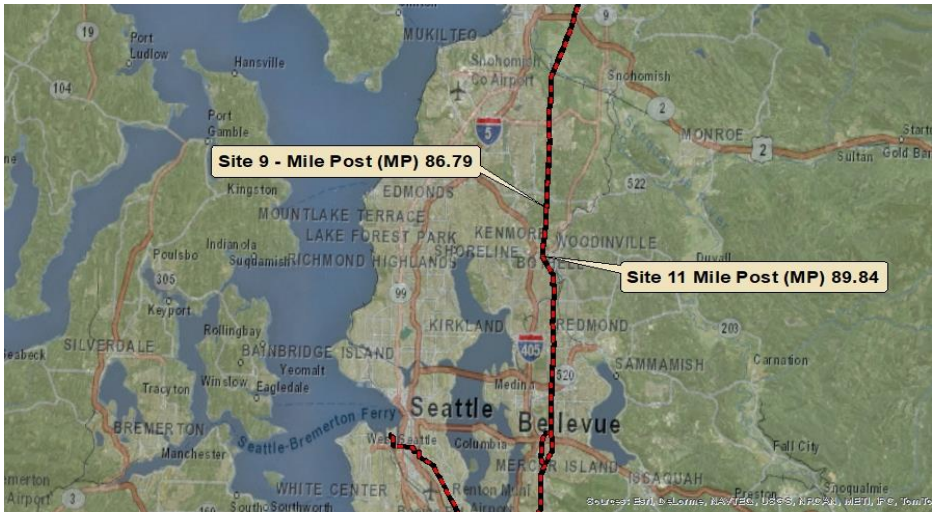
UTC Incident Investigation Form

Notification ID:	3639	**Investigation ID:**	8155

Inspector Name:	Dave Cullom
Date Report Submitted to Chief Engineer:	9/23/2020
Date Report Reviewed & Approved by Chief Engineer:	11/5/2020 Joe Subsits

Operator:	BP - Olympic Pipeline's (BP-OPL)
District/Unit:	Olympic Pipeline (North)
Location:	Bothell/Woodinville, Washington Mile Post 86.79 (Site 9) and Mile Post 89.84 (Site 11) 
Incident Date:	2/22/2020

Description:
This investigation addresses: (Site 11) National Response Center (NRC) reports 1271859, 1271861 (Site 9) No NRC report was submitted. This investigation has been a joint effort of the Washington State Department of Ecology (Ecology) and the Washington Utilities and Transportation Commission (UTC). Both agencies responded to the spill and collaborated in the incident investigation. Ecology evaluated BP - Olympic Pipeline's (BP-OPL) response to this spill to ensure compliance with WAC 173-182 while the UTC's investigation focused on ensuring compliance with 49 CFR § 195.

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An initial estimated 34.7 gallons leaked from a combined two locations on the 20" BP - Olympic Pipeline (BP-OPL) line, containing gasoline as the product, near Woodinville, WA. This estimate was updated in the operator's incident investigation report later received to 27 gallons. This number does not include factoring in any product evaporation.

The operator's incident investigation report states:

"*On Thursday, February 20, 2020 at 11:00 am, 2" THREAD-O-RING™ (TORs) were welded onto the pipeline by Hanging H Construction Inc. at cut out locations Dig 009 and Dig 011. On Friday, February 21, 2020, the 2" valves were installed, and the pipeline was tapped by Olympic employees in accordance with Operator Qualification (OQ) SYM 11S - Hot Tapping/Plugging and TD Williamson Training protocol.*

All hot tapping must take place while the pipeline pressures are below 400 pounds per square inch (psi). During tap activities, the pipeline was operating below 400 psi from approximately 10:00 am to 12:00 pm. Once activities were complete, leak checks were conducted at both sites for approximately 30 minutes. At 06:15 pm, the pipeline pressure increased to over 400 psi where it remained until the pipeline shutdown on February 23, 2020. Leak checks were not conducted on site when the pipeline reached full operating pressure.

