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

Principal Investigator	Chris Taylor
Region Director	Wayne T. Lemoi
Date of Report	October 12, 2012
Subject	Failure Investigation Report – Central Florida Pipeline 10-inch Jet Fuel Pipeline Failure

OPERATOR, LOCATION, & CONSEQUENCES

Date of Failure	July 22, 2011
Commodity Released	Aviation jet fuel (Jet-A)
City/County & State	Mango/Hillsborough, Florida
OpID & Operator Name	2190 & Central Florida Pipeline Corporation (CFPL)
Unit # & Unit Name	2112 & FL
SMART Activity #	135347
Milepost / Location	Milepost 4777+90; Near intersection of East Broadway Avenue (County Road 574) and Williams Road; 27.97348N,-82.32001W
Type of Failure	Pipe leaked due to mechanical damage
Fatalities	None
Injuries	None
Description of area impacted	The 10-inch pipeline leak occurred near the base of a concrete culvert within a CSX Transportation railroad corridor. Aviation jet fuel leaked into the soil at the immediate leak area and into waters of Mango Creek, a narrow, non-navigable waterway that flowed to the Tampa Bypass Canal. The fuel killed some aquatic life and vegetation within and along Mango Creek. This leak occurred in a high consequence area (HCA).
Property Damage	$4,741,387

EXECUTIVE SUMMARY

On June 22, 2011, a CSX Transportation (CSX) representative called the Sunshine State One Call of Florida to have all utilities located and marked along the CSX railroad corridor in preparation for brush clearing at a drainage culvert located below the railroad bed. Central Florida Pipeline (CFPL) responded to the one-call by locating and marking the 10-inch pipeline at the drainage culvert on the same day.

On June 29, 2011, the CSX brush-clearing contractor moved a 30,000 lb., hydraulic crawler excavator (trackhoe) into position to begin the brush removal but decided not to start the brush removal due to muddy conditions in the area. According to the CFPL daily notes and statements from CSX, the trackhoe became stuck in the muddy area along the pipeline right-of-way, and required a wrecker to remove it.

On July 22, 2011 at 7:45 pm EDT,[1] the C-shift of the Hillsborough County Fire Rescue (HCFR) received a notification of a fuel odor in the vicinity of Williams Road and East Broadway Avenue in Mango, Florida. The HCFR investigated the location, confirmed the fuel odor and observed what appeared to be the presence of fuel in a drainage ditch located south of East Broadway Avenue near the CSX railroad tracks. The HCFR notified CFPL of the finding. CFPL responded by dispatching personnel to the site to confirm the jet fuel leak on the 10-inch jet fuel pipeline.[2] CFPL personnel confirmed the leak and isolated the suspected leak location by closing the immediate upstream and downstream manual block valves and by directing an oil spill response organization to the site for damage assessment and clean-up.

CFPL reported the leak to the National Response Center (NRC) via telephone on July 22, 2011, at approximately 9:19 pm. The initial NRC report, number 983593 (Appendix B), described a product release but reported "unknown" impact to water. CFPL provided subsequent updates to the NRC as it gathered additional information. CFPL's final update on August 4, 2011, reported 820 barrels released.

Late morning on July 23, 2011, the CFPL repair contractor mobilized to the leak area, excavated the 10-inch pipeline and discovered a split in the extruded polyethylene pipe coating approximately 4 feet long, from the 9 o'clock through 12 o'clock pipe positions in the failure area. After the contractor removed the pipe coating, the PHMSA investigator and CFPL personnel observed jet fuel leaking from a longitudinal crack approximately 5 ½-inches long in the 10 o'clock position on the pipe OD. It appeared the leak was caused by mechanical damage. Subsequently, CFPL removed the failed pipe section and sent it to a laboratory for metallurgical and mechanical testing.

CFPL's metallurgist confirmed the mechanical damage determination in a report[3] dated August 22, 2011. The metallurgical and mechanical analysis yielded the following:

- *Pipe failed due to equipment capable of applying both upward and horizontal force in the amount of 8,000-12,000 pounds per foot* (SIC)
- *Release occurred due to the presence of external mechanical damage*
- *Cause of release was due to a series of collinear through-wall cracks within the region of externally gouged damage*
- *No evidence of time dependent growth mechanism was found, such as fatigue crack growth*
- *External damage to the pipeline likely occurred after June 23, 2011*
- *Actual crack failure occurred on or after July 19, 2011*

It is suspected, either upon being trapped in or being towed out of the muddy area, the trackhoe made contact with the 10-inch pipe resulting in the mechanical damage that led to the pipe failure.

[1] All times in this report are Eastern Daylight Time
[2] The 10-inch Hemlock to Taft pipeline also transports diesel fuel.
[3] Report titled, *Central Florida Pipeline Leak, Project No. 1105799,* by Exponent Failure Analysis Associates

SYSTEM DETAILS

Central Florida Pipeline LLC (CFPL)[4] is a subsidiary of Kinder Morgan Energy Partner (KMEP)[5] and part of KMEP's Southeast Operation, along with the Plantation Pipeline Company. KMEP is one of the largest pipeline transportation and energy storage companies in North America with more than 38,000 miles of pipelines and approximately 180 terminals. KMEP's pipelines transport natural gas, refined petroleum products, crude oil, and carbon dioxide.[6]

KMEP is comprised of the following five business units:
- Natural Gas Pipeline
- Products Pipelines
- CO_2
- Terminals
- Kinder Morgan Canada

The CFPL system was constructed in 1971 and began operations in February 1972. Originally, CFPL operated three intrastate refined products pipelines: a 6-inch, 10-inch, and 16-inch. CFPL sold the 6-inch pipeline between 1998 and 2000. Currently CFPL operates the two distinct product pipeline systems as follows:
- 10-inch pipeline: Transports diesel and aviation jet fuel approximately 85 miles from the Hemlock Pump Station in Tampa; pumping through the Auburndale and Intercession City Stations, and terminating at the Taft Terminal, which is located approximately 8 miles south of downtown Orlando, FL and 1 mile west of the Orlando International Airport. This is the sole pipeline supplying jet fuel to the Orlando International Airport. The July 22, 2011, failure occurred on this pipeline.
- 16-inch pipeline: Transports gasoline and denatured ethanol approximately 110 miles from the Tampa Terminal to the Taft Terminal.

There are roughly 168 miles of pipeline located in high consequence areas (HCA), shared between the 10-inch and 16-inch systems. The failure occurred in an HCA located in Mango, FL, an unincorporated community in Hillsborough County located approximately 10 miles east of downtown Tampa.

The failure on July 22, 2011, occurred at the outlet of a culvert within the CSX Transportation (CSX) railroad right-of-way (ROW), near the intersection of East Broadway Avenue and Williams Road. Other utilities in this ROW included Level 3 Communication and MCI Communication (owned by Verizon). CSX has the authority over all activity along this ROW.

CFPL established a maximum operating pressure (MOP) of 1,423 psig on this segment through a hydrostatic pressure test conducted in 1972. An over/short condition[7] on the 10-inch pipeline, observed by the CFPL controllers on July 21-22, 2011, resulted in the controllers shutting down the pipeline before the leak was discovered. The operating pressure just prior to the control center shutting the line down was 774 psig, which was the Hemlock Station discharge pressure.

The failed 10-inch pipeline had the following specifications:
- Manufacturer and year: LTV (1971)
- Outside diameter: 10.75-inches

[4] The action undertaken by CFPL and described in this report included the administrative and pipeline control functions performed by Kinder Morgan Energy Partner; for clarity, only the term "CFPL" was used in this report.
[5] Kinder Morgan Inc. owns Kinder Morgan Energy Partners, L.P.
[6] From the Kinder Morgan website, www.kindermorgan.com
[7] The concept of over/short is described in detail in the *INVESTIGATION FINDINGS AND CONTRIBUTING FACTORS* section of this report

- Wall Thickness: 0.219-inch
- Grade: API X60
- Longitudinal seam type: High frequency electric resistance welded (HF ERW)
- Coating: X-Tru Coat, extruded polyethylene coating

EVENTS LEADING UP TO THE FAILURE

On June 22, 2011, a CSX representative called the Sunshine State One Call of Florida (one-call) to have all utilities located and marked along the CSX railroad corridor in the vicinity of East Broadway Avenue and Williams Road in Mango, FL (Appendix A). CSX made the one-call to prepare for brush clearing at the drainage culvert inlets and outlets. The railroad tracks passed over the culvert, which were oriented perpendicular to the tracks. The CFPL 10-inch pipeline ran parallel to the railroad tracks on the north side of the culvert outlet. CFPL responded to the one-call by locating and marking the 10-inch pipeline on the same day.

On June 29, 2011, the brush clearing began with a CFPL contractor[8] in attendance at the worksite. A copy of the contractor's daily notes, describing the events of that day, indicated a 30,000 lb. hydraulic crawler excavator (trackhoe)[9] used to perform the clearing operation became trapped at the work location, requiring a wrecker to remove it.

It is suspected that either upon being trapped in or being towed out of the ditch, the trackhoe made contact with the 10-inch pipe resulting in the mechanical damage that eventually led to the failure. This is fully described in the *INVESTIGATION FINDINGS AND CONTRIBUTING FACTORS* section of this report.

LEAK DETECTION AND REPORTING

On July 22, 2011 at 12:48 am, the B-shift of the Hillsborough County Fire Rescue (HCFR), Station No. 9, received notification of a fuel odor at an address on Queen Palm Drive in Mango. The HCFR investigated the location and confirmed the fuel odor, however, it reported "no findings" in its records due to not discovering the source of the odor. The actual jet fuel leak location was approximately one and one-half miles from this address. It should be noted that Mango Creek was approximately 1,000 feet from this address, and by this time (unknown to CFPL and HCFR) contained jet fuel.

