

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

Principal Investigators Peter J Katchmar
Region Director Chris Hoidal
Date of Report 4/14/2011
Subject Failure Investigation Report – Chevron Leak

Operator, Location, & Consequences

Date of Failure 6/11/2010
Commodity Released Crude Oil
City/County & State Salt Lake City / Salt Lake County, UT
OpID & Operator Name 2731 Chevron Pipe Line Company
Unit # & Unit Name 225 Crude System
SMART Activity # 130345
Milepost / Location MP 174.7 - Red Butte Cabyon Rd
Type of Failure Leak caused by Other Outside Force Damage – Electrical Arcing
Fatalities 0
Injuries 0
Description of area impacted Highly populated area near University of Utah. Spill impact a small creek and downstream pond.
Property Damage Chevron verbally stated approximately \$5 million. Operator will update the accident report to PHMSA.

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Executive Summary

A large electrical charge was introduced to a fence directly over Chevron's pipeline. The charge jumped from a metal fence post to Chevron's pipeline causing an ~ 1" hole in the fence post and an ~1/2" hole near the 12:00 position on the pipe. The leak occurred near a small creek that runs through a high density populated area. The crude followed the creek to a pond where most of it was captured.

System Details

Chevron Pipe Line Company (Chevron) operates a 10" pipeline from their Rangely Terminal in Colorado to their Salt Lake City (SLC) refinery. The last pump station is before Wolf Creek Pass and the crude oil is in slack line flow much of the way from Wolf Creek Pass to SLC. Because of the slack line conditions, it is difficult to identify small leaks on the last 50 miles of pipe. This section of pipeline is low pressure and Chevron uses a meter in/meter out volume balance SCADA system. Because of the slack line conditions, low pressure, and changing density of the crude oil being transported, there are times during normal routine operations where the metering can show positive for hours and alternatively can show negative for hours. The Chevron pipeline right-of-way (ROW) crosses Red Butte Creek at their mile post (MP) 174.5 and runs generally to the east or uphill from the SLC University property in this area.

Time in this Report

All times are reported from the different operators' Supervisory Control and Data Acquisition (SCADA) systems. Also, Chevron's SCADA system is in Houston, TX, Central Standard Time (CST) which is an hour behind the time in SLC, UT, Mountain Standard Time (MST). The author attempted to include the MST along with the actual reported CST from Houston when possible. All other times in the report are local times unless specified differently.

Events Leading up to the Failure

In the early 1980's, Williams Gas Pipeline Company built an office building up the hill from the SLC University in Red Butte Canyon. There were above ground high voltage power lines crossing Red Butte Canyon at Red Butte Creek immediately adjacent to the Chevron ROW. Because of the detrimental impact to the view, it appears that Williams Gas Pipeline requested that Rocky Mountain Power (RMP) remove the above ground high voltage power lines. The solution for RMP was to install a transition station where the lines are moved from above ground to below ground for approximately 900 feet. Unfortunately, in the early 1980's there were no One-Call Laws in Utah and being so long ago, there is not much in the way of records. What is known is that the north transition station was built very close to the Chevron pipelines on the Chevron ROW. Subsequent to the installation of the transition station, a fence was built to keep people away from the high voltage power lines. One of the corner fence posts was installed directly over the Chevron #2 crude line. The base of the metal fence post was within approximately 3" of the top of Chevron's line. There is no record that Chevron ever identified this transition station as something that could be detrimental to their pipelines. Chevron had installed a pipeline marker within one foot of the metal corner fence post that was installed over their #2 pipeline.

On the evening of June 11, 2010, the Salt Lake City area was experiencing a storm with gusting winds and some rain but no reported lightening. From Rocky Mountain Power Company (RMP) records, at 9:10:29 PM there was a C-Phase ground fault (short circuit) at their north underground facility. There is documentation of a family man who lived nearby to the power transition facility which solidifies the timing of this event. He even said he smelled something like natural gas but it wasn't and since he could not identify the smell he went home and did no more about it. Also, there is a security video from the Williams Facility on the hill that shows the lights going out during the same time frame as RMP shows

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they experienced the ground fault. RMP submitted a report stating, “We have not determined the root cause of the short circuit and may never know for sure. That night, high winds were gusting throughout the evening. The short circuit could possibly been initiated by an electrical equipment failure, electric contact by outside debris, tree limbs making contact with electrical facilities, or by some other unknown cause.”