On February 23, 2020, during the assessment of both releases, product was observed seeping from the threads on the TORs. This was due to inadequate tightness on the threads during the installation. Once the pipeline reached normal operating pressures, this forced product through the threaded connection which caused the loss of primary containment."

The BP - Olympic Pipeline (BP-OPL) Incident Investigation Report cited above was checked for consistency with dispatch records and personnel interviews.

As indicated in BP - Olympic Pipeline's (BP-OPL's) report, once this work was finished and prior to leaving the work site for the weekend the fittings were visually inspected for leaks for 30 minutes at a pressure that was considerably lower than the normal operating pressure. Once, the pipeline was brought up to full pressure the valve started leaking at the threads that were improperly tightened.

Site 11 – Photos taken on 2/23/2020 – The TOR fitting and valve shown on the right that leaked are located in the right trench box in the center of the left image above.

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Site 9 – Photos taken on 2/23/2020 – The TOR fitting and valve shown with released product before recovery.

Facts/Chronology of Events:

2-20-2020

Three TDW 2" THREAD-O-RING™ (TOR) fittings were welded to the 20" BP-OPL mainline near Woodinville. These fittings were to be used to monitor nitrogen purge levels in the line for a replacement project. (Source - Mike Monen 2/23/2020 interview)

These locations where work was performed are identified as:

Site 9 – Located ~500 yards south of Woodinville Pump Station near 21909 Ne 45th, Woodinville (MP 86.79)
Site 10 – Located between Site 9 and Site 11. (MP 88.94)
Site 11 - Located at 17242 124th Ave, Woodinville at ~ MP 89.84 (Parcel No. 9518100235)

The distance from Site 9 to Site 11 was said to be about 2-3 miles.

2-21-2020

1000-1400

Post welding mag particle NDT of the sites where the TORs were installed was conducted. Site 10 was not tapped per Mike Monen (BP-OPL). Site 9 and 11 were tapped and the completion plugs were not installed. The outer valve plugs, as shown in the attached photos were installed. (Source - Mike Monen 2/23/2020 interview)

2-22-2020

2100

The homeowner, Wayne Bowen, adjacent to Site 11 at 17242 124th Avenue NE, Woodinville, WA 98072 called BP-OPL's Right of Way (ROW) agent, Robert Turner (479) 264-9773, at around 2100 Saturday evening when he smelled fuel. (Sources - Mike Monen 2/23/2020 interview and follow-up interview of Mr. Bowen was conducted on 4/29/2020.)

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The ROW agent, Robert Turner, sent a text to Mike Monen (BP-OPL) (Source - Mike Monen 2/23/2020 interview)

2354

Mike Monen reads the text of the gasoline odor, calls the BP-OPL Control Room, and heads to Site 11. (Source – USPL Incident Investigation Report (Data Request Attachment G)

2-23-2020

0025

Mike Monen notified the Renton Control Center (RCC) of the incident.

0026

The RCC shut down the pipeline.

0059

The release at Site 11 was confirmed by Mike Monen indicating the 2" valve was leaking at the threads. (Source - Mike Monen 2/23/2020 interview)

0157

BP-OPL responder, Jeff Peltzer, receives call of leak at Site 11 from the RCC. (Source – Jeff Peltzer Incident Notes)

0220

BP-OPL responder, Jeff Peltzer, arrived at Woodinville Station to gather equipment to install the completion plug into the TOR. (Source – Jeff Peltzer Incident Notes)

0235

Woodinville Fire Department receives 911 call (Source – Woodinville Fire Department Dispatch RAADAR Report)

0245

BP-OPL responder, Jeff Peltzer, arrived onsite and made the decision it was safe to approach. (Source – Jeff Peltzer Incident Notes)

0303

CGI readings taken by the Woodinville Fire Department – No hazardous readings were obtained on the CGI. (Source – Woodinville Fire Department Dispatch RAADAR Report)