At approximately 7:45 pm[10], the C-shift of the HCFR received another notification of a fuel odor in the vicinity of Williams Road and East Broadway Avenue in Mango. The HCFR investigated the location, confirmed the fuel odor, and observed what appeared to be fuel in a drainage ditch south of East Broadway Avenue, north of the CSX railroad tracks. HCFR notified CFPL of the finding immediately after this discovery.

The CFPL controllers[11] responded by dispatching personnel to the site to confirm the jet fuel leak. After confirming the leak from the 10-inch pipeline, CFPL personnel isolated the leak by closing the immediate upstream manual block valve, Valve No. 10-2 at 8:50 pm, and the immediate downstream manual block valve, Valve No. 10-3 at 9:06 pm. After closing the valves, CFPL directed an oil spill response organization to the site for damage assessment and clean-up.

[8] CFPL used employees and contractors to perform right-of-way monitoring and one-call duties
[9] Equipment information furnished by CXS Transportation
[10] Hillsborough County Fire Rescue Entry No. 46839 in the HCFR dispatch record – entry time was 1952 hours
[11] The CFPL controllers were located at the Alpharetta Operation Control Center in Alpharetta, Georgia

Telephonic Reporting

CFPL's personnel reported the leak to the National Response Center (NRC) via telephone at approximately 9:19 pm. The initial NRC report, number 983593 (Appendix B), described a product release but reported "unknown" impact to water. CFPL continued to update the NRC as it gathered additional information on the release, as indicated below:

- NRC Report 983598: Called on July 22, 2011 at 11:09 pm, updated the initial report and indicated water was impacted. (Appendix B)
- NRC Report 983610: Called on July 23, 2011 at 7:44 am, updated NRC Report 983598 to change the release quantity from zero/unknown to 750 barrels. (Appendix B)
- NRC Report 983669: Called on July 23, 2011 at 7:21 pm, updated NRC Report 983598 to report the leak had been contained and secured. (Appendix B)
- NRC Report 984890: Called on August 4, 2011 at 11:04 am, updated NRC Report 983610 to revise the released amount from 750 barrels to 820 barrels (Appendix B)

The NRC reports described no road closures, evacuations, fatalities, or injuries. The National Transportation Safety Board (NTSB) queried the PHMSA Southern Region about the pipeline failure, and then verbally delegated its investigative authority to PHMSA.[12] The PHMSA Southern Region sent an investigator to Mango, FL on July 24, 2011, to conduct the pipeline failure investigation.

EMERGENCY RESPONSE

Late morning on July 23, 2011, the CFPL pipeline repair contractor mobilized to the leak area identified by the HCFR, excavated the 10-inch pipeline, and discovered a split in the polyethylene pipe coating approximately 4 feet long, from the 9 o'clock through 12 o'clock pipe positions in the failure area.[13] After the contractors removed all coating from this area, the PHMSA investigator and CFPL personnel observed jet fuel streaming from a longitudinal crack approximately 5 ½-inches long in the 10 o'clock position on the pipe OD. The PHMSA inspector and operator personnel also observed several smaller, longitudinally oriented gouges near the leak along the pipe OD, but these gouges were not leaking. It appeared the leak was likely caused by mechanical damage.

After verifying the pipe leak, the contractor installed a temporary leak clamp to stop the leak and to allow for a more effective environmental cleanup. The stoppage of the leak also allowed for the removal of additional pipe coating to:

- Evaluate the pipe's outer surface to determine the extent of the mechanical damage
- Install thread-o-ring (TOR) fittings on the pipeline to allow for pipeline drain-up and subsequent failure section cut-out and replacement

The leak affected Mango Creek, a storm water canal that flowed northwesterly from the leak location to the Tampa Bypass Canal. Mango Creek traversed through Sabal Industrial Park, a light industrial/ business park located northwest of the release site and east of the Tampa Bypass Canal. Some Sabal Industrial Park tenants stated they smelled a fuel odor as early as Wednesday, July 20, 2011, during a briefing on July 24, 2011. The briefing included tenants from Sabal Industrial Park, CFPL along with county, state and federal investigating agencies. CFPL confirmed the leak on Friday July 22, 2011.

[12] The verbal delegation was followed up by a letter titled, *Re: Investigation of the Hillsborough, Florida jet fuel release of July 22, 2011. (NTSB Accident Number DCA11-FP-007),* from the NTSB to the PHMSA Deputy Associate Administrator, received by the PHMSA Southern Region office on August 2, 2011

[13] From the GE Inspection Services "Site Report" NDE Results Summary to CFPL

CFPL's environmental response and remediation were supplemented by the response and actions of the state and federal environmental agencies. One key goal of the response was to prevent jet fuel from migrating to and contaminating the Tampa Bypass Canal.[14] The overall response included, but was not limited to: monitoring the air for lower explosive limit (LEL) at the leak site and northward along Mango Creek; deploying hard and soft booms to abate the flow of jet fuel through the creek to the Tampa Bypass Canal; using vacuum trucks to suck product and sludge off the water; and, using underflow dams to allow water flow while capturing the floating jet fuel and sludge (Appendix A).

To facilitate the short term and long term jet fuel collection, remediation and soil/water monitoring efforts, CFPL and environmental officials divided Mango Creek from the leak area to the Tampa Bypass Canal into divisions - Division 1 through Division 5. (Appendix A)

SUMMARY OF INITIAL START-UP PLAN AND RETURN-TO-SERVICE, INCLUDING PRELIMINARY SAFETY MEASURES

On July 24, 2011, CFPL's pipe repair contractor tapped the 10-inch pipe to begin drain-up of the isolated section. Concurrently, they stripped soil back from the upstream and downstream sides of the temporary leak clamp, to examine the pipe coating for additional evidence of mechanical damage. The PHMSA inspector and CFPL personnel observed additional coating damage approximately 4 feet downstream of the leak clamp. (Appendix A).

The CFPL contractor cut-out approximately 13 feet of the 10-inch pipe and replaced it with pretested pipe having the specifications listed below. The cut-out was sent to Exponent Failure Analysis Associates for metallurgical and mechanical analysis.

- Manufacturer: Maverick
- Outside diameter: 10.750-inch
- Wall thickness: 0.365-inch
- Grade: X-42
- Longitudinal seam: high frequency electric resistance welded
- Coating: Coal tar

On July 24, 2011, CFPL submitted a restart plan for the 10-inch pipeline to the PHMSA Southern Region for review and approval. The plan included, but was not limited to, the following safety measures:

- Reduce the 10-inch pipeline MOP from 1,423 psig to a pressure not greater than 619 psig, which is 80% of 774 psig.[15] The pipeline pressure just prior to the controllers shutdown was 774 psig.[16]
- Set the actual operating pressure to 557 psig, 90% of 619 psig.
- Implement a four-stage pressure increase to restart the 10-inch pipeline.
- Patrol the 10-inch pipeline during the restart and 24 hours after the restart.

On July 26, 2011, PHMSA approved the restart plan for the 10-inch pipeline.

[14] The Tampa Bypass Canal is a man-made structure constructed in the 1960s and 1970s, designed to redirect flood waters from the Hillsborough River to Tampa Bay to prevent floodwaters from reaching homes and businesses, during and after large volume rainfall events.
[15] CFPL required PHMSA's approval to restore the pipeline back to the original MOP of 1,423 psig
[16] The CFPL controllers shutdown the 10-inch pipeline on July 22, 2011,[16] to perform the Over/Short investigation.

INVESTIGATION FINDINGS AND CONTRIBUTING FACTORS

The investigation findings and contributing factors are based on the following:

- PHMSA's review of CFPL's operations and maintenance records, and written procedures,
- CFPL's post-accident investigation reports, which included Exponent's metallurgical reports and CFPL's root cause analysis; [17] and,
- Interviews with CFPL staff and the public that lived within the vicinity of the leak.

As discussed in the *EMERGENCY RESPONSE* section of this report, PHMSA, CFPL personnel, and its contractors observed fuel leaking from one of several gouges on the 10-inch pipe. With that discovery, PHMSA focused its pipeline failure investigation on mechanical damage - first, second or third party. PHMSA and CFPL did not eliminate other possible causes of failure from consideration.

Pipe Failure Determination

Mechanical Damage

On June 22, 2011, CFPL received and acted upon a one-call notification made by a CSX Transportation representative. On June 29, 2011, CSX's scheduled brush clearing work began. The CFPL contractor's daily notes dated June 29th indicated the trackhoe used to perform the clearing operation became trapped in the area to be cleared, and required a wrecker to remove it. It is suspected, either as a result of being trapped in the ditch or being towed out of the ditch, the trackhoe made contact with the 10-inch pipe resulting in the mechanical damage.

In-line Inspection (ILI)

Mechanical damage was suspected to have occurred on the CFPL pipeline on June 29, 2011, leading to the failure confirmed on July 22, 2011. It was also suspected that a trackhoe contacted the 10-inch pipeline and may have contributed to the pipeline failure. To investigate these concepts, it was important to determine if any anomalous conditions existed on the 10-inch pipe OD at this location prior to June 29, 2011.

