



STATE OF WASHINGTON

UTILITIES AND TRANSPORTATION COMMISSION

1300 S. Evergreen Park Dr. S.W., P.O. Box 47250 • Olympia, Washington 98504-7250

(360) 664-1160 • TTY (360) 586-8203

CERTIFIED MAIL

February 23, 2016

Booga K. Gilbertson
Senior Vice President-Operations
Puget Sound Energy
PO Box 97034 M/S: PSE-12N
Bellevue, WA 98009-9734

Dear Ms. Gilbertson:

**RE: Natural Gas Incident Investigation: 14360 SE Eastgate Way, Bellevue, Washington
– June 18, 2015 (Insp. No. 6469)**

Staff from the Washington Utilities and Transportation Commission (staff) conducted an investigation into the natural gas incident which occurred at a commercial and institutional construction site in Bellevue, WA, on June 18, 2015, at the above address. A natural gas pipeline had a release of gas due to an outside force, causing unintentional ignition, resulting in two injuries, one critical. There were no fatalities. Our investigation concluded that there were no violations of federal or state pipeline safety rules which led to or exacerbated the incident.

Our investigation revealed that the release of gas was caused by an outside force, two Mac-Donald Miller contractors (MM) brazing a copper water pipeline caused a release of gas by melting a 1-1/4-inch PE gas service, while installing a water pipeline in an open excavation, which resulted in unintentional ignition when the gas came in contact with flames from the torches. There was less than 2-inches of separation between the water pipeline and the gas service line. Both of the injured workers stated that they did not know the gas line was there and did not see the yellow paint marks used to locate the gas line, and BN Builders Inc. (BN) did not discuss the hazards present at the excavation before work began, according to interview statements.

According to Puget Sound Energy (PSE) Operations & Maintenance, the procedure requiring 6-inch vertical separation from all non-power facilities was not in effect in [1981] when the gas service line was installed. Also, the Washington regulation requiring a minimum of six inches separation from other utilities did not apply to PSE at the time of construction, this rule was established in [2005].

Respect. Professionalism. Integrity. Accountability.

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There is no follow up or staff recommendation for PSE. These types of incidents serve to illustrate the importance of maintaining adequate utility separation, and the proper knowledge and management of utility locates at the work site.

If you have any questions or if we may be of any assistance, please contact Anthony Dorrough at (360) 664-1318. Please refer to the inspection number above in any future correspondence pertaining to this inspection.

Sincerely,



Alan E. Rathbun
Pipeline Safety Director

Enclosure

cc: Cara Peterman, Director, Enterprise Risk Management & Compliance, PSE
Harry Shapiro, Director, Gas Operations, PSE
Cheryl McGrath, Manager, Compliance Programs, PSE
Stephanie Silva, Gas Compliance Program Manager, PSE
Darryl Hong, Senior Regulatory Compliance Analyst, PSE

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Notification ID:	2890	Investigation ID:	6469
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Inspector Name:	Anthony Dorrough
Date Report Submitted to Chief Engineer:	September 25, 2015 Resubmitted 1/15/2016
Date Report Reviewed & Approved by Chief Engineer:	September 30, 2015, Re reviewed 2/12/2016

Operator:	Puget Sound Energy
District/Unit:	East King County
Location:	14360 SE Eastgate Way, Bellevue WA
Incident Date:	June 18, 2015

Description:
<p><u>Summary:</u> At 9:26 am on June 18, 2015, in a small excavation on the west side of a commercial and institutional construction site in Bellevue (see map), a pipeline had a release of natural gas, causing unintentional ignition due to an outside force (photos 1 thru 4). Puget Sound Energy (PSE) is the natural gas provider for east King County. A 1-1/4-inch Dupont-Adyl high density poly-ethylene (PE) service line (photo 5) fed a meter (which had been removed) that was located on a building at the construction site, as well as another meter located on an adjacent lot, from a 4-inch (poly-vinyl coated steel) gas main on the north side of SE Eastgate Way. The gas service line had a release of gas at the location of the excavation, due to an outside force. After utility locates had been called, marked and refreshed (see figure 1), there was an excavation where two employees of MacDonald-Miller Contractors (MM) (not affiliated with the operator) were brazing in order to install a water pipeline in an open excavation. The heat produced from the torches melted the gas service line, which was located less than 2-inches from the water pipeline (see figure 5) (photos 7 thru 10). Escaping gas was ignited by the torches. Both contracted workers were transported to a hospital with injuries (photo 6). The Bellevue Fire Department (BFD) evacuated individuals from an unknown number of structures. PSE first responders were able to stop the flow of natural gas by squeezing down the pipeline. There was no major structural damage to the building from the resulting fire. A PSE service provider made final permanent repairs on the gas pipeline later.</p> <p><u>Incident Description:</u> After Utility Locates had been called and marked, and approximately three weeks before the incident, a 3-foot deep excavation was made by BN Builders Inc. (BN) . on the west side of a commercial and institutional building construction, exposing an existing 2-1/2-inch copper water pipeline. At approximately 7:26 am on June 18, 2015, two employees from MM, entered the excavation in order to</p>

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install a flow valve to a waterline. After cutting off the water supply, they cut the existing water pipe and using two brazing torches, began to install a 90-degree elbow by heating the pipeline.

