



**McCHORD PIPELINE CO.**



A Subsidiary of U.S. Oil & Refining Co.

**CCOPS**

September 21<sup>st</sup>, 2017

Olympia, WA

**Damage to McChord Pipeline  
at 100<sup>th</sup> and A Street  
Tacoma, WA**

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Chief Engineer  
McChord Pipeline Co.

# Topics of Discussion

- ❖ Introduction to USOR / MPL
- ❖ Damage Event and Location
- ❖ Trends
- ❖ Timeline
- ❖ Pipeline Repair
- ❖ Root Cause Investigation
- ❖ Recovery Efforts
- ❖ Conclusion

# Introduction to U.S. Oil & Refining Co.

## ❖ U.S. Oil & Refining Co. (USOR)

- ❖ Located in Tacoma, WA
- ❖ Began Production in 1957
- ❖ 39K BPD Refining Capacity
- ❖ Finished Products Include:
  - ❖ Gasoline
  - ❖ Diesel Fuel
  - ❖ Jet Fuel
  - ❖ Asphalt







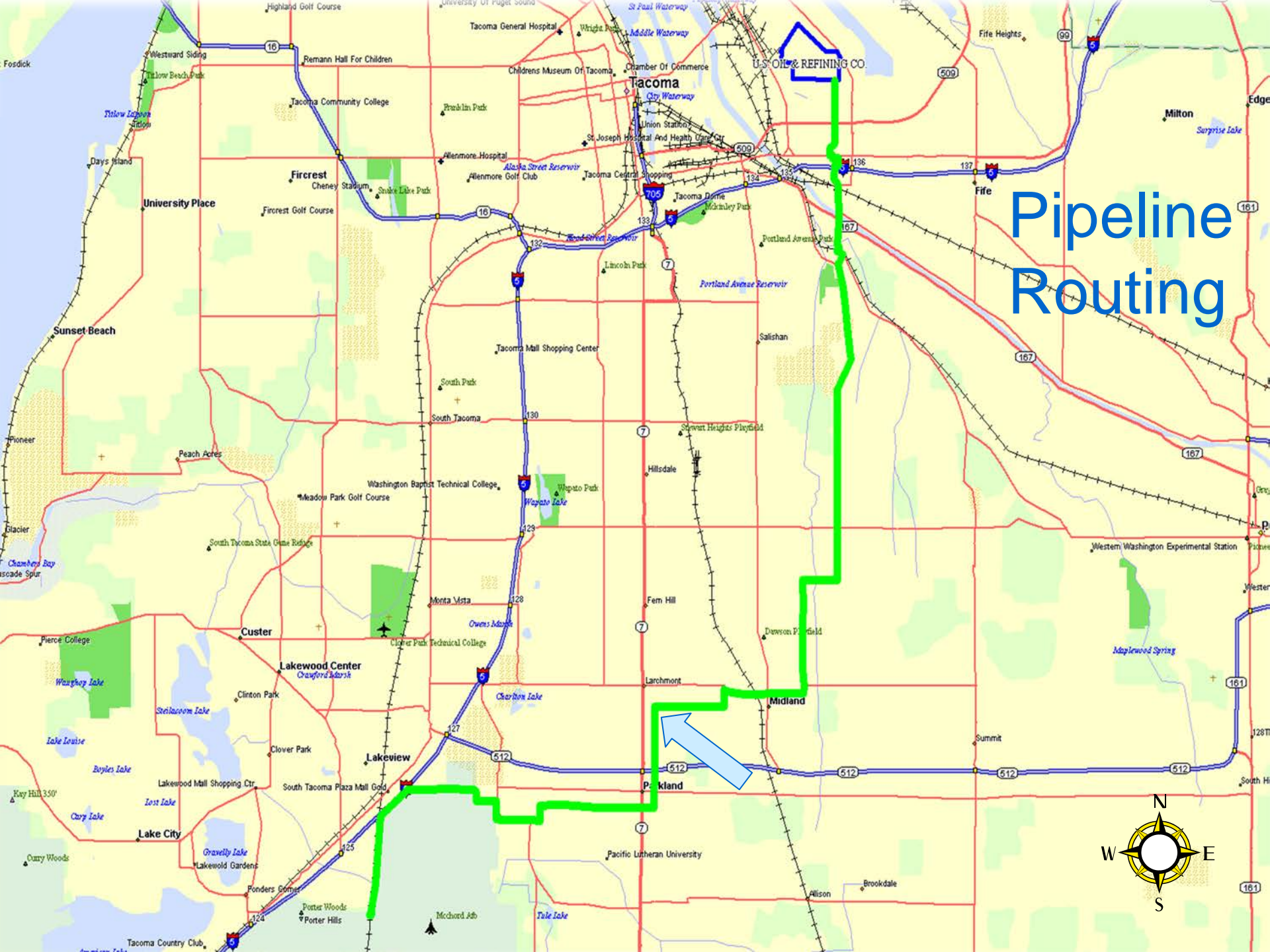
# Introduction to McChord Pipeline Co.

- ❖ McChord Pipeline Co. (MPL)
  - ❖ Constructed in 1966
  - ❖ Formerly Owned and Operated by Buckeye Pipe Line Co.
  - ❖ Purchased in 1996 by MPL
  - ❖ Wholly Owned Subsidiary of USOR
  - ❖ Pipeline is Operated by USOR
  - ❖ Zero leaks or spills until August 2<sup>nd</sup>, 2017

# Intro Cont'd

- ❖ McChord Pipeline Co. (MPL)
  - ❖ 6" Diameter, 14.25 mile Carbon Steel Pipeline
  - ❖ Transfers Jet Fuel to Joint Base Lewis-McChord (JBLM)
  - ❖ Intermittent Operation
    - ❖ 2-3 times/week, typically 5000 – 10,000 BBL per transfer
    - ❖ ~450 psig at the pump station
  - ❖ Regulated By:
    - ❖ 49 CFR 195 – Transportation of Haz Liquids by Pipeline
    - ❖ WAC 480-75 – Hazardous Liquid Pipelines

# Pipeline Routing