Emergency Response

At 8:42 AM CST (7:42 AM MST) the Chevron Controller received a call from SLC Fire Department stating, “We have been fighting a fire and have traced the source of the fuel to your pipeline.” Chevron immediately shut down the pumps at Hanna Station and the valves at the Chevron SLC Refinery were left open to allow drain down of the segment. Chevron personnel were dispatched to the Little Mountain Block Valve up stream of the release site and that valve was secured by 9:57 AM CST (8:57 MST).

Chevron initiated their spill response plan and coordinated with local response officials. The crude oil fouled Red Butte Creek all the way to Liberty Park Pond which acted as a catch basin for most of the oil. Some water fowl were oiled and some fish were lost. All reports subsequent to the release were that Chevron and the Incident Command System did a good job on the clean up.

There were no interruptions of energy supply due to this release.

Immediately after the release, the power company shut down power to the transition station. They installed a temporary above ground line to carry power until a permanent solution could be designed and implemented.

Summary of initial start-up plan and return-to-service, including preliminary safety measures

An engineer from PHMSA’s Western Region were dispatched the morning of June 12th and arrived at the release site at approximately 8:00pm local time. PHMSA monitored Chevron’s actions to expose and repair the failed section of pipe and to ensure other facilities in the area were undamaged. Nearby above-ground facilities were inspected and arcing was found and determined to be detrimental to the integrity of the pipeline. This section of pipe was removed and replaced. To ensure the integrity of the pipeline, PHMSA requested that Chevron perform a stand-up test with water to well above the normal operating pressure for this segment of pipe. On June 20, 2010, Chevron filled the line from the refinery to Little Mountain with water injected through the 6-inch valve located immediately up stream of the 10-inch mainline valve known as the Red Butte Block Valve. The line held 300 psig pressure for 4 hours with no fluxuation. The test was deemed good and the line was allowed to return to service.

PHMSA requested that Chevron consider running an in-line-inspection device through this line in an expedited time frame as well as conduct a detailed review of their pipeline right-of-way (ROW) to identify any additional threats from electrical equipment. PHMSA also requested that Chevron clear their ROW of overgrowth and/or consider additional methods for patrolling to supplement their aerial patrols with vehicle or foot patrols where the ROW could not be clearly seen from the air. These immediate requests were followed up with official PHMSA enforcement actions.

Investigation Findings & Contributing Factors

Post release investigation revealed that the ground fault sent a very large surge of electricity through the fence. The surge of electricity flowed through the corner fence post and jumped from the bottom of the fence post onto Chevron’s #2 crude pipeline. This electrical surge event left an approximate one (1) inch hole in the bottom of the metal fence post and left an approximate one half (1/2) inch hole in the

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top of the crude oil pipeline. Crude oil was released from the 1/2" hole in the pipe and it flowed to the surface and downhill into Red Butte Creek. There was some apparent arcing damage at the block valve installation approximately 300 feet downstream of the release site. The block valve configuration included an upstream pressure sensor, a downstream pressure sensor as well as a "pig-sig" (a device that sends a signal to the controller that an internal device called a pig just went by). The pig-sig had wires coming off of it going to the ground and there was obvious effects (tell tale black residue from arcing) of electrical damage in the area of the pig-sig. In order to complete the electrical circuit, the electricity has to return to the nearest transformer. The nearest transformer is approximately 2 miles perpendicular to the pipeline. It has been surmised from the evidence that the surge of electricity got onto the pipeline at the release point and flowed through the pipeline down to the block valve assembly and that is where it left the pipeline and flowed through the ground back to the transformer.