To examine the potential for previously existing anomalies, we reviewed CFPL's in-line inspection (ILI) program. In 2010, CFPL ran ILI tools in its 10-inch pipeline system. Specifically, the operator ran a Rosen high-resolution geometry pig (XGP) deformation detection tool and a high-resolution axial flaw detection (AFD) tool. Neither tool yielded information indicating anomalies or issues of concern in the vicinity of the damaged pipe.[18]

Metallurgical Analysis

CFPL contracted Exponent Failure Analysis Associates (Exponent) to conduct a metallurgical analysis of the failed pipe. Exponent published three separate reports (Appendix D) as follows:

- *Central Florida Pipeline Leak, Project No. 1105799*, dated August 22, 2011
- *Central Florida Pipeline Leak, Project No. 1105799.000,* dated October 31, 2011
- *Central Florida Pipeline Leak Root Cause Analysis*, dated April 12, 2012

[17] Referred to in the CFPL Report as "Root Cause Determination"
[18] Information from KMEP's Accident Report

- *Central Florida Pipeline Leak, Project No. 1105799 dated August 22, 2011*

This was CFPL's initial post-failure report issued 30 days after the leak. For this analysis, Exponent performed nondestructive examinations of the removed pipe and concluded the following:

> *"…the metallurgical cause of the release was a series of nearly collinear through-wall cracks measuring 3.75 inches…and located within a region of external mechanical damage…The examined pipe segment is otherwise free of any other wall thinning as the result of external or internal corrosion, is not ovalized, and its dimensions and chemical and mechanical properties are consistent with the requirements of API 5L Grade X60 pipe."*[19]

Additionally, Exponent recommended destructive examination of the removed 10-inch pipe section to obtain specific information on the nature of the cracking process, and more specifically, the relationship between the 10-inch pipeline's pressure cycles and the crack growth.

- *Central Florida Pipeline Leak, Project No. 1105799 dated October 31, 2011*

Exponent based the second analysis on additional non-destructive testing and was able to establish the characteristics of the equipment that may have caused the mechanical damage. They concluded the following:

> *"The mechanical damage on the pipe would have required digging equipment capable of applying both upward and horizontal force <between> 8,000-12,000 lbf."*[20]

In this second analysis, Exponent again recommended destructive examination of the removed 10-inch pipe section to obtain specific information on the nature of the cracking process, and more specifically, the relationship between the 10-inch pipeline's pressure cycles and the crack growth.

- *Central Florida Pipeline Leak Root Cause Analysis, dated April 12, 2012*

Exponent based the third and final analysis on the results of the destructive examination of the failed 10-inch pipe section. Exponent's report restated the conclusions from the two previous reports and added the information gained from the destructive analysis. This report did not consider nor discuss other possible contributory factors to this pipeline failure, which may have minimized its effectiveness as a root cause analysis tool. CFPL conducted their own root cause evaluation which will be discussed in the following section of this report.

The description of the cracks found in the 10-inch pipe are as follows:

> *"The fracture surface morphologies of the through-wall cracks found within the gouging are consistent with a ductile tearing mechanism, which suggests that they were largely formed during the high-loading impact event that caused the external gouging. Exponent did not find evidence of fatigue crack growth or other time-dependent growth mechanisms…*
>
> *Additional cracks that did not penetrate completely through the pipe wall, and therefore did not contribute to the leak…was (sic)…broken open for examination of the facture surface. The appearance of the fracture surface…was very similar in nature to the through-wall cracking that leaked (i.e., ductile tearing with no evidence of fatigue or progressive crack growth)"*[21]

[19] From the Exponent Failure Analysis Associates report, *Subject: Central Florida Pipeline Leak, Project No. 1105799*, dated August 22, 2011

[20] From the Exponent Failure Analysis Associates report, *Subject: Central Florida Pipeline Leak, Project No. 1105799.000,* dated October 31, 2011

[21] From the Exponent Failure Analysis Associates report, *Central Florida Pipeline Leak Root Cause Analysis*, dated April 12, 2012

Leak Quantity - Contributory Factors

Controllers' Actions

CFPL conducted a "Root Cause Determination"[22] with results included in a report titled, *Central Florida LLC, April 30, 2012 – Investigation Report, Tampa, Florida Incident (July 21-25, 2011)* (see CFPL Investigation Report in Appendix D). The PHMSA Southern Region received the CFL Investigation Report in the Atlanta office on May 1, 2012.

Within the CFPL Investigation Report, the *Chronology of Control Room Activities* subsection and the *Contributory Factors* section detailed the pipeline controllers' actions from the time of the 10-inch pipeline restart[23] at 11:18 am on July 21, 2011, until shut down at 10:29 a.m. on July 22, 2011, to investigate the over/short issue.

The combined data from the *Chronology of Control Room Activities*, the *Batch Management System Over/Short Summary*, coupled with the interview notes from the Hillsborough County Fire Rescue were the sources for the timeline below.

As indicated in the CFPL Investigation Report and confirmed through the PHMSA investigation, the CFPL Controllers' actions did not cause the 10-inch pipe failure, but their actions during the 24 hours preceding the leak discovery by the HCFR on July 22, 2011, contributed to the leaked amount.

July 21, 2011

11:18 am (Restart) The line had been down due to a normal cycle break to change products. The CFPL Controllers' day-shift restarted the 10-inch pipeline. The controllers then reviewed the system flow rates and pressures and deemed both were normal. Normal operating pressures for the CFPL facilities were as follows:

- Hemlock pump station discharge pressure - 800 psig
- Auburndale pressure - 400 psig
- Orlando receipt pressure - 40 psig
- System flowrate 1,475 barrels per hour

12:00 noon	The initial over and short (O/S) report[24] for this jet fuel batch indicated 44 bbl short during the 42 minute run since startup
12:16 pm	Hemlock meter proved[25]
2:00 pm	O/S reported 104 bbl short
4:00 pm	O/S reported 171 bbl short
5:00 pm	Controller shift change. No exchange of the O/S information between the incoming and outgoing controllers
6:00 pm	O/S reported 239 bbl short
8:00 pm	O/S reported 304 bbl short
9:14 pm	Orlando meter proved
10:00 pm	O/S reported 361 bbl short

[22] For the purposes of this report, the terms "Root Cause Determination" and "Root Cause Analysis" are essentially the same

[23] The 10-inch system had previously transported diesel and was shut down due to normal cycling.

[24] Over and short is a term used to describe real-time inventory surpluses or losses during a batch transfer operation. CFPL's over and short summaries auto-generated every even hour and reset at midnight.

[25] During batching operations, most liquid pipeline operators use a meter prover during actual flowing and operating conditions to verify and establish the accuracy of the liquid measurement meter.

11:07 pm	Hemlock meter proved
12:00 midnight	O/S reported 419 bbl short; automatic O/S reporting reset to zero

July 22, 2011

12:48 am	The B-shift of the Hillsborough County Fire Rescue (HCFR) received notification of a fuel odor at 3800 Queen Palm Drive in Mango. They investigated the location and reported "no findings" in their records[26]
2:00 am	O/S reported 66 bbl short[27]
4:00 am	O/S reported 121 bbl short
5:00 am	Controller shift change – Exchange of O/S information between outgoing and incoming controllers
6:00 am	O/S reported 181 bbl short
8:00 am	O/S reported 240 bbl short
9:49 am	Hemlock meter proved
9:54 am	Orlando meter proved
10:00 am	O/S reported 295 bbl short
10:23 am	Hemlock meter proved
10:29 am	CFPL shut down the 10-inch pipeline due to unaccounted for product losses
5:00 pm	Controller shift change
7:52 pm	The C-shift of the HCFR received notification of a fuel odor in the vicinity of Williams Road and East Broadway Avenue in Mango. HCFR confirmed the presence of fuel in a drainage ditch near the CSX railroad crossing and notified CFPL of the finding.

After the last Hemlock meter prover run at 10:23 am, a CFPL measurement specialist determined the field equipment was operating properly. As a result of this verification coupled with the unaccounted for product losses recorded in the O/S report, the controllers shut down the 10-inch system at 10:29 am to allow for further investigation into the cause of the continuing O/S discrepancies. According to CFPL, the volume flow rate and the pressure data throughout the O/S reporting was within normal operating parameters, and the Line Balance Monitoring[28] and the supervisory control and data acquisition (SCADA) system had not signaled a leak incident for any of the O/S reports.

CFPL Controller Procedures

It is important to note, the CFPL procedures that address the over/short pipeline conditions did not consider this or any over/short condition as an abnormal operating or emergency condition. CFPL considered the over/short condition as a normal, explainable occurrence that typically resulted from normal pipeline operations such as pipeline start-up, additional pumps coming online or pipeline contents changing on a multiproduct line or from equipment malfunction such as a malfunctioning meter.

The CFPL procedures required the controllers to perform the following:

- Continuously evaluate the over/short conditions,

[26] PHMSA interview with Capt. Moreno of HCFR on August 2011; exact day not available

[27] The O/S reporting resets at midnight. This quantity represented the short over the two-hour period since midnight.

[28] Line balance is a comparison of product volume measured into the line compared to the volume delivered from the line.

- Pay particular attention to the "short" condition which indicates more barrels pumped than delivered
- Shutdown the pipeline and initiate an investigation during unexplained losses, i.e., if the over/short was not the result of a normal operating condition or equipment malfunction.

CFPL did not establish as part of its operating procedures, a maximum loss quantity or a maximum over/short evaluation time limit. The procedures allowed for the controllers' experience and judgment to determine when the over/short evaluation ended and when the pipeline shut down and leak investigation began. That is, the procedure relied heavily on controller experience.

CFPL Controller Experience

CFPL indicated in the CFPL Investigation Report and reiterated in a meeting with PHMSA,[29] the night-shift controller at the CFPL 10-inch pipeline console on July 21, 2011, and July 22, 2011, was on-the-job-training. While this controller was experienced at monitoring and controlling a larger diameter pipeline, and was considered operator qualified[30] (OQ) on the larger diameter pipeline, he had not yet been qualified on the 10-inch pipeline.