At approximately 9:26 am, the heat from the brazing torches melted a 1-1/4-inch PE gas service line, installed in [1981], located less than 2-inches from the water pipeline, installed in [1997], causing the wall of the gas pipeline to melt, allowing pressurized gas to escape. The escaping natural gas was then ignited by the torches being used to install the water pipeline and engulfed the excavation in fire. Both contracted workers were transported to a hospital with injuries. PSE first responders controlled the incident by squeezing down the PE service line, after BFD evacuated an unknown number of structures in close proximity to the incident. Later, Infrasource, a PSE service provider, made final permanent repairs to the gas pipeline.

Facts/Chronology of Events:

1981

PSE service records show that a 1-1/4-inch PE gas service line to a building at "14360 Eastgate Way" in Bellevue.

1997

City of Bellevue records show that on January 21, 2-inch and 3-inch water pipelines were installed to the same building at "14360 Eastgate Way" in Bellevue.

*5/28/15

NTMS ticket records show that existing utility locates were refreshed in preparation for an excavation on the east side of the building in the parking lot, near the loading dock area.

*6/2/15

BN Builders exposed an existing copper water pipeline in a 3-foot excavation.

6/18/15

7:26- Two MacDonald Miller workers entered excavation to install a flow-valve to an existing water line.

9:26- A PE gas service line melted, and the escaping gas was ignited inside the excavation by brazing torches, injuring both workers.

9:33- BFD and PSE first responders arrived on site – Injured workers were transported to hospital

10:09- Gas service line squeezed down and incident controlled

11:00- Opening conference onsite with L&I, MacDonald Miller, BN Builder, PSE

11:40- BFD released site to L&I

11:45- WUTC inspectors Anthony Dorrrough, and Dennis Ritter arrived on site and joined opening conference in progress (**photo 15**).

14:30- WUTC inspectors left incident site

19:10- InfraSource made the final repair, replacing 9-feet of 1-1/4-inch PE service.

NOTE: Starred dates or bolded times are approximate

Causes/Contributing Factors:

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Outside Force

There was a release of natural gas due to an outside force, which caused the unintentional ignition of gas. Two MM employees, brazing a copper water pipeline caused a release of gas by melting a 1-1/4-inch PE gas service, while installing a water pipeline in an open excavation, which resulted in unintentional ignition when the gas came in contact with flames from the torches. There was less than 2-inches of separation between the water pipeline and the gas service line (**photos 11 thru 13**). The water pipeline was found located below the gas service line and City of Bellevue records show that it had been installed in [1997]. PSE gas service records show that the gas service line was installed in [1981]. Staff noted that utility locates marks were in place and located at the edge of the excavation.

Contributing Factors:

Both of the injured workers stated, they did not know the gas line was there and did not see the yellow paint marks used to locate the gas line, and BN did not discuss the hazards present in the excavation before work began, according to interview statements (**see figure 2**).

Regulatory Analysis/ Violations:

Records Review

The following records were obtained as part of the investigation. No violations of pipeline safety codes were noted from the review.

- ❖ 6/18/15 – Odor Level Test - #1 Meter# 556756 taken 11:32am – 14432 SE Eastgate Way - .21 = Extrap .178% / #2 Meter# 475000 taken 11:57am – 3245 146th PL SE - .22 = Extrap .186% - Odorant Machine S/N 2001032015 – No issues noted. (**photo 14**)
- ❖ 6/18/15- PSE Service Record – According to records, no other utilities were known to be present at the time of installation. (**see figure 3**)

PSE Procedures Review

1. PSE's Company Procedure –Excavation, Underground Clearance, Cover, Restoration 2525.1700 states:

6.6 - Except as required in Section 6.15, intermediate pressure (IP) and low pressure (LP) mains and services shall be installed with the following clearance from all other utilities and underground utility structures:

6.6.2.3 - 6-inch vertical separation from all non-power facilities.