A PHMSA engineer reviewed the data received by Chevron's Controller who was on duty throughout the evening of June 11, 2010, through 6:00 am June 12, 2010. An analysis of the data was performed and it is apparent that even though the metering was trending negative, the downstream pressure was increasing. This combination of information told the Controller that everything was progressing normally. At approximately 10:18 CST (9:18 MST), the Controller received a notice that the pressure transmitters at the Red Butte Block Valve approximately 300 feet downstream of the release site were not communicating. The Controller was aware of the storms in the SLC area because of verbal communications with the SLC operator. The Controller did have other pressure transmitters in close proximity to the failed pressure sensors and so continued operations. The Controller initiated a shift of crude from condensate to heavier crude on June 12, 2010, at 4:57 CST (3:57 MST). The SCADA metering continued a negative trend but the downstream pressure were generally on the increase and the Controller thought that the negative metering was due to the crude density switch and the metering loss improved the next hour so the Controller made an educated decision to continue normal operations.

RMP removed all of the transition footings from the Chevron ROW and moved the electrical transition installation ~30 to 50 feet to the west. Because of new technology, RMP is able to install a single underground line in lieu of the 3 lines previously installed. They also installed a concrete boundary between the new electrical transition station and the Chevron ROW as a barrier or shield to protect Chevron's lines. Since Chevron's lines lie to the east of the electrical transition station now, there is no longer any possibility of an electrical discharge damaging Chevron's lines in the area around Red Butte Creek.

Appendices

- A Map and Photographs
- B NRC Report 943766
- C NRC Report 943790
- D Chevron Accident Report to PHMSA
- E Stress Engineering Services Metallurgical Analysis

Appendix A Map and Photographs

Rocky Mountain Power Electric Substation and Chevron Pipeline Right-of-Way



Appendix A Map and Photographs

Bottom of fence post with one inch hole, installed 3 inches above pipeline



Appendix A Map and Photographs

10 inch crude oil pipeline partially exposed at leak site



Appendix A Map and Photographs

10 inch crude oil pipeline with one-half inch hole from electrical arcing



Appendix A Map and Photographs

Red Butte Block Valve, 300 yards downstream of failure site. Person is pointing to arc burn location



Appendix A Map and Photographs

Arc burn on pipe at Red Butte Block Valve



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 # 943766

INCIDENT DESCRIPTION

*Report taken at 11:42 on 12-JUN-10
 Incident Type: PIPELINE
 Incident Cause: UNKNOWN
 Affected Area: RED BUTTE CANYON STREAM/EMIGRATION STRM.
 The incident occurred on 12-JUN-10 at 05:30 local time.
 Affected Medium: WATER RED BUTTE CANYON STREAM/EMIGRATION STRET

SUSPECTED RESPONSIBLE PARTY

Organization: CHEVRON
 XX
 Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION

RED BUTTE CANYON County: SALT LAKE
 City: SALT LAKE CITY State: UT

RELEASED MATERIAL(S)

CHRIS Code: OIL Official Material Name: OIL: CRUDE
 Also Known As:
 Qty Released: 0 UNKNOWN AMOUNT Qty in Water: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT

CALLER STATED THERE WAS A SPILL OF MATERIALS FROM AN EIGHT INCH STEEL PIPELINE DUE TO UNKNOWN CAUSES.

INCIDENT DETAILS

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

---WATER INFORMATION---

Body of Water: RED BUTTE CANYON STREAM/EMIGRATION STRM.
 Tributary of:
 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

| <u>Closure Type</u> | <u>Description of Closure</u> | <u>Length of Closure</u> | <u>Direction of Closure</u> |
|---------------------|-------------------------------|--------------------------|-----------------------------|
| 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

CALLER STATED THEY HAVE EVERY AVAILABLE RESOURCE ON THE SCENE,BOOMS APPLIED
Release Secured: NO
Release Rate:
Estimated Release Duration:

WEATHER

Weather: RAINY, °F

ADDITIONAL AGENCIES NOTIFIED

Federal: NONE
State/Local: DEMRR, FD, PUC
State/Local On Scene: ALL STATE RESPONDERS
State Agency Number: NONE