The CFPL Investigation report stated the following, with respect to the performance of the controllers during the 10-inch pipeline operation between July 21 – July 22, 2011:

"*The Controller and Lead Controller on all three shifts were properly Operator Qualification-qualified (OQ). The Controller Trainee working during the July 21, to July 22, 2011 night shift was not OQ qualified because he was still in training; however, he was being directed and observed*[31] *by the qualified Controller.*

The Controller Trainee was accustomed to operating a larger-diameter pipeline system which would allow for larger 0/S deviations during normal operation than on the ten-inch CFPL system. While the Controller Trainee reviewed all the 0/S data, the Controller may not have reviewed all of the same data."

Fifty-percent of the over/short reports were generated during the night shift, which started at 5 pm and ended at 5 am.

Conclusions

The conclusions drawn from this investigation are as follows:

1. The 10-inch pipeline leaked due to mechanical damage resulting in the release of approximately 820 barrels of jet fuel.
2. The metallurgical analysis and report indicated equipment capable of applying 8,000-12,000 pound-force vertically and horizontally, damaged the pipe.
3. The trackhoe used during the brush clearing operations was capable of exerting the 8,000-12,000 pound-force in the vertical and horizontal directions.
4. The CFPL procedures addressing over/short conditions did not establish a maximum shortage quantity, nor did it establish a time limit in which the controllers should end an over/short

[29] PHMSA meeting with CFPL Controller staff at the Alpharetta Operations Control Center on July 20, 2012

[30] The term "Operator Qualified" refers to the minimum requirements for individuals performing covered tasks established by CFPL, mandated by 49 CFR Part 195 Subpart G – *Operator Qualification*

[31] The term "directed and observed" refers to a required provision in the Operator Qualification (OQ), 49 CFR Part 195 Subpart G – *Operator Qualification*

evaluation and begin the leak investigation. For this reason, the leak volume attributable to the controllers' actions is undeterminable.

5. The investigation revealed the CFPL Controllers appeared to follow company procedures in addressing the over/short condition of the 10-inch pipeline on July 21-22, 2011.
6. The CFPL Controllers' actions did not cause the 10-inch pipe failure, however, the CFPL controllers' actions 24 hours preceding the leak discovery contributed to the volume of the release.
7. On July 21, 2011, a night-shift controller trainee (5 pm until 5 am) assigned to monitor and control the CFPL 10-inch pipeline was undergoing on-the-job training on this console and was overseen by a CFPL lead controller. CFPL noted in its *CFPL Investigation Report*, the lead controller "may not" have reviewed all of the available over/short information although the controller trainee reviewed all of the over/short information on the 10-inch pipeline.
8. The night shift controller in-training described above, was an experienced, and operator-qualified controller[32] at the Alpharetta Operations Control Center on a larger diameter pipeline. CFPL opines, the trainee was accustomed to monitoring and controlling a larger diameter pipeline system that allows for larger over-short deviations, in comparison to the smaller 10-inch pipeline.
9. On July 21, 2011, the first shift CFPL controllers (5 am until 5 pm) did not discuss the 10-inch pipeline over/short condition with the night shift controllers because they attributed the shortage to normal line pack, which CFPL considered part of normal pipeline operations.

[32] The term "Operator Qualified" refers to the minimum requirements for individuals performing covered tasks established by CFPL, mandated by 49 CFR Part 195 Subpart G – *Operator Qualification*

Appendices

A Map and Photographs

B NRC Reports

C Operator Accident/Incident Report to PHMSA

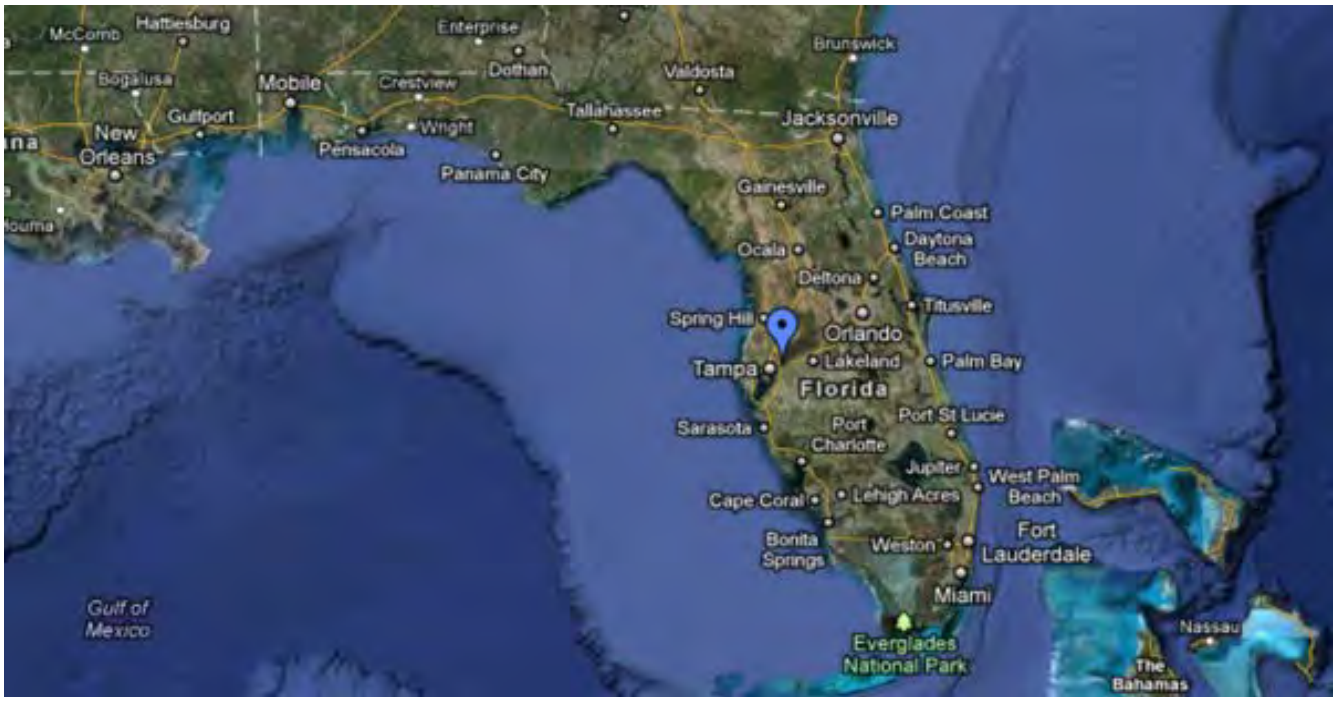
D CFPL Failure Investigation Report which included as an attachment the three Exponent metallurgical analyses