0304

The Washington State Emergency Operations Office received a call from Woodinville Fire Dispatch to advise Dept of Ecology of an approximately 15-20 gallons of gasoline spilled to ground only in Woodinville. A gasoline company working at an excavation site spilled the material. Cause was not provided. Requesting Washington State Department of Ecology assistance with cleanup. Notified

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Washington State Department of Ecology NW/Buck Smith. (Source – Washington State Emergency Operations Office Daily Log)

~0307

Washington State Department of Ecology notified about Site 11. (Source – Andy Quast 2/23/2020 interview)

0354

1st NRC Incident Report #1271859 was submitted. (Source – NRC Report)

0404

The Washington State Emergency Operations Office received NRC report and call from the responsible party on this incident. Incident involved a pipeline excavation. Notified Washington State Department of Ecology NW/Buck Smith and emailed WA UTC Pipeline Safety/Sean Mayo. Reporting Party: Olympic Pipeline, Robert Strain (Source – Washington State Emergency Operations Office Daily Log)

0455

Washington State Department of Ecology arrived at Dig 011 at approximately 4:55 AM. At that time, it appeared that BP had not yet developed a site-specific Health & Safety Plan (HSP). (Source – Washington State Department of Ecology Spill Investigation Report)

0515

Washington State Emergency Operations Office received call and second NRC report on this incident. Report corrects the incident location address and time of spill discovery. Notified Washington State Department of Ecology NW/Buck Smith and WA UTC Pipeline Safety/Sean Mayo. (Source – Washington State Emergency Operations Office Daily Log)

0532

Kim West at PHMSA notified (Source – Email confirmation)

0544

UTC Pipeline Safety Staff notified (Source – Dave Cullom phone log)

0546

Missed call was checked in Outlook (Source – Dave Cullom)

0549

Call returned to RC Strain with BP-OPL (Source – Dave Cullom phone log)

0610

UTC Incident notification was sent out. (Source – Dave Cullom email notification records)

0614-0632

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UTC Chief Engineer Joe Subsits was contacted for an 18-minute call. (Source – Dave Cullom phone log)

0633

Contacted RC Strain with BP-OPL and left message. (Source – Dave Cullom phone log)

0634-0642

RC Strain with BP-OPL returned my phone call for an 8-minute conversation. (Source – Dave Cullom phone log)

0645

The RCC started the pipeline back up. (Source – Renton Control Center Line Site Report for 2/23/20 – Data Request Attachment F1)

0645-0649

UTC Chief Engineer Joe Subsits was contacted for a 4-minute call. (Source – Dave Cullom phone log)

0646

RC Strain called for a 39 second call to confirm BP-OPL staff were still at Site 11. (Source – Dave Cullom phone log)

0800

John Lazerini (BP-OPL) found the second fitting that was tapped leaking at Site 9. An estimated 14.7 gallons leaked from this site. (Source - Mike Monen 2/23/2020 interview)

0814

UTC Pipeline Safety Director Sean Mayo called when I was enroute to Site 11. (Source – Dave Cullom phone log)

0900

UTC Pipeline Safety Staff arrived at Site 11, donned FR and conducted a UTC JHA before meeting with the operator representative. (Source – Dave Cullom)

0910

Met Ecology Spill Responders Andy Quast and Buck Smith while trying to check in with the On-Scene Coordinator or the operator representative outside the incident location. Andy stated Ecology arrived at about 0500. I asked if there was a job hazard analysis (JHA) to review and sign. Ecology indicated that there was a second spill, unmentioned to the NRC, the UTC, or PHMSA at a location near the Woodinville Pump Station known as Site 9. (Source – Dave Cullom Field Notes)

0915

Asked BP-OPL representative, Jeff Peltzer, if there was a JHA to review and sign before entering the site to take photos. (Source – Dave Cullom)