According to PSE Operations & Maintenance, this procedure was not in effect in [1981] when the gas service line was installed. There does not appear to be a procedure violation with respect to the separation of the gas service line.

Code Compliance

1. (WAC) 480-93-178 (5)
(5) When a gas pipeline company installs plastic pipelines perpendicular to other underground utilities, it must ensure there is a minimum of six inches of separation from other utilities. Where a minimum six inches of separation is not possible, a gas pipeline company must take adequate precautions, such as inserting the plastic pipeline in conduit, to minimize any potential hazards resulting from the close proximity to the other utilities.

This Washington regulation did not apply to the pipeline operator in [1981] at the time of construction, this rule was established in [2005]. There does not appear to be a violation of code with respect to the separation of the gas service line.

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Conclusion

It appears that the release and unintentional ignition of natural gas by an outside force represented by two MM contracted employees installing a flow valve in an excavation, was an unfortunate accident. There was less than 2-inches separation between the water pipeline and the gas service line, but the investigation did not reveal any supportive documentation that would indicate that PSE knew or should have known, there was not enough separation between the two utilities.

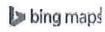
Follow up/ Recommendations:

There was no follow up or staff recommendation for Puget Sound Energy. These types of incidents serve to illustrate the importance of maintaining adequate utility separation, and the proper knowledge and management of utility locates at the work site.

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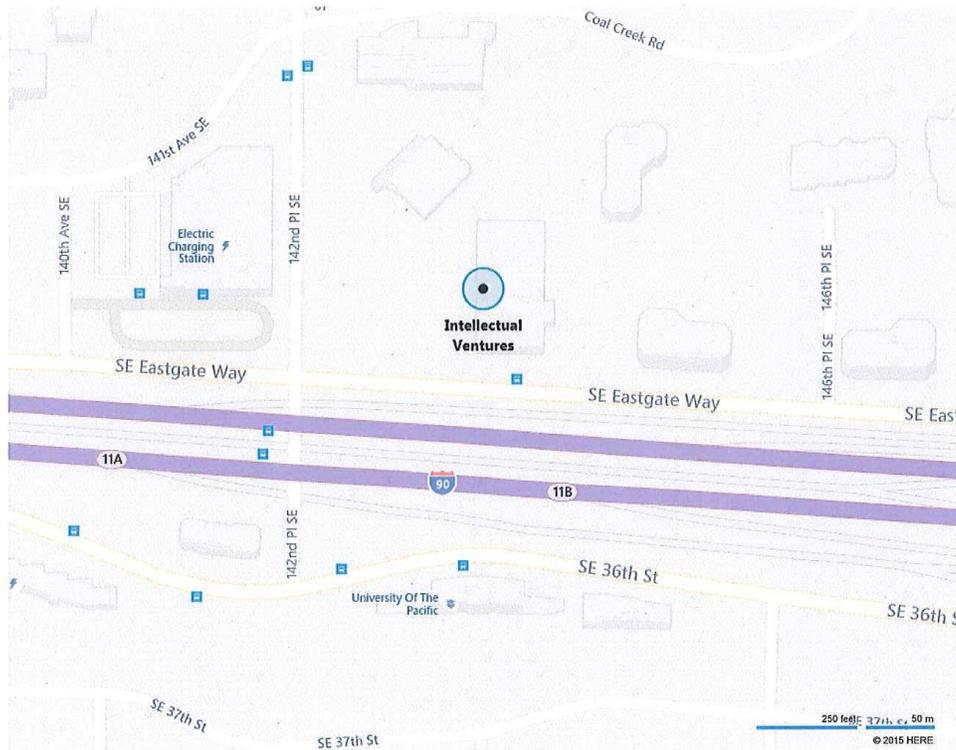
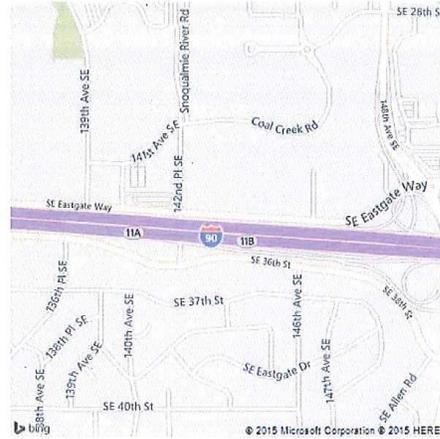
www.bing.com - Bing Maps

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Notes

14360 SE Eastgate Way, Bellevue
Natural Gas Pipeline Rupture and Unintentional Ignition



<http://www.bing.com/mapspreview?q=www.bing.com&mkt=en&FORM=HDRSC4>

1/7/2016

Location Map

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Photo 1: Aerial view of incident scene and BFD response