APPENDIX A

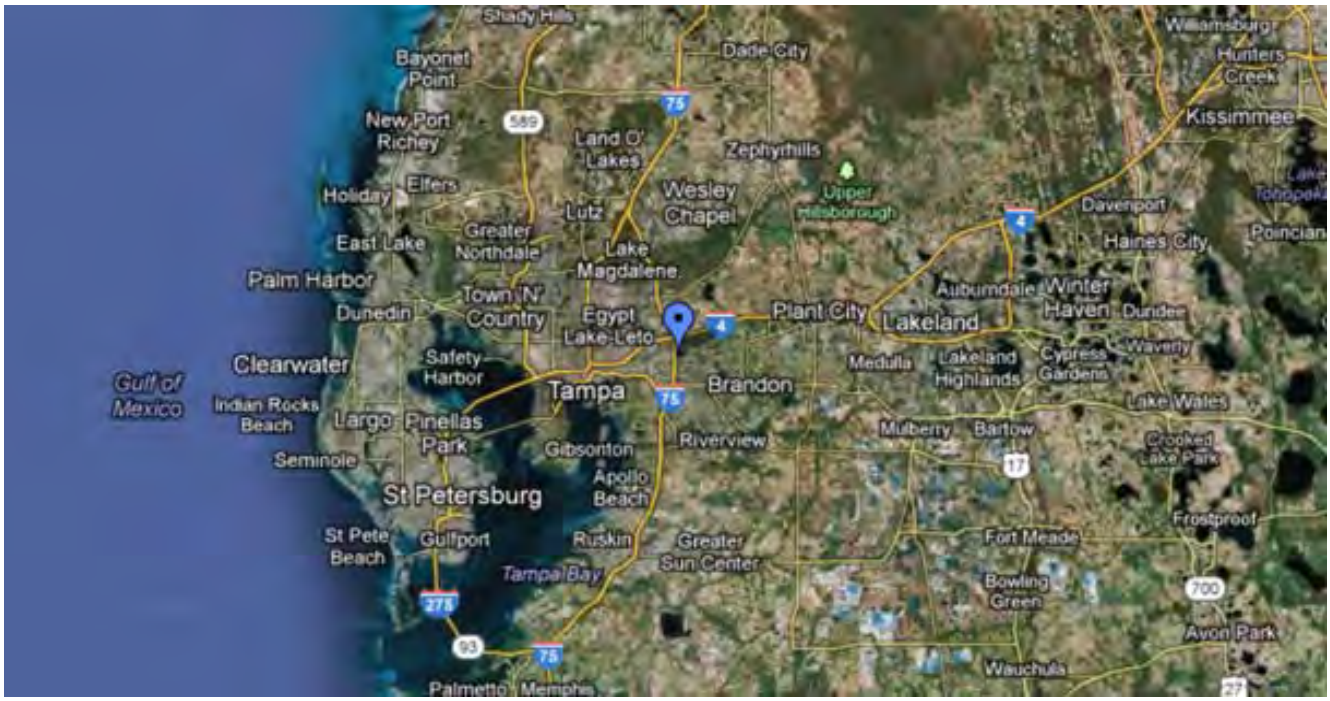
Maps and Photographs

Appendix A Maps and Photographs

Blue marker indicates the Central Florida Pipeline (CFPL) leak location



CFPL leak was approximately 10 miles east of downtown Tampa, Florida



Appendix A Maps and Photographs

Blue mark indicates the 10-inch diameter jet fuel leak location

Appendix A Maps and Photographs

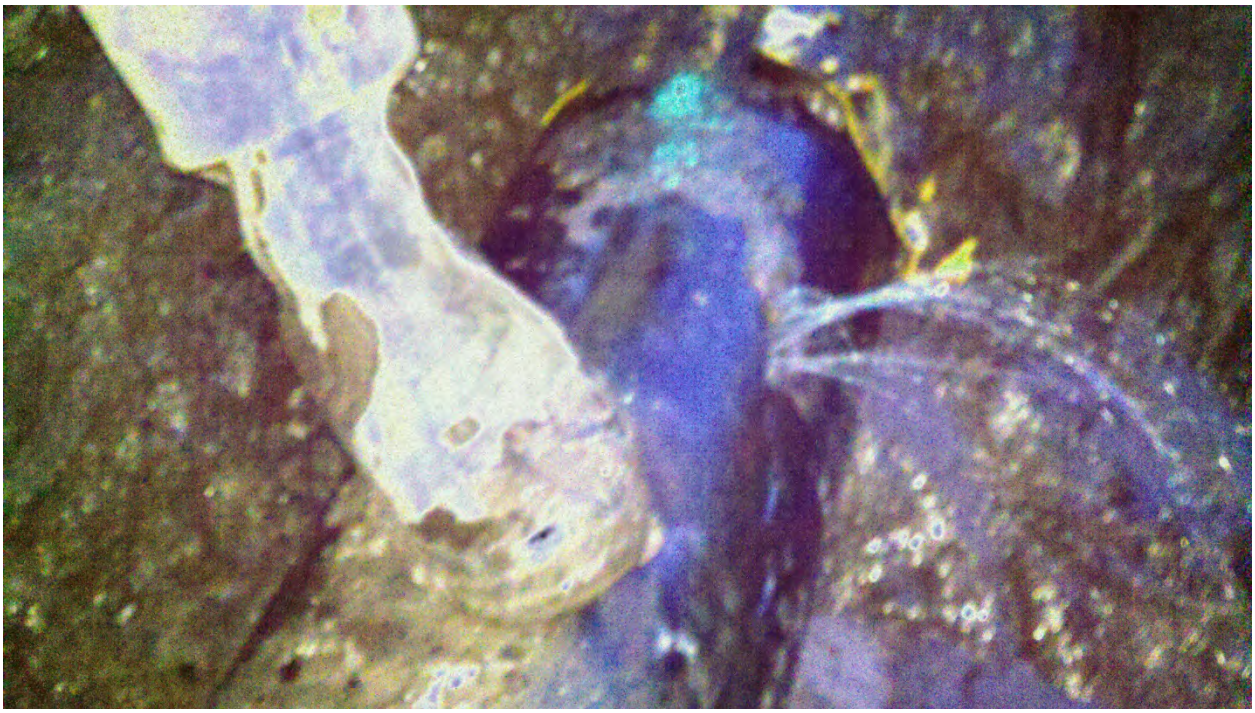
One of several boomed fuel collection points along the Mango Creek, the affected water body

Skimmers and soft booms employed during the clean-up (Division 2)

Under-flow dam constructed to prevent jet fuel progression into the Tampa Bypass Canal (Division 4)

Hard and soft Booms at the final collection point before outflow to the TBC (Division 5)

Leaking 10-inch Jet Fuel Line after removal of polyethylene rock shield



Leak clamp installed to stop leak and to facilitate the environmental cleanup.
Jet fuel flow was from right to left. Coating damage observed upstream of leak clamp.

Closer view of coating damage

The mechanical damage was evident after leak clamp removal. The pipe leaked from one of the gouges shown in the photograph.

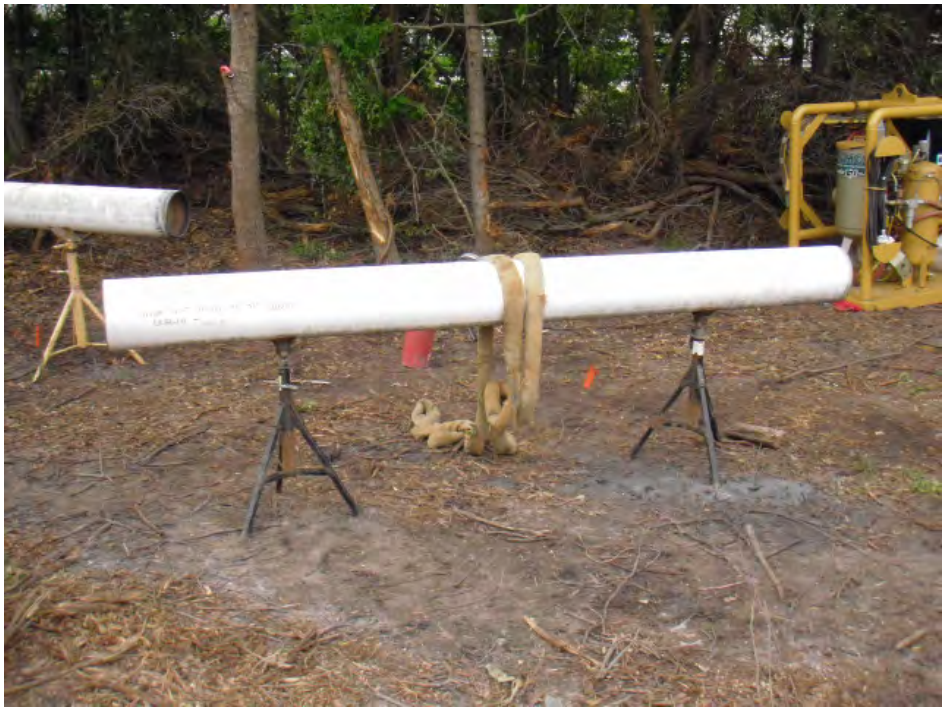
Appendix A Maps and Photographs

The pipe was damaged in the longitudinal and circumferential direction

Additional photo showing mechanical damage

CFPL cut out 13-feet of the jet fuel pipeline that included the damaged section and sent it to Exponent Failure Analysis Associates for metallurgical and mechanical testing.

The CFPL pre-tested replacement pipe



Pre-tested replacement pipe with specifications

Replacement pipe installed and x-rayed

Replacement pipe coated with coal tar and wrapped with felt paper

Rock shield installed to protect pipe exterior from future mechanical damage

Sub-mar articulating matting installed for additional pipe protection

Completely restored leak/excavation site – the 10-inch jet fuel pipeline is located at the yellow pipeline marker on right of photo, and runs parallel to the railroad tracks

APPENDIX B

NRC Reports

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 # 983593

INCIDENT DESCRIPTION

*Report taken at 21:19 on 22-JUL-11
Incident Type: PIPELINE
Incident Cause: UNKNOWN
Affected Area:
The incident occurred on 22-JUL-11 at 20:45 local time.
Affected Medium: LAND BUBBLING FROM SOIL

SUSPECTED RESPONSIBLE PARTY

Organization: KINDER MORGAN
ALPHARETTA, GA 30005

Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION

County: HILLSBOROUGH
State: FL

BROADWAY AVE WILLIAMS RD, EAST OF I-75

RELEASED MATERIAL(S)

CHRIS Code: OUN Official Material Name: UNKNOWN OIL
Also Known As: UNKNOWN TYPE OF FUEL OIL
Qty Released: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT

CALLER IS REPORTING A RELEASE OF AN UNKNOWN FUEL OIL FROM A SUBSURFACE 10 INCH PIPELINE SYSTEM, CAUSE IS UNKNOWN.

INCIDENT DETAILS

Pipeline Type: TRANSMISSION
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:	Occupant:
EVACUATIONS:	NO	Who Evacuated:	Radius/Area:	
Damages:	NO			

Closure Type		Description of Closure	Length of Closure	Direction of Closure
Air:	N			
Road:	N			
Waterway:	N			
Track:	N			

Major Artery: N

Passengers Transferred: NO

Environmental Impact: UNKNOWN
Media Interest: NONE Community Impact due to Material:

REMEDIAL ACTIONS

CLEANUP CONTRACTOR EN-ROUTE, COUNTY HAZMAT ON-SCENE
Release Secured: UNKNOWN
Release Rate:
Estimated Release Duration:

WEATHER

Weather: UNKNOWN, ºF

ADDITIONAL AGENCIES NOTIFIED

Federal: NONE
State/Local: HAZMAT
State/Local On Scene: HAZMAT
State Agency Number: NONE

NOTIFICATIONS BY NRC

USCG ICC (ICC ONI)
22-JUL-11 21:24
DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)
22-JUL-11 21:24
U.S. EPA IV (MAIN OFFICE)
22-JUL-11 21:25
FLD INTEL SUPPORT TEAM SCTR ST PETE (INTELLIGENCY SPECIALIST)
22-JUL-11 21:24
FLORIDA DEPT OF HEALTH (COMMAND CENTER)
22-JUL-11 21:24
NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)
22-JUL-11 21:24
NOAA RPTS FOR FL (MAIN OFFICE)
22-JUL-11 21:24
PIPELINE & HAZMAT SAFETY ADMIN (OFFICE OF PIPELINE SAFETY (AUTO))
22-JUL-11 21:24
FL DEM STATE WATCH OFFICE (MAIN OFFICE)
22-JUL-11 21:24
MIAMI TACTICAL ANALYTICAL UNIT (FUSION CENTER)
22-JUL-11 21:24
USCG DISTRICT 7 (MAIN OFFICE)
22-JUL-11 21:24

ADDITIONAL INFORMATION

NO ADDITIONAL INFORMATION TO REPORT.