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0919

UTC Pipeline Safety Director Sean Mayo was contacted and provided and update of the initial situation at Site 11. (Source – Dave Cullom phone log)

0930

A JHA was conducted by BP-OPL. The operator indicated that air monitoring had been set up and there was 0.0 LEL and no Benzene monitoring was on site. (Source – Dave Cullom Field Notes)

1037

Email to Sean Mayo, UTC Pipeline Safety Director, indicating I was headed to Site 9 from Site 11 following Washington State Department of Ecology. (Source – Dave Cullom email records)

1046

State Emergency Operations Office received a report that a pipeline fitting was discovered to have ruptured at 0745 hours this morning. An estimate of 14.7 gallons of gasoline was released on to soil at an excavation site. Clean up is being organized and the pipeline has been shut down while repairs are being scheduled. There was no spill to water. Buck Smith, the responder for Washington State Department of Ecology-NW, reported he and his partner we already on-scene because they were notified by the pipeline crew at the previous spill. (See Incident # 20-0682). The State Emergency Operations Office sent a notice to King CO DEM and the WUTC-Pipeline representative via e-mail. Reporting Party: Olympic Pipeline, Robert Strain Location: 22007 45th Ave SE, Bothell, WA (Source – State Emergency Operations Office Daily Log)

~1115

Arrived at Site 9 (Woodinville Pump Station) with Washington State Department of Ecology from Site 11. (Source – Dave Cullom Field Notes)

~1130

Met with Mike Monen at Site 9. The pressure of the 20" line was ~600 psig per Mike. Woodinville Station only boosts the 16" line. Allen Station has a maximum operating discharge pressure of 880 psig. per Mike Monen. (Source – Dave Cullom Field Notes)

1232

Email to Sean Mayo, UTC Pipeline Safety Director, indicating I was leaving Site 9 to head for Olympia to complete an end of the day update. (Source – Dave Cullom email records)

2-24-2020

1736

48 hr. NRC update for Site 11 was submitted.

Causes/Contributing Factors:

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The cause of the leaks at these two locations were improperly tightened fittings. 2" THREAD-O-RING™ (TOR) fittings were installed, and leak test conducted at a reduced pressure of less than 400 psig. Leak checks were not conducted onsite when the pipeline reached the maximum operating pressure. Leak checks at full operating pressure or Maximum Operating Pressure (MOP) were not in the operator's procedure manual.

A completion plug was not installed after the TOR installation because the line replacement work was not yet completed. This is consistent with the manufacturer's installation procedure, TDW Pub. No. 00-3795-0228 Revision Date: 6/2014, that has been adopted by the operator in the "Repairs, Replacements & Relocations Procedure # P-195.422" Revision Date: 07/11/2019.

The operator did not have a procedure for leak testing at maximum operating pressure (MOP) on the line. 49 CFR § 195 and ASME 31.4 do not have requirements to leak test fittings. These fittings were pressure tested at the manufacturer.

Regulatory Analysis/ Violations:

Finding 1:

49 CFR § 195.402 Procedural manual for operations, maintenance, and emergencies.

(a) General. Each operator shall prepare and follow for each pipeline system a manual of written procedures for conducting normal operations and maintenance activities and handling abnormal operations and emergencies. This manual shall be reviewed at intervals not exceeding 15 months, but at least once each calendar year, and appropriate changes made as necessary to insure (sic) that the manual is effective. This manual shall be prepared before initial operations of a pipeline system commence, and appropriate parts shall be kept at locations where operations and maintenance activities are conducted.

(c) Maintenance and normal operations. The manual required by paragraph (a) of this section must include procedures for the following to provide safety during maintenance and normal operations:

(11) Minimizing the likelihood of accidental ignition of vapors in areas near facilities identified under paragraph (c)(4) of this section where the potential exists for the presence of flammable liquids or gases.

(14) Taking adequate precautions in excavated trenches to protect personnel from the hazards of unsafe accumulations of vapor or gas, and making available when needed at the excavation, emergency rescue equipment, including a breathing apparatus and, a rescue harness and line.