NOTIFICATIONS BY NRC

DHS NOC (NOC)
12-JUN-10 11:49
USCG ICC (ICC ONI)
12-JUN-10 11:49
COLORADO INFO ANALYSIS CENTER (FUSION CENTER)
12-JUN-10 11:49
DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)
12-JUN-10 11:49
U.S. EPA VIII (MAIN OFFICE)
12-JUN-10 12:10
FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA RESPONSE WATCH CENTER)
14-JUN-10 00:38
NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)
12-JUN-10 11:49
NOAA RPTS FOR UT (MAIN OFFICE)
12-JUN-10 11:49
PIPELINE & HAZMAT SAFETY ADMIN (OFFICE OF PIPELINE SAFETY (AUTO))
12-JUN-10 11:49
UT ENVIRO RESPONSE & REMEDIATION (MAIN OFFICE)
12-JUN-10 11:49
DOI/OEPC DENVER (MAIN OFFICE)
12-JUN-10 11:49
UT DEPT OF HEALTH (COMMAND CENTER)
12-JUN-10 11:49

ADDITIONAL INFORMATION

CALLER DID NOT HAVE ANY ADDITIONAL INFORMATION.

*** END INCIDENT REPORT # 943766 ***

NATIONAL RESPONSE CENTER 1-800-424-8802
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Incident Report # 943790

INCIDENT DESCRIPTION

*Report taken at 14:10 on 12-JUN-10
 Incident Type: PIPELINE
 Incident Cause: UNKNOWN
 Affected Area: RED BUTTE CREEK
 The incident occurred on 12-JUN-10 at 10:26 local time.
 Affected Medium: WATER RED BUTTE CREEK/JORDON RIVER

SUSPECTED RESPONSIBLE PARTY

Organization: CHEVRON PIPELINE
 BELLAIRE, TX 77401
 Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION

300 WAKARA WAY County: SALT LAKE
 City: SALT LAKE CITY State: UT Zip: 84108

RELEASED MATERIAL(S)

CHRIS Code: OIL Official Material Name: OIL: CRUDE
 Also Known As:
 Qty Released: 0 UNKNOWN AMOUNT Qty in Water: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT

CALLER STATED DUE TO UNKNOWN CAUSES THERE WAS A SPILL OF MATERIALS FROM A TEN INCH STEEL UNDERGROUND PIPELINE DUE TO UNKNOWN CAUSES. CALLER STATED THE SPILL DID REACH THE RED BUTTE CREEK AND THE JORDON RIVER. CALLER STATED THIS REPORT IS AN UPDATE TO INCIDENT REPORT NUMBER 943773.

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: RED BUTTE CREEK
 Tributary of: JORDON RIVER
 Nearest River Mile Marker:
 Water Supply Contaminated: UNKNOWN

DAMAGES

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

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

Track: N

Passengers Transferred: NO

Environmental Impact: UNKNOWN

Media Interest: LOW Community Impact due to Material:

REMEDIAL ACTIONS

CALLER STATED THE LOCAL FIRE AND POLICE DEPARTMENTS ARE ON THE SCENE. CALLER STATED INCIDENT COMMAND POSTS ARE BEING CONSTRUCTED. THE PIPELINE HAS BEEN SHUT DOWN BUT THE SOURCE HAS NOT BEEN SECURED.

Release Secured: NO

Release Rate:

Estimated Release Duration:

WEATHER

Weather: PARTLY CLOUDY, 55°F Wind speed: 8 MPH Wind directi

ADDITIONAL AGENCIES NOTIFIED

Federal: EPVIII

State/Local: UG DEC, UT DNR, UT WLR, UT DEPT OF HEALTH

State/Local On Scene: LOCAL PD& FD,

State Agency Number: NONE

NOTIFICATIONS BY NRC

DHS NOC (NOC)

12-JUN-10 14:22

USCG ICC (ICC ONI)

12-JUN-10 14:22

COLORADO INFO ANALYSIS CENTER (FUSION CENTER)

12-JUN-10 14:22

DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)

12-JUN-10 14:22

EPA OEM (MAIN OFFICE)

12-JUN-10 14:26

EPA OEM (WEEKEND CONTACT)

12-JUN-10 14:26

U.S. EPA VIII (MAIN OFFICE)

12-JUN-10 14:34

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA RESPONSE WATCH CENTER)

14-JUN-10 00:39

USCG NATIONAL COMMAND CENTER (MAIN OFFICE)

12-JUN-10 14:29

NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)

12-JUN-10 14:22

NOAA RPTS FOR UT (MAIN OFFICE)

12-JUN-10 14:22

NATIONAL RESPONSE CENTER HQ (MAIN OFFICE)

12-JUN-10 14:29

NTSB PIPELINE (MAIN OFFICE)

12-JUN-10 14:22

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

12-JUN-10 14:22

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

12-JUN-10 14:29

PACIFIC STRIKE TEAM (MAIN OFFICE)

13-JUN-10 11:25

UT ENVIRO RESPONSE & REMEDIATION (MAIN OFFICE)

12-JUN-10 14:22

DOI/OEPC DENVER (MAIN OFFICE)

12-JUN-10 14:22

UT DEPT OF HEALTH (COMMAND CENTER)

12-JUN-10 14:22

ADDITIONAL INFORMATION

CALLER STATED DID NOT HAVE ANY ADDITIONAL INFORMATION.

*** END INCIDENT REPORT # 943790 ***

| | | |
|--|---------------------|--|
| 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: | 07/10/2010 |
| | No. | 20100146 - 15723 ----- (DOT Use Only) |

**ACCIDENT REPORT - HAZARDOUS LIQUID
PIPELINE SYSTEMS**

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2137-0047. Public reporting for this collection of information is estimated to be approximately 10 hours per response (5 hours for a small release), including the time for reviewing instructions, gathering the data needed, and completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, PHMSA, Office of Pipeline Safety (PHP-30) 1200 New Jersey Avenue, SE, Washington, D.C. 20590.

INSTRUCTIONS

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: <i>(select all that apply)</i> | Original: | Supplemental: | Final: |
| | | Yes | |
| Report Status: | Submitted | | |
| Create Date: | 04/01/2011 | | |
| 1. Operator's OPS-issued Operator Identification Number (OPID): | 2731 | | |
| 2. Name of Operator | CHEVRON PIPE LINE CO | | |
| 3. Address of Operator: | | | |
| 3a. Street Address | 4800 FOURNACE PLACE, Rm C382A | | |
| 3b. City | BELLAIRE | | |
| 3c. State | Texas | | |
| 3d. Zip Code | 774012324 | | |
| 4. Local time (24-hr clock) and date of the Accident: | 06/12/2010 07:42 | | |
| 5. Location of Accident: | | | |
| Latitude: | 40.76505 | | |
| Longitude: | -111.82493 | | |
| 6. National Response Center Report Number (if applicable): | 943773 | | |
| 7. Local time (24-hr clock) and date of initial telephonic report to the National Response Center (if applicable): | 06/12/2010 09:54 | | |
| 8. Commodity released: <i>(select only one, based on predominant volume released)</i> | Crude Oil | | |
| - Specify Commodity Subtype: | | | |
| - 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): | 800.00 | | |
| 10. Estimated volume of intentional and/or controlled release/blowdown (Barrels): | | | |
| 11. Estimated volume of commodity recovered (Barrels): | 778.00 | | |
| 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? | Yes |
| - If No, Explain: | |
| - If Yes, complete Questions 14a and 14b: (use local time, 24-hr clock) | |
| 14a. Local time and date of shutdown: | 06/12/2010 07:42 |
| 14b. Local time pipeline/facility restarted: | 06/21/2010 09:05 |
| - 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: | 06/12/2010 07:42 |
| 18b. Local time Operator resources arrived on site: | 06/12/2010 09:05 |

PART B - ADDITIONAL LOCATION INFORMATION

| | |
|--|-----------------------------------|
| 1. Was the origin of Accident onshore? | Yes |
| <i>If Yes, Complete Questions (2-12)</i> | |
| <i>If No, Complete Questions (13-15)</i> | |
| - If Onshore: | |
| 2. State: | Utah |
| 3. Zip Code: | 84113 |
| 4. City: | Salt Lake City |
| 5. County or Parish: | Salt Lake |
| 6. Operator-designated location: | Milepost/Valve Station |
| Specify: | 174.7 |
| 7. Pipeline/Facility name: | Red Butte Creek |
| 8. Segment name/ID: | Rangely to Salt Lake Crude System |
| 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): | 32 |
| 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: | Interstate |
| 2. Part of system involved in Accident: | Onshore Pipeline, Including Valve Sites |
| - If Onshore Breakout Tank or Storage Vessel, Including Attached Appurtenances, specify: | |
| 3. Item involved in Accident: | Pipe |