***** END INCIDENT REPORT # 983593 *****

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 # 983598

INCIDENT DESCRIPTION

*Report taken at 23:09 on 22-JUL-11
Incident Type: PIPELINE

Incident Cause: UNKNOWN
Affected Area: STREAM (NAME UNKNOWN)
The incident occurred on 22-JUL-11 at 20:45 local time.

Affected Medium: WATER STREAM (NAME UNKNOWN)

SUSPECTED RESPONSIBLE PARTY

Organization: KINDER MORGAN
ALPHARETTA, GA 30005

Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION

BROADWAY AVE County: HILLSBOROUGH
WILLIAMS ROAD
City: TAMPA State: FL

EAST OF I-75

RELEASED MATERIAL(S)

CHRIS Code: OUN Official Material Name: UNKNOWN OIL

Also Known As:
Qty Released: 0 UNKNOWN AMOUNT Qty in Water: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT

THIS IS AN UPDATE TO NRC REPORT 983593. THERE WAS A DISCHARGE OF AN UNKNOWN FUEL OIL FROM A SUBSURFACE 10 INCH PIPELINE SYSTEM. INITIALLY, NO WATER IMPACT WAS REPORTED. THE UPDATE IS THAT WATER HAS BEEN IMPACTED.

INCIDENT DETAILS

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

---SHEEN INFORMATION---
Sheen Color:
Sheen Odor Description: SHEEN INFO UNKNOWN
Sheen Travel Direction:
Sheen Size Length:
Sheen Size Width:
---WATER INFORMATION---
Body of Water: STREAM (NAME UNKNOWN)
Tributary of: RETENTION POND
Nearest River Mile Marker:
Water Supply Contaminated: NO

DAMAGES

Fire Involved: NO Fire Extinguished: UNKNOWN

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

Damages: NO

Closure Type	Description of Closure	Length of Closure	Direction of Closure

Air: N

Road: N

Major Artery: N

Waterway: N

Track: N

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

REMEDIAL ACTIONS

OIL SPILL REMOVAL ORGANIZATION AND HAZMAT TEAM ARE BOTH ON SCENE; THE LINE HAS BEEN ISOLATED.
Release Secured: YES
Release Rate:
Estimated Release Duration:

WEATHER

Weather: UNKNOWN, ºF

ADDITIONAL AGENCIES NOTIFIED

Federal: US EPA, US DOT (PHMSA)
State/Local: HAZMAT TEAM
State/Local On Scene: HAZMAT TEAM, FL DEPT OF ENVIRONMENTAL PR
State Agency Number: NONE

NOTIFICATIONS BY NRC

DHS NOC (NOC)
22-JUL-11 23:16

USCG ICC (ICC ONI)
22-JUL-11 23:16

DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)
22-JUL-11 23:16

U.S. EPA IV (MAIN OFFICE)
22-JUL-11 23:18

FLD INTEL SUPPORT TEAM SCTR ST PETE (INTELLIGENCY SPECIALIST)
22-JUL-11 23:16

FLORIDA DEPT OF HEALTH (COMMAND CENTER)
22-JUL-11 23:16

NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)
22-JUL-11 23:16

NOAA RPTS FOR FL (MAIN OFFICE)
22-JUL-11 23:16

PIPELINE & HAZMAT SAFETY ADMIN (OFFICE OF PIPELINE SAFETY (AUTO))
22-JUL-11 23:16

SECTOR ST PETERSBURG (MARINE SAFETY OFFICE)
22-JUL-11 23:19

FL DEM STATE WATCH OFFICE (MAIN OFFICE)
22-JUL-11 23:16

MIAMI TACTICAL ANALYTICAL UNIT (FUSION CENTER)
22-JUL-11 23:16

USCG DISTRICT 7 (MAIN OFFICE)
22-JUL-11 23:16

ADDITIONAL INFORMATION

NO ADDITIONAL INFORMATION WAS PROVIDED.

*** END INCIDENT REPORT # 983598 ***

The National Response Center is strictly an initial report taking agency and does not participate in the investigation or incident response. The NRC receives initial reporting information only and notifies Federal and State On-Scene Coordinators for response. The NRC does not verify nor does it take

follow-on incident information. Verification of data and incident response is the sole responsibility of Federal/State On-Scene Coordinators. Data contained within the FOIA Web Database is initial information only. All reports provided via this server are for informational purposes only. Data to be used in legal proceedings must be obtained via written correspondence from the NRC.

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 # 983610

INCIDENT DESCRIPTION

***Report taken at 07:44 on 23-JUL-11**
Incident Type: PIPELINE
Incident Cause: UNKNOWN
Affected Area: UNKNOWN NAME OF STREAM
The incident occurred on 22-JUL-11 at 20:45 local time.
Affected Medium: WATER UNKNOWN NAME OF STREAM/ RETENTION POND

SUSPECTED RESPONSIBLE PARTY

Organization: KINDER MORGAN
ALPHARETTA, GA 30005

Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION

BROADWAY AVE & WILLIAMS ROAD County: HILLSBOROUGH
City: TAMPA State: FL

RELEASED MATERIAL(S)

CHRIS Code: OUN Official Material Name: UNKNOWN OIL
Also Known As:
Qty Released: 750 BARREL(S) Qty in Water: 750 BARREL(S)

DESCRIPTION OF INCIDENT

THIS IS AN UPDATE TO NRC REPORT#983598. THE AMOUNT OF MATERIAL IN THIS REPORT WAS 0 UNKNOWN AMOUNT. REPORTING PARTY CONTACTED THE NRC 22 JULY, 2O11 AT 07:40 EST. AND STATED THE AMOUNT OF THE SPILL WAS 750 BARRELS. THERE WAS A DISCHARGE OF AN UNKNOWN FUEL OIL FROM A SUBSURFACE 10'' INCH PIPELINE SYSTEM DUE TO UNKNOWN CAUSES.

INCIDENT DETAILS

Pipeline Type: TRANSMISSION
DOT Regulated: YES
Pipeline Above/Below Ground: BELOW
Exposed or Under Water: NO
Pipeline Covered: UNKNOWN
---SHEEN INFORMATION---
Sheen Color:
Sheen Odor Description: NO SHEEN INFORMATION
Sheen Travel Direction:
Sheen Size Length:
Sheen Size Width:

---WATER INFORMATION---
Body of Water: UNKNOWN NAME OF STREAM
Tributary of: RETENTION POND
Nearest River Mile Marker:
Water Supply Contaminated: UNKNOWN

DAMAGES

Fire Involved: NO Fire Extinguished: UNKNOWN

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

Damages: NO

Length of Direction of

Closure Type	Description of Closure	Closure	Closure
Air:	N		
Road:	N		Major Artery: N
Waterway:	N		
Track:	N		

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

REMEDIAL ACTIONS

OIL SPILL REMOVAL ORGANIZATION AND HAZMAT TEAM ARE BOTH ON SCENE. CALLER STATES CLEAN UP IS UNDERWAY AND THE LINE HAS BEEN ISOLATED.
Release Secured: YES
Release Rate:
Estimated Release Duration:

WEATHER

Weather: UNKNOWN, ºF

ADDITIONAL AGENCIES NOTIFIED

Federal: US EPA, US DOT
State/Local: HAZMAT TEAM
State/Local On Scene: HAZMAT TEAM, FL DEPT. OF ENVIRONMENTAL
State Agency Number: NO REPORT#

NOTIFICATIONS BY NRC

DHS NOC (NOC)
23-JUL-11 08:00

USCG ICC (ICC ONI)
23-JUL-11 08:00

DHS PROTECTIVE SECURITY ADVISOR (PSA DESK)
23-JUL-11 08:00

DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)
23-JUL-11 08:00

U.S. EPA IV (MAIN OFFICE)
23-JUL-11 08:04

FLD INTEL SUPPORT TEAM SCTR ST PETE (INTELLIGENCY SPECIALIST)
23-JUL-11 08:00

FLORIDA DEPT OF HEALTH (COMMAND CENTER)
23-JUL-11 08:00

GULF STRIKE TEAM (MAIN OFFICE)
23-JUL-11 08:00

NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)
23-JUL-11 08:00

NOAA RPTS FOR FL (MAIN OFFICE)
23-JUL-11 08:00

NTSB PIPELINE (MAIN OFFICE)
23-JUL-11 08:00

PIPELINE & HAZMAT SAFETY ADMIN (OFFICE OF PIPELINE SAFETY (AUTO))
23-JUL-11 08:00

SECTOR ST PETERSBURG (COMMAND CENTER)
23-JUL-11 08:16

SECTOR ST PETERSBURG (MARINE SAFETY OFFICE)
23-JUL-11 08:04

FL DEM STATE WATCH OFFICE (MAIN OFFICE)
23-JUL-11 08:00

MIAMI TACTICAL ANALYTICAL UNIT (FUSION CENTER)
23-JUL-11 08:00

USCG DISTRICT 7 (MAIN OFFICE)
23-JUL-11 08:00

ADDITIONAL INFORMATION

CALLER HAD NO ADDITIONAL INFORMATION.