(e) Emergencies. The manual required by paragraph (a) of this section must include procedures for the following to provide safety when an emergency condition occurs:

(3) Having personnel, equipment, instruments, tools, and material available as needed at the scene of an emergency.

BP-OPL's Operations and Emergency Response Manual (OMER) adopts by reference the Spill (or Facility) Response Plan for additional procedures in response to an emergency. The FRP contains information needed to respond to a product release from the pipeline system in a safe, effective, expeditious, and compliant fashion. In general, the plan is divided into several sections, each addressing a specific area in detail. Among others, several areas of the plan include: Initial Response Actions, Emergency Notification Procedures, Incident Planning, and Training/Exercises.

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Section 5.99.01 of the operator's procedural manual for Operations, Maintenance, and Emergencies (OMER) dated 6/15/2019 states: "The purpose of this section is to supplement the Spill Response Plan. Included in this section are instructions for handling other emergencies, which endanger life, property or the environment, not covered in the Spill Response Plan." Therefore, the Spill or Facility Response Plan must be followed by the operator.

An Initial Work Site Safety Plan is required under Initial Response Actions in the Facility Response Plan.

BP-OPL's employees entered Site 11 numerous times to repair the leaking fitting before performing an Initial Work Site Safety Plan & Analysis form at approximately 0930. Although the form has a time of 0900 written in, I was not on site until after that time and the form was not available when I asked to review it at approximately 0915. The operator entered the site to check for the location of the leak at 0100 and the site was not checked for a hazardous atmosphere using a combustible gas indicator (CGI). CGI readings were first taken by the Woodinville Fire Department at 0303. This does not follow the operator's procedures for continuous air monitoring of a work site for an unsafe atmosphere.

FACILITY RESPONSE PLAN
BP Pipelines (North America)
U.S. Pipelines and Logistics
Northwest Pipelines District
Initial Response Actions Section 2
June 2019 Page 2.16

2.4 AIR MONITORING GUIDELINES

• Air monitoring of the spill location and areas downstream should commence within one (1) hour or as soon as possible.
• Air monitoring will commence at the DOT recommended safe distance of 300 meters
• Monitoring for Lower Explosive Limit (LEL) and Oxygen (O2) will be used to evaluate the necessary evacuation distances and assure safe work locations
• Calibrated LEL/O2 monitors will be used at all work locations
• Monitoring will be conducted upwind and at a safe distance downwind of the release location
• Monitoring will include low areas such as ditches, excavations, and vaults where vapors may have collected, and saturated soils exist.
• Results of the monitoring will be recorded on Spill Notification Report and communicated to the On-Scene Commander
• All work locations will be monitored continuously; BP safety rules require that work be stopped and the site evacuated if the LEL is greater than 10 percent or O2 less than 19.5 percent

No results of monitoring were provided by the operator on the Spill Notification Report demonstrating that checks for a hazardous atmosphere were conducted. This monitoring is required to be conducted before entering the site to perform repairs as required by 49 CFR § 195.402(e)(3) and the operator's procedure in the facility response plan.

The operator did not minimize the likelihood of accidental ignition of vapors in areas near facilities identified under paragraph (c)(4) of this section where the potential exists for the presence of flammable liquids or gases as required by 49 CFR § 195.402(c)(11) by not testing the atmosphere before entering. Approximately 8 hrs. of ingress and egress occurred at Site 11 before a Site Safety Plan was developed.

Follow up/ Recommendations:

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It is recommended BP-OPL be issued a Notice of Probable Violation for failure to:

- Follow emergency response procedures for conducting site safety assessments before personnel entered the site in accordance with the operator's Facility Response Plan, Initial Response Actions, Section 2, June 2019 Page 2.16. and for not checking for the unsafe accumulation of product or vapors before entering a hazardous site as detailed in Finding 1.