Force Damage - only one sub-cause can be selected from the shaded left-hand column</b>	
<b>Other Outside Force Damage – Sub-Cause:</b>	
<b>- If Nearby Industrial, Man-made, or Other Fire/Explosion as Primary Cause of Incident:</b>	
<b>- If Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation:</b>	
1. Vehicle/Equipment operated by:	

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<b>- If Damage by Boats, Barges, Drilling Rigs, or Other Maritime Equipment or Vessels Set Adrift or Which Have Otherwise Lost Their Mooring:</b>	
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:	
<b>- If Routine or Normal Fishing or Other Maritime Activity NOT Engaged in Excavation:</b>	
<b>- If Electrical Arcing from Other Equipment or Facility:</b>	
<b>- If Previous Mechanical Damage NOT Related to Excavation:</b>	
<b>Complete Questions 3-7 ONLY IF the "Item Involved in Accident" (from PART C, Question 3) is Pipe or Weld.</b>	
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:	
<b>- If Intentional Damage:</b>	
8. Specify:	
- If Other, Describe:	

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<b>- If Other Outside Force Damage:</b>	
9. Describe:	
<b>G5 - Material Failure of Pipe or Weld</b> - only one <b>sub-cause</b> can be selected from the shaded left-hand column	
<b>Use this section to report material failures ONLY IF the "Item Involved in Accident" (from PART C, Question 3) is "Pipe" or "Weld."</b>	
<b>Material Failure of Pipe or Weld – Sub-Cause:</b>	
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)	
<b>- If Construction, Installation, or Fabrication-related:</b>	
2. List contributing factors: <i>(select all that apply)</i>	
- Fatigue or Vibration-related	
Specify:	
- If Other, Describe:	
- Mechanical Stress:	
- Other	
- If Other, Describe:	
<b>- If Original Manufacturing-related (NOT girth weld or other welds formed in the field):</b>	
2. List contributing factors: <i>(select all that apply)</i>	
- Fatigue or Vibration-related:	
Specify:	
- If Other, Describe:	
- Mechanical Stress:	
- Other	
- If Other, Describe:	
<b>- If Environmental Cracking-related:</b>	
3. Specify:	
- Other - Describe:	
<b>Complete the following if any Material Failure of Pipe or Weld sub-cause is selected.</b>	
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:

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- Other	
Most recent year run:	
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:	
<b>G6 – Equipment Failure - only one sub-cause can be selected from the shaded left-hand column</b>	
<b>Equipment Failure – Sub-Cause:</b>	
<b>- If Malfunction of Control/Relief Equipment:</b>	
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:	
<b>- If Pump or Pump-related Equipment:</b>	
2. Specify:	
- If Other – Describe:	
<b>- If Threaded Connection/Coupling Failure:</b>	
3. Specify:	
- If Other – Describe:	
<b>- If Non-threaded Connection Failure:</b>	
4. Specify:	
- If Other – Describe:	
<b>- If Defective or Loose Tubing or Fitting:</b>	
<b>- If Failure of Equipment Body (except Pump), Tank Plate, or other Material:</b>	
<b>- If Other Equipment Failure:</b>	
5. Describe:	
<b>Complete the following if any Equipment Failure sub-cause is selected.</b>	
6. Additional factors that contributed to the equipment failure: <i>(select all that apply)</i>	
- Excessive vibration	
- Overpressurization	

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- 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, Describe:	

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

**Incorrect Operation – Sub-Cause:**

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

**- If Tank, Vessel, or Sump/Separator Allowed or Caused to Overfill or Overflow:**

1. Specify:

- If Other, Describe:

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

**- If Pipeline or Equipment Overpressured:**

**- If Equipment Not Installed Properly:**

**- If Wrong Equipment Specified or Installed:**

**- If Other Incorrect Operation:**

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**

On March 20th 2011 at approximately 14:02, Buckeye was notified by emergency responders of a possible leak on the Buckeye line in Shippingport, PA. Buckeye immediately dispatched local field personnel and began a controlled shutdown and isolation of the line containing Ultra Low Sulfur Diesel (ULSD). The appropriate internal and external notifications were made to report the release and dispatch teams of responders to contain the product and repair the defect in the line. The damaged pipe was cut out and replaced with certified pipe on 3/23/11. The pipe segment containing the defect was sent to a laboratory for metallurgical analysis to determine the exact cause of the release. Once the permanent repair was completed on March 23rd, the line was restarted at a temporarily reduced MOP. As an extra precaution, the line is operating at the reduced MOP until the analysis of the pipeline is completed. Most of the product has been recovered as remediation efforts continue.

A professional metallurgical analysis claims it is likely that the corrosive low pH water directly contacting the exposed segment of pipeline caused the localized external pitting corrosion leading to the through wall defect and the surrounding metal loss.

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<b>File Full Name</b>	
<b>PART I - PREPARER AND AUTHORIZED SIGNATURE</b>	
Preparer's Name	Dave Jones
Preparer's Title	Regulatory Compliance Specialist
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Preparer's E-mail Address	djones@buckeye.com
Preparer's Facsimile Number	610-904-4545
Authorized Signature's Name	John Reinbold
Authorized Signature Title	Group Leader - Compliance
Authorized Signature Telephone Number	610-904-4185
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Date	06/07/2011