***** END INCIDENT REPORT # 983610 *****

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 # 983669

INCIDENT DESCRIPTION

*Report taken at 19:12 on 23-JUL-11
Incident Type: PIPELINE

Incident Cause: UNKNOWN
Affected Area: RETENTION POND
The incident occurred on 22-JUL-11 at 20:45 local time.

Affected Medium: WATER RETENTION POND

SUSPECTED RESPONSIBLE PARTY

Organization: KINDER MORGAN
ALPHARETTA, GA 30005

Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION

County: HILLSBOROUGH
City: MANGO State: FL

INTERSECTION OF HIGHWAY 574 AND BROADWAY AVE

RELEASED MATERIAL(S)

CHRIS Code: OUN Official Material Name: UNKNOWN OIL

Also Known As: UNKNOWN FUEL OIL

Qty Released: 750 BARREL(S) Qty in Water: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT

NATIONAL RESPONSE CENTER RECEIVED A REPORT OF A 750 GALLON DISCHARGE OF AN UNKNOWN FUEL OIL FROM A PIPELINE. RELEASE HAS BEEN CONTAINED AND SECURED AT THIS TIME. EXACT CAUSE IS UNKNOWN AT THIS TIME. A RETENTION POND IS THE ONLY REPORTED IMPACTED BODY OF WATER AT THIS TIME.

INCIDENT DETAILS

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

---WATER INFORMATION---
Body of Water: RETENTION POND
Tributary of: UNKNOWN
Nearest River Mile Marker:
Water Supply Contaminated: UNKNOWN

DAMAGES

Fire Involved: NO Fire Extinguished: UNKNOWN

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

Damages: NO

Closure Type		Description of Closure	Length of Closure	Direction of Closure
Air:	N			
Road:	N			
Waterway:	N			

Major Artery: N

Track: N

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

REMEDIAL ACTIONS

RELEASE SECURED, CONTRACTOR ON-SITE, EPA AND USCG ON-SCENE

Release Secured: YES
Release Rate:
Estimated Release Duration:

WEATHER

Weather: UNKNOWN, ºF

ADDITIONAL AGENCIES NOTIFIED

Federal: USCG, EPA

State/Local: FL DEP, HAZMAT
State/Local On Scene: HAZMAT, USCG, EPA

State Agency Number: N/A

NOTIFICATIONS BY NRC

DHS NOC (NOC)
23-JUL-11 19:26

USCG ICC (ICC ONI)
23-JUL-11 19:26

DHS PROTECTIVE SECURITY ADVISOR (PSA DESK)
23-JUL-11 19:26

DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)
23-JUL-11 19:26

U.S. EPA IV (MAIN OFFICE)
23-JUL-11 19:27

FLD INTEL SUPPORT TEAM SCTR ST PETE (INTELLIGENCY SPECIALIST)
23-JUL-11 19:26

FLORIDA DEPT OF HEALTH (COMMAND CENTER)
23-JUL-11 19:26

GULF STRIKE TEAM (MAIN OFFICE)
23-JUL-11 19:26

NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)
23-JUL-11 19:26

NOAA RPTS FOR FL (MAIN OFFICE)
23-JUL-11 19:26

NTSB PIPELINE (MAIN OFFICE)
23-JUL-11 19:26

PIPELINE & HAZMAT SAFETY ADMIN (OFFICE OF PIPELINE SAFETY (AUTO))
23-JUL-11 19:26

SECTOR ST PETERSBURG (MARINE SAFETY OFFICE)
23-JUL-11 19:27

FL DEM STATE WATCH OFFICE (MAIN OFFICE)
23-JUL-11 19:26

MIAMI TACTICAL ANALYTICAL UNIT (FUSION CENTER)
23-JUL-11 19:26

USCG DISTRICT 7 (MAIN OFFICE)
23-JUL-11 19:26

ADDITIONAL INFORMATION

THIS IS A COMBINATION OF NRC REPORTS 983593,983598,968610,983663. NO NEW INFORMATION

*** END INCIDENT REPORT # 983669 ***

The National Response Center is strictly an initial report taking agency and does not participate in the investigation or incident response. The NRC

receives initial reporting information only and notifies Federal and State On-Scene Coordinators for response. The NRC does not verify nor does it take follow-on incident information. Verification of data and incident response is the sole responsibility of Federal/State On-Scene Coordinators. Data contained within the FOIA Web Database is initial information only. All reports provided via this server are for informational purposes only. Data to be used in legal proceedings must be obtained via written correspondence from the NRC.

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 # 984890

INCIDENT DESCRIPTION

*Report taken at 11:04 on 04-AUG-11
Incident Type: PIPELINE

Incident Cause: UNKNOWN
Affected Area: UNKNOWN STREAM
The incident occurred on 22-JUL-11 at 20:45 local time.

Affected Medium: WATER UNKNOWN STREAM/ RETENTION POND

SUSPECTED RESPONSIBLE PARTY

Organization: KINDER MORGAN
ALPHARETTA, GA 30005

Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION

County: HILLSBOROUGH
City: TAMPA State: FL

BROADWAY AVE & WILLIAMS ROAD

RELEASED MATERIAL(S)

CHRIS Code: OUN Official Material Name: UNKNOWN OIL

Also Known As:
Qty Released: 820 BARREL(S) Qty in Water: 820 BARREL(S)

DESCRIPTION OF INCIDENT

THIS IS AN UPDATE TO NRC REPORT#983610. THE AMOUNT OF MATERIAL IN THIS REPORT WAS 750 BARRELS. REPORTING PARTY CONTACTED THE NRC 04 AUGUST, 2011 AT 11:00 EST AND STATED THE AMOUNT OF THE SPILL WAS 820 BARRELS. THERE WAS A DISCHARGE OF AN UNKNOWN FUEL OIL FROM A SUBSURFACE 10'' INCH PIPELINE SYSTEM DUE TO UNKNOWN CAUSES.

INCIDENT DETAILS

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

---SHEEN INFORMATION---
Sheen Color:
Sheen Odor Description: NO SHEEN INFORMATION
Sheen Travel Direction:
Sheen Size Length:
Sheen Size Width:
---WATER INFORMATION---
Body of Water: UNKNOWN STREAM
Tributary of: RETENTION POND
Nearest River Mile Marker:
Water Supply Contaminated: UNKNOWN

DAMAGES

Fire Involved: NO Fire Extinguished: UNKNOWN

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

Damages: NO

Closure Type	Description of Closure	Length of Closure	Direction of Closure
Air:	N		
Road:	N		
Waterway:	N		
Track:	N		

Major Artery: N

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

REMEDIAL ACTIONS

OIL SPILL REMOVAL ORGANIZATION AND HAZMAT TEAM ARE BOTH ON SCENE. CALLER STATES CLEAN UP IS UNDERWAY AND THE LINE HAS BEEN ISOLATED.

Release Secured: YES
Release Rate:
Estimated Release Duration:

WEATHER

Weather: UNKNOWN, ºF

ADDITIONAL AGENCIES NOTIFIED

Federal: EPA. DOT
State/Local: HAZMAT TEAM
State/Local On Scene: HAZMAT TEAM, FL DEP
State Agency Number: NONE

NOTIFICATIONS BY NRC

DHS NOC (NOC)
04-AUG-11 11:25

USCG ICC (ICC ONI)
04-AUG-11 11:25

DHS PROTECTIVE SECURITY ADVISOR (PSA DESK)
04-AUG-11 11:25

DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)
04-AUG-11 11:25

U.S. EPA IV (MAIN OFFICE)
04-AUG-11 11:27

FLD INTEL SUPPORT TEAM SCTR ST PETE (INTELLIGENCY SPECIALIST)
04-AUG-11 11:25

FLORIDA DEPT OF HEALTH (COMMAND CENTER)
04-AUG-11 11:25

GULF STRIKE TEAM (MAIN OFFICE)
04-AUG-11 11:25

NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)
04-AUG-11 11:25

NOAA RPTS FOR FL (MAIN OFFICE)
04-AUG-11 11:25

NRC SENIOR WATCH OFFICER (MAIN OFFICE)
04-AUG-11 11:27

NTSB PIPELINE (MAIN OFFICE)
04-AUG-11 11:25

PIPELINE & HAZMAT SAFETY ADMIN (OFFICE OF PIPELINE SAFETY (AUTO))
04-AUG-11 11:25

SECTOR ST PETERSBURG (MARINE SAFETY OFFICE)
04-AUG-11 11:29

FL DEM STATE WATCH OFFICE (MAIN OFFICE)
04-AUG-11 11:25

MIAMI TACTICAL ANALYTICAL UNIT (FUSION CENTER)

04-AUG-11 11:25

USCG DISTRICT 7 (MAIN OFFICE)
04-AUG-11 11:25

ADDITIONAL INFORMATION

THIS IS AN UPDATE TO NRC REPORT NUMBER 983610.

***** END INCIDENT REPORT # 984890 *****

APPENDIX C

Operator Accident Report to PHMSA

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: 01/31/2013

U.S Department of Transportation Pipeline and Hazardous Materials Safety Administration	**Report Date:**	08/22/2011
	No.	20110303 - 16586 --- (DOT Use Only)

ACCIDENT REPORT - HAZARDOUS LIQUID PIPELINE SYSTEMS

INSTRUCTIONS

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

PART A - KEY REPORT INFORMATION

Report Type: *(select all that apply)*	**Original:**	**Supplemental:**	**Final:**
		Yes	**Yes**

Last Revision Date:	04/30/2012
1. Operator's OPS-issued Operator Identification Number (OPID):	2190
2. Name of Operator	CENTRAL FLORIDA PIPELINE CORP
3. Address of Operator:	
3a. Street Address	500 DALLAS STREET, SUITE 1000
3b. City	HOUSTON
3c. State	Texas
3d. Zip Code	77002
4. Local time *(24-hr clock)* and date of the Accident:	07/22/2011 20:45
5. Location of Accident:	
Latitude:	27.97348
Longitude:	-82.32001
6. National Response Center Report Number (if applicable):	983593
7. Local time *(24-hr clock)* and date of initial telephonic report to the National Response Center (if applicable):	07/22/2011 21:17
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:	Diesel, Fuel Oil, Kerosene, Jet Fuel
- 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):	803.00
10. Estimated volume of intentional and/or controlled release/blowdown (Barrels):	
11. Estimated volume of commodity recovered (Barrels):	176.00
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	
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?	No
- If No, Explain:	Pipeline was S/D at 11:29 EDT on 7/22 as a precaution to investigate over/shorts
- If Yes, complete Questions 14a and 14b: *(use local time, 24-hr clock)*	
14a. Local time and date of shutdown:	
14b. Local time pipeline/facility restarted:	
- 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:	07/22/2011 21:05
18b. Local time Operator resources arrived on site:	07/22/2011 22:30
PART B - ADDITIONAL LOCATION INFORMATION	
1. Was the origin of Accident onshore?	Yes
If Yes, Complete Questions (2-12)	
If No, Complete Questions (13-15)	
- If Onshore:	
2. State:	Florida
3. Zip Code:	33610
4. City	Mango
5. County or Parish	Hillsborough
6. Operator-designated location:	Survey Station No.
Specify:	4777+90
7. Pipeline/Facility name:	CFF
8. Segment name/ID:	10-inch pipeline
9. Was Accident on Federal land, other than the Outer Continental Shelf (OCS)?	No
10. Location of Accident:	Pipeline Right-of-way
11. Area of Accident (as found):	Underground
Specify:	Under soil
- If Other, Describe:	
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:	
- 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:	Intrastate
2. Part of system involved in Accident:	Onshore Pipeline, Including Valve Sites
- If Onshore Breakout Tank or Storage Vessel, Including Attached Appurtenances, specify:	
3. Item involved in Accident:	Pipe

- If Pipe, specify:	Pipe Body
3a. Nominal diameter of pipe (in):	10.75
3b. Wall thickness (in):	.219
3c. SMYS (Specified Minimum Yield Strength) of pipe (psi):	60,000
3d. Pipe specification:	API 5L
3e. Pipe Seam , specify:	Longitudinal ERW - High Frequency
- If Other, Describe:	
3f. Pipe manufacturer:	LTV
3g. Year of manufacture:	1972
3h. Pipeline coating type at point of Accident, specify:	Extruded Polyehylene
- 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:	1972
5. Material involved in Accident:	Carbon Steel
- If Material other than Carbon Steel, specify:	
6. Type of Accident Involved:	Other
- If Mechanical Puncture – Specify Approx. size:	
in. (axial) by	
in. (circumferential)	
- If Leak - Select Type:	
- If Other, Describe:	
- If Rupture - Select Orientation:	
- If Other, Describe:	
Approx. size: in. (widest opening) by	
in. (length circumferentially or axially)	
- If Other – Describe:	Outside force damage caused by third party. See attached investigation report.

PART D - ADDITIONAL CONSEQUENCE INFORMATION

1. Wildlife impact:	Yes
1a. If Yes, specify all that apply:	
- Fish/aquatic	Yes
- Birds	Yes
- Terrestrial	Yes
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	Yes
- Groundwater	
- Soil	Yes
- Vegetation	Yes
- Wildlife	
5. Water contamination:	Yes
5a. If Yes, specify all that apply:	
- Ocean/Seawater	
- Surface	Yes
- Groundwater	
- Drinking water: *(Select one or both)*	
- Private Well	
- Public Water Intake	
5b. Estimated amount released in or reaching water (Barrels):	803.00
5c. Name of body of water, if commonly known:	Mango Canal
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" 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	
Was this HCA identified in the "could affect" determination for this Accident site in the Operator's Integrity Management Program?	
- Unusually Sensitive Area (USA) - Ecological	
Was this HCA identified in the "could affect" determination for this Accident site in the Operator's Integrity Management Program?	
8. Estimated Property Damage:	
8a. Estimated cost of public and non-Operator private property damage	$ 0
8b. Estimated cost of commodity lost	$ 82,340
8c. Estimated cost of Operator's property damage & repairs	$ 167,450
8d. Estimated cost of Operator's emergency response	$ 0
8e. Estimated cost of Operator's environmental remediation	$ 4,491,597
8f. Estimated other costs	$ 0
Describe:	Est Emergency Response cost is included with the Est Environmental remediation
8g. Total estimated property damage (sum of above)	$ 4,741,387

PART E - ADDITIONAL OPERATING INFORMATION

1. Estimated pressure at the point and time of the Accident (psig):	695.00
2. Maximum Operating Pressure (MOP) at the point and time of the Accident (psig):	1,423.00
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:	Manual
5b. Type of downstream valve used to initially isolate release source:	Manual
5c. Length of segment isolated between valves (ft):	44,443
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)	
- 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?	Yes
6d. Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume calculations) assist with the confirmation of the Accident?	No
7. Was a CPM leak detection system in place on the pipeline or facility involved in the Accident?	No
- If Yes:	
7a. Was it operating at the time of the Accident?	
7b. Was it fully functional at the time of the Accident?	
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?	
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?	
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, 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	
- 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:	Yes
Describe:	See attached investigation report.

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?	Yes
- If Yes:	
1a. Specify how many were tested:	7
1b. Specify how many failed:	0
2. As a result of this Accident, were any Operator contractor employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?	No
- If Yes:	
2a. Specify how many were tested:	
2b. Specify how many failed:	

PART G – APPARENT CAUSE

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).

Apparent Cause:	G3 - Excavation 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: *(select all that apply)*	
- 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: *(select all that apply)*	
- Field examination	
- Determined by metallurgical analysis	
- Other:	
- If Other, Describe:	
4. Was the failed item buried under the ground?	
- If Yes :	
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 *(select all that apply)*: -	
- 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 *(select all that apply)*: -	
- Field examination	

- Determined by metallurgical analysis	
- Other:	
- If Other, Describe:	
9. Location of corrosion *(select all that apply)*: -	
- Low point in pipe	
- 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?	
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:	
- 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: *(select all that apply)*	
- 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:	Previous Damage due to Excavation Activity
- 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?	Yes
1a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run: -	
- Magnetic Flux Leakage	Yes
Most recent year conducted:	2010
- Ultrasonic	
Most recent year conducted:	
- Geometry	Yes
Most recent year conducted:	2010
- 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?	Yes
3. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Accident?	No
- If Yes:	

Most recent year tested:	
Test pressure (psig):	
4. Has one or more Direct Assessment been conducted on the pipeline segment?	No
- If Yes, and an investigative dig was conducted at the point of the Accident:	
Most recent year conducted:	
- If Yes, but the point of the Accident was not identified as a dig site:	
Most recent year conducted:	
5. Has one or more non-destructive examination been conducted at the point of the Accident since January 1, 2002?	No
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: *(select all that apply)* -	
- 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)?	No
8. Right-of-Way where event occurred: *(select all that apply)* -	
- Public	
- If "Public", Specify:	
- Private	
- If "Private", Specify:	
- Pipeline Property/Easement	
- Power/Transmission Line	
- Railroad	Yes
- Dedicated Public Utility Easement	
- Federal Land	
- Data not collected	
- Unknown/Other	
9. Type of excavator:	Contractor
10. Type of excavation equipment:	Backhoe/Trackhoe
11. Type of work performed:	Unknown/Other
12. Was the One-Call Center notified?	Yes
12a. If Yes, specify ticket number:	173101359
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:	Utility Owner
14. Were facility locate marks visible in the area of excavation?	Yes
15. Were facilities marked correctly?	Yes
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 *(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):*	
Root Cause:	Other
- 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:	See attached investigation report.
G4 - Other Outside Force Damage - *only one **sub-cause** can be selected from the shaded left-hand column*	

Other Outside Force Damage – Sub-Cause:	
- If 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:	
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: *(select all that apply)*	
- 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: *(select all that apply)*	
- 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: *(select all that apply)*	
- 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: (*select all that apply*):	
- 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:	
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: *(select all that apply)* -	
- Control Valve	
- Instrumentation	
- SCADA	
- Communications	
- Block Valve	
- Check Valve	
- Relief Valve	
- Power Failure	
- Stopple/Control Fitting	
- ESD System Failure	
- Other	
- If Other – 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: *(select all that apply)*	
- Excessive vibration	
- Overpressurization	
- No support or loss of support	
- Manufacturing defect	
- Loss of electricity	
- Improper installation	
- Mismatched items (different manufacturer for tubing and tubing fittings)	
- Dissimilar metals	
- Breakdown of soft goods due to compatibility issues with transported commodity	
- Valve vault or valve can contributed to the release	
- Alarm/status failure	
- Misalignment	
- Thermal stress	
- Other	
- If Other, 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

Outside force damage caused by third party. See attached investigation report.

Note: Response to Question A.4 (time and date accident) of 20:45 on 07/22/11 is based upon time of report of indicated release received at the control center from 3rd party HazMat team.

Supplemental report submitted on 4/30/2012.

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PART I - PREPARER AND AUTHORIZED SIGNATURE

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Date	04/30/2012

Appendix D

CFPL Failure Investigation Report

And

Exponent Metallurgical Report

This document is on file at PHMSA