| | |
|--|---|
| - If Pipe, specify: | Pipe Body |
| 3a. Nominal diameter of pipe (in): | 10 |
| 3b. Wall thickness (in): | .25 |
| 3c. SMYS (Specified Minimum Yield Strength) of pipe (psi): | 42,000 |
| 3d. Pipe specification: | |
| 3e. Pipe Seam, specify: | Seamless |
| - If Other, Describe: | |
| 3f. Pipe manufacturer: | National Tube |
| 3g. Year of manufacture: | 1952 |
| 3h. Pipeline coating type at point of Accident, specify: | Other |
| - If Other, Describe: | Somastic |
| - 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: | 1952 |
| 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: | Preliminary visual observations of the damaged pipeline appear consistent with damage caused by an electric arc and we are working with Rocky Mountain Power Company to develop a testing protocol to analyze the pipeline to help determine the cause of the accident. |
| 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 | |
| - Vegetation | |
| - 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): | 10.00 |
| 5c. Name of body of water, if commonly known: | 5.b We are still estimating the amount released in or reaching water. 5.c Red Butte Creek, Liberty Pond, Jordan River |
| 6. At the location of this Accident, had the pipeline segment or facility been identified as one that "could affect" a High Consequence Area | Yes |

| | |
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| (HCA) as determined in the Operator's Integrity Management Program? | |
| 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 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 | Yes |
| Was this HCA identified in the "could affect" determination for this Accident site in the Operator's Integrity Management Program? | Yes |
| 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 | \$ 63,000 |
| 8c. Estimated cost of Operator's property damage & repairs | \$ 150,000 |
| 8d. Estimated cost of Operator's emergency response | \$ 228,000 |
| 8e. Estimated cost of Operator's environmental remediation | \$ 0 |
| 8f. Estimated other costs | \$ 0 |
| Describe: | |
| 8g. Estimated total costs (sum of above) | \$ 441,000 |
| PART E - ADDITIONAL OPERATING INFORMATION | |
| 1. Estimated pressure at the point and time of the Accident (psig): | 64.00 |
| 2. Maximum Operating Pressure (MOP) at the point and time of the Accident (psig): | 880.00 |
| 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 - <i>(Complete 5a. – 5f. below)</i> | |
| 5a. Type of upstream valve used to initially isolate release source: | Manual |
| 5b. Type of downstream valve used to initially isolate release source: | |
| 5c. Length of segment isolated between valves (ft): | 74,659 |
| 5d. Is the pipeline configured to accommodate internal inspection tools? | Yes |
| - If No, Which physical features limit tool accommodation? <i>(select all that apply)</i> | |
| - 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 - | |

| | |
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| - 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? | 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? | 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 | Yes |
| - Investigation identified no controller issues | Yes |
| - Investigation identified incorrect controller action or controller error | |
| - Investigation identified that fatigue may have affected the controller(s) involved or impacted the involved controller(s) response | |
| - Investigation identified incorrect procedures | |
| - Investigation identified incorrect control room equipment operation | |
| - Investigation identified maintenance activities that affected control room operations, procedures, and/or controller response | |
| - Investigation identified areas other than those above: | |
| Describe: | |
| PART F - DRUG & ALCOHOL TESTING INFORMATION | |

| | |
|---|---------------------------------|
| 1. As a result of this Accident, were any Operator employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations? - If Yes: | No |
| 1a. Specify how many were tested: | |
| 1b. Specify how many failed: | |
| 2. As a result of this Accident, were any Operator contractor employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations? - If Yes: | No |
| 2a. Specify how many were tested: | |
| 2b. Specify how many failed: | |
| PART G – APPARENT CAUSE | |
| 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: | G4 - Other Outside Force Damage |
| G1 - Corrosion Failure - only one sub-cause can be picked from shaded left-hand column | |
| Corrosion Failure – Sub Cause: | |
| - If External Corrosion: | |
| 1. Results of visual examination: - If Other, Describe: | |
| 2. Type of corrosion: <i>(select all that apply)</i> | |
| - Galvanic | |
| - Atmospheric | |
| - Stray Current | |
| - Microbiological | |
| - Selective Seam | |
| - Other: - If Other, Describe: | |
| 3. The type(s) of corrosion selected in Question 2 is based on the following: <i>(select all that apply)</i> | |
| - Field examination | |
| - Determined by metallurgical analysis | |
| - Other: - If Other, Describe: | |
| 4. Was the failed item buried under the ground? - If Yes : | |
| <input type="checkbox"/> 4a. Was failed item considered to be under cathodic protection at the time of the Accident? If Yes - Year protection started: | |
| 4b. Was shielding, tenting, or disbonding of coating evident at the point of the Accident? | |
| 4c. Has one or more Cathodic Protection Survey been conducted at the point of the Accident? If "Yes, CP Annual Survey" – Most recent year conducted: If "Yes, Close Interval Survey" – Most recent year conducted: If "Yes, Other CP Survey" – Most recent year conducted: | |
| - If No: | |
| 4d. Was the failed item externally coated or painted? | |
| 5. Was there observable damage to the coating or paint in the vicinity of the corrosion? | |
| - If Internal Corrosion: | |
| 6. Results of visual examination: - Other: | |
| 7. Type of corrosion <i>(select all that apply):</i> - | |
| - Corrosive Commodity | |
| - Water drop-out/Acid | |
| - Microbiological | |
| - Erosion | |
| - Other: - If Other, Describe: | |
| 8. The cause(s) of corrosion selected in Question 7 is based on the following <i>(select all that apply):</i> - | |
| - Field examination | |
| - Determined by metallurgical analysis | |
| - Other: | |

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| - 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 | |

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| 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: <i>(select all that apply)</i> | |
| - Hurricane | |
| - Tropical Storm | |
| - Tornado | |
| - Other | |
| | - If Other, Describe: |
| G3 - Excavation Damage - only one sub-cause can be picked from shaded left-hand column | |
| Excavation Damage – Sub-Cause: | |
| - If Excavation Damage by Operator (First Party): | |
| - If Excavation Damage by Operator's Contractor (Second Party): | |
| - If Excavation Damage by Third Party: | |
| - If Previous Damage due to Excavation Activity: | |
| Complete Questions 1-5 ONLY IF the "Item Involved in Accident" (from PART C, Question 3) is Pipe or Weld. | |
| 1. Has one or more internal inspection tool collected data at the point of the Accident? | |
| 1a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run: - | |
| - Magnetic Flux Leakage | Most recent year conducted: |
| - Ultrasonic | Most recent year conducted: |
| - Geometry | Most recent year conducted: |
| - Caliper | Most recent year conducted: |
| - Crack | Most recent year conducted: |
| - Hard Spot | Most recent year conducted: |
| - Combination Tool | Most recent year conducted: |
| - Transverse Field/Triaxial | Most recent year conducted: |
| - Other | Most recent year conducted: |
| | Describe: |
| 2. Do you have reason to believe that the internal inspection was completed BEFORE the damage was sustained? | |
| 3. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Accident? | |
| - If Yes: | |
| | Most recent year tested: |
| | Test pressure (psig): |
| 4. Has one or more Direct Assessment been conducted on the pipeline segment? | |

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

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| - 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: | |

| | |
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| 8. Specify: | |
| - If Other, Describe: | |
| - If Other Outside Force Damage: | |
| 9. Describe: | |
| G5 - Material Failure of Pipe or Weld - only one sub-cause can be selected from the shaded left-hand column | |
| Use this section to report material failures ONLY IF the "Item Involved in Accident" (from PART C, Question 3) is "Pipe" or "Weld." | |
| Material Failure of Pipe or Weld – Sub-Cause: | |
| 1. The sub-cause selected below is based on the following: <i>(select all that apply)</i> | |
| - Field Examination | |
| - Determined by Metallurgical Analysis | |
| - Other Analysis | |
| - If "Other Analysis", Describe: | |
| - Sub-cause is Tentative or Suspected; Still Under Investigation (Supplemental Report required) | |
| - If Construction, Installation, or Fabrication-related: | |
| 2. List contributing factors: <i>(select all that apply)</i> | |
| - Fatigue or Vibration-related | |
| Specify: | |
| - If Other, Describe: | |
| - Mechanical Stress: | |
| - Other | |
| - If Other, Describe: | |
| - If Original Manufacturing-related (NOT girth weld or other welds formed in the field): | |
| 2. List contributing factors: <i>(select all that apply)</i> | |
| - Fatigue or Vibration-related: | |
| Specify: | |
| - If Other, Describe: | |
| - Mechanical Stress: | |
| - Other | |
| - If Other, Describe: | |
| - If Environmental Cracking-related: | |
| 3. Specify: | |
| - Other - Describe: | |
| Complete the following if any Material Failure of Pipe or Weld sub-cause is selected. | |
| 4. Additional factors: <i>(select all that apply)</i> : | |
| - Dent | |
| - Gouge | |
| - Pipe Bend | |
| - Arc Burn | |
| - Crack | |
| - Lack of Fusion | |
| - Lamination | |
| - Buckle | |
| - Wrinkle | |
| - Misalignment | |
| - Burnt Steel | |
| - Other: | |
| - If Other, Describe: | |
| 5. Has one or more internal inspection tool collected data at the point of the Accident? | |
| 5a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run: | |
| - Magnetic Flux Leakage | Most recent year run: |
| - Ultrasonic | Most recent year run: |
| - Geometry | Most recent year run: |
| - Caliper | Most recent year run: |
| - Crack | Most recent year run: |
| - Hard Spot | Most recent year run: |
| - Combination Tool | Most recent year run: |

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| - 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: <i>(select all that apply)</i> - | |
| - Control Valve | |
| - Instrumentation | |
| - SCADA | |
| - Communications | |
| - Block Valve | |
| - Check Valve | |
| - Relief Valve | |
| - Power Failure | |
| - Stopple/Control Fitting | |
| - ESD System Failure | |
| - Other | |
| - If Other – Describe: | |
| - If Pump or Pump-related Equipment: | |
| 2. Specify: | |
| - If Other – Describe: | |
| - If Threaded Connection/Coupling Failure: | |
| 3. Specify: | |
| - If Other – Describe: | |
| - If Non-threaded Connection Failure: | |
| 4. Specify: | |
| - If Other – Describe: | |
| - If Defective or Loose Tubing or Fitting: | |
| - If Failure of Equipment Body (except Pump), Tank Plate, or other Material: | |
| - If Other Equipment Failure: | |
| 5. Describe: | |
| Complete the following if any Equipment Failure sub-cause is selected. | |
| 6. Additional factors that contributed to the equipment failure: <i>(select all that apply)</i> | |

| | |
|--|--|
| - Excessive vibration | |
| - Overpressurization | |
| - No support or loss of support | |
| - Manufacturing defect | |
| - 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

Chevron Pipe Line (CPL) Controller was notified of the spill Saturday morning by the Salt Lake City Fire Department and CPL immediately shut down the pipeline. CPL dispatched emergency response teams to manually close the valve upstream from the leak site and began containment response. CPL notified all appropriate federal, state, and local emergency response agencies. Preliminary visual observations of the damaged pipeline appear consistent with damage caused by an electrical arc, and we are working with Rocky Mountain Power Company to develop a testing protocol to analyze the pipeline to help determine the cause of the accident.

| |
|-----------------------|
| File Full Name |
| |

PART I - PREPARER AND AUTHORIZED SIGNATURE

| | |
|---------------------------------------|---------------|
| Preparer's Name | Gary M. Saenz |
| Preparer's Title | |
| Preparer's Telephone Number | 713 432-3332 |
| Preparer's E-mail Address | |
| Preparer's Facsimile Number | |
| Authorized Signature's Name | Gary M. Saenz |
| Authorized Signature Title | |
| Authorized Signature Telephone Number | 713 432-3332 |
| Authorized Signature Email | |
| Date | 04/01/2011 |

Appendix E Stress Engineering Services Metallurgical Analysis

26 August 2010

Metallurgical Analysis of Utah Release Components

This document is on file at PHMSA