Photo 2: Aerial view of incident scene and BFD response

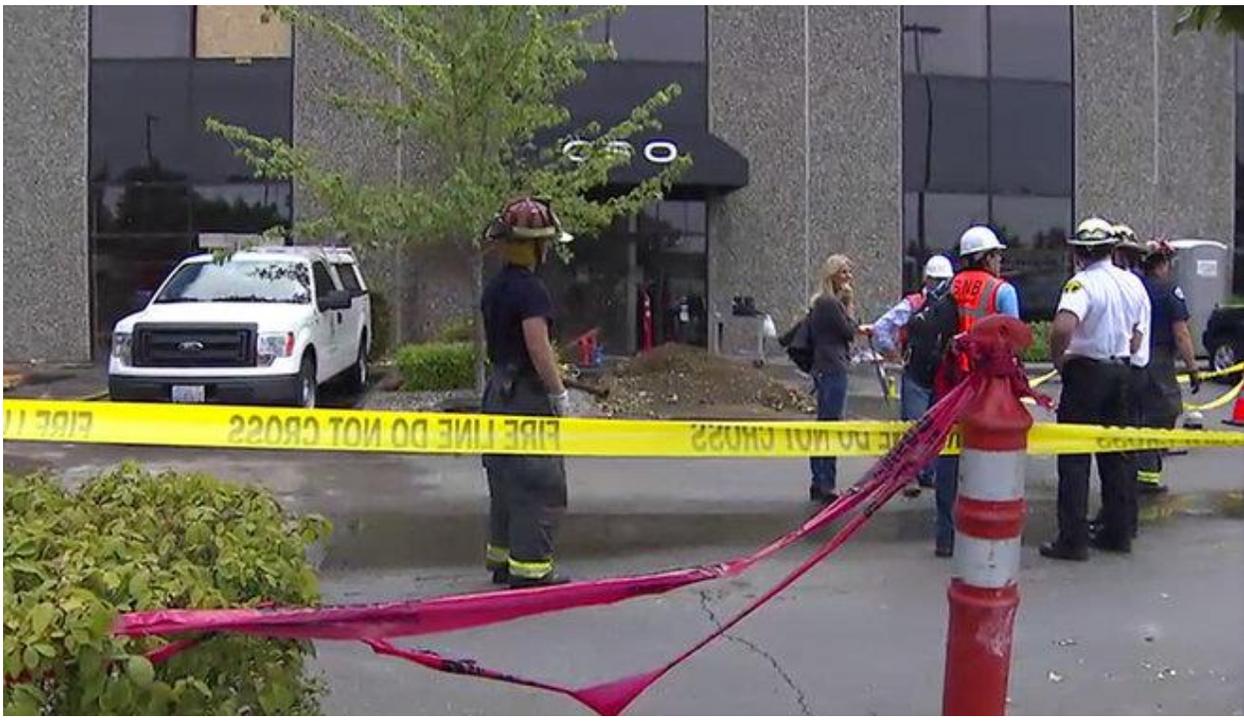


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Photo 3: Aerial view of incident scene and BFD response



Photo 4: Looking east towards incident scene and BFD response



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Photo 5: Existing Aldyl-dupont gas service line installed in [1981]



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Photo 6: Injured workers transported to the hospital



Photo 7: Looking NE at excavation and fire damage. Note scorch pattern on aggregate wall



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Photo 8: Looking SE at structural fire damage



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Photo 9: Looking NE at structural fire damage.



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Photo 10: Looking into undisturbed excavation. Note: heat from fire warped copper water pipeline riser located next to building and seen here sagging across the excavation and out of the frame.



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Photo 11: Looking at the gas service line found above the water pipeline and less than 2-inches from water line. The escaping pressurized gas was determined to have exposed the gas service line in the excavation after it was melted and ruptured.



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Photo 12: Looking at close-up view of gas service line rupture.



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Photo 13: Looking at the gas service line after it was removed from the excavation by PSE.



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Photo 14: Looking at Odorant level test records from notes made by D. Ritter after gathering information from PSE.

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6/18/2015
143rd + SE Eastgate Way
ODOR LEVEL TEST

#1 Meter # 556756 11:32 AM
14432 SE Eastgate Wy
•21 = Extrap •178 %

#2 Meter # 475000 11:57 AM
3245 146 PL SE
•22 = Extrap •186 %

Odorant Machine
S/n 2001032015

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Photo 15: Looking NE at Opening Conference with PSE, L&I, and WUTC investigators

