

UTC Federally Incident Investigation Form

Notification ID:	2820	Inspection ID:	6138
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Inspector Name:	Dennis Ritter
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Operator:	Olympic Pipe line Company
District/Unit:	925
Location:	16292 OVENELL RD, Allen Station, Mt. Vernon, WA
Incident Date:	11/10/14
Description:	<p>On November 5, 2014, Joe Subsits, Chief Engineer, WUTC Pipeline Safety, received a telephone call from Olympic Pipeline Company (OPL). OPL was placing a courtesy call to inform WUTC they might have a leak. They could not confirm as they have not been able to locate an actual leak. The location is inside the fenced compound at Allen Pump Station (MP 37.42), in Mt. Vernon, WA. A pipeline safety inspector was sent to investigate on November 6, 2014. Preliminary investigation revealed that OPL found what they believed to be new product, but could not find a leak.</p> <p>In late August, 2014, Olympic excavated several bleed/drain system valves to replace them during a scheduled maintenance activity. The replacement valves did not fit and OPL ordered new ones, but chose not to fill the hole leaving it open until new valves arrived. Water collected in the open excavations. On October 29, 2014, an employee noticed a sheen/product on the water in the pit. OPL cleaned up the product and initiated an investigation to see if the system had a leak. They also activated their emergency response procedures. No visible signs of a leak were found. OPL hired a contractor, Snelson Brothers, to excavate around the existing excavation to look for a leak. Small quantities of product seeped into the excavation and LEL detectors were alarming. OPL shut down the station on November 5, 2014. This system is the main supply of refined products to the greater Seattle area, Portland area, Western Washington and Sea Tac Airport.</p> <p>This site has a history of past spills and leaks, therefore the soils are contaminated with old product from previous accidents. This proved to be a very big issue in determining if the product seeping into the excavations was “new” or “old/weathered” product. OPL sent samples to a forensic chemist to confirm. The results indicated the area around the 16” pumps and piping was old product and not part of a new leak. OPL then restarted the 16” line on November 7, 2014.</p> <p>From November 7 to November 10, the investigation focused on the 20” system which is where the original sheen was found. Detectors in this area continually alarmed for LEL and benzene which slowed excavation considerably until the air could be purged (blowers). Forensic chemistry confirmed new product in this area. OPL excavated the entire 20” inlet line with no visible signs of a leak. They then disconnected all purge/drain lines and pressure tested that system independently from the mainline. No leaks were found.</p>

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	<p>On November 10, OPL then brought the 20” back on line using pump unit 1 to check for leaks. After 1 hour, no leaks were found. OPL then shut down unit 1 and switched over to unit 2. During this process, an employee noticed a “wet area” near the bottom of the discharge valve on unit 1. Investigation of this area found the 1” carbon steel bleed line was leaking at the threaded connection to the valve body. OPL notified WA Department of Ecology, WUTC and NRC (1100723).</p> <p>On November 11, OPL drained the loop line, removed the bleed line, and installed a plug. OPL then started unit 1 to confirm there was no leak. After confirmation, OPL investigated the similar bleed line on the unit 2 pump and found no leaks. The 20” was placed back in to service at 16:52 on November 11, 2014.</p> <p>The 1” bleed line threaded fitting, 90 and riser were sent to Det Norske Veritas in Ohio for laboratory analysis. The results of the lab analyses, revealed that thread sealant had deteriorated over the years and eventually allowed product to seep by causing a leak. OPL does not know how long the line has been leaking and due to the history of leaks on site and resulting contaminated soils, it will probably never be known.</p>
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Facts/Chronology of Events:

<i>Event Log</i>	
Sequence of events prior, during, and after the incident by time. (Consider the events of all parties involved in the incident, Fire Department and Police reports, Operator Logs and other government agencies.)	
Time / Date	Event
Late August 2014	OPL excavated existing drain/fill line valve to replace. New valves did not fit. Left excavation open.
18:43 10/29/15	Field Specialist noticed sheen on water in open excavation near 20” Unit 2, Called control center to report. 20” shut down and sheen cleaned up.
10/30/14	Tightness testing of 20” Unit 2 completed. No leaks found. Unit 2 placed out of service pending further investigation. 20” mainline restarted-Unit 1.
10/30/14	Unit 2 placed back in service
10/31/14	OPL hired contractor to over excavate around the open excavation area to ensure no leak.
11/3/14	Contractor mobilizes to site. OPL and contractor formulate plan
08:00 11/5/14	Excavation begins as planned.
10:00 11/5/14	Field Specialist calls control room to shut down 20” as local LEL detectors were alarming. 20” mainline shut down.
10:32 11/5/14	Control Room shuts down 16” mainline (feeds Seattle, SeaTac, Renton deliveries)
07:30 11/6/14	Courtesy call to WUTC to report current status and possibility of leak. WUTC investigator dispatched to scene.
11:55 11/6/14	WUTC on site and discussing current status with OPL personnel. OPL believes leak is in drain line as highest LEL concentrations and “product” is near drain pump slab. OPL is having difficulty determining if product is weathered/old or new (from an active leak) due to existing contamination on site from previous spills/leaks.

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13:55 11/6/14	WUTC left site. No leaks discovered. OPL's plan is to continue excavation of drain system. Sent samples to forensic lab to determine age of product found in excavations. Older product would not be indicative of active leak.
21:25 11/7/14	No leaks found. OPL performed a tightness test of 16".
11/7-11/10/14	WUTC onsite. Continued excavation of drain line and 20" mainline inlet piping.
11/8/14	WUTC onsite. Restarted 16" and sent 40,000 bbls to SeaTac airport as they were down to less than 1 day of operation.
11/8-11/9/14	Isolated drain system from 16 and 20" mainline. Continued excavation of 20" mainline.
11/08/14	WUTC on site. Received lab results indicating product found near 16" line was "weathered" and not new product. Restarted 16".
11/8/14	Performed pressure test on drain piping using N2-200 psi. No leaks found. Concentrating on excavating 20" loop.
11/9/14	WUTC onsite. Opened inlet valve and increased pressure on 20" loop to 500 psi. Shut in. No leaks found. Then increased pressure to 850. Station valves could not hold pressure, leak by. No product outside pipeline found.
13:23 11/10/14	OPL will restart pipeline as cannot find a leak. Unit 1 is started and run for 1 hour. Field personnel monitor exposed pipeline. No leaks found. Unit 1 shut down.
15:12 11/10/14	Unit 2 started up.
17:33 11/10/14	Field personnel notice wet area on discharge valve body bleed line connection on Unit 1 while monitoring Unit 2. Unit 2 shut down. Crews expose bleed line connection to valve body and find it leaking at threaded connection.
18:05 11/10/14	Regulatory agencies notified of leak. WUTC on site.
15:30-16:32 11/11/14	WUTC on site. Bleed line removed and plug installed. Leak repaired. 20" mainline started to monitor for leaks Unit 1 then Unit 2. No leaks.
16:52 11/11/14	20" mainline placed back in normal operation.

Causes Contributing Factors:

The apparent cause as identified by Det Norske Veritas was failed pipe thread sealant (pipe dope). The 1" drain line connects underground to the body of the valve. There are three threaded connections: the riser to the 90 deg elbow, the elbow to the pipe nipple, and the nipple to the valve. It is assumed that all three would use pipe sealant. The sealant has been in the ground for 40 years. The useful life expectancy for pipe sealant buried for 40 years would appear to have been exceeded as is evident by the leak.

Regulatory Analysis/ Violations:

No rules were violated.

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Follow up/ Recommendations:

OPL needs to address buried threaded connections as a threat in their integrity management plan and assign a risk ranking. The failure mechanism was thread sealant drying up and product leaking through the threaded connection. OPL will need to initiate a program to inspect and monitor this condition on existing buried threaded connections. Olympic also stated that they are going the vault the Allen Station to expose the secondary piping at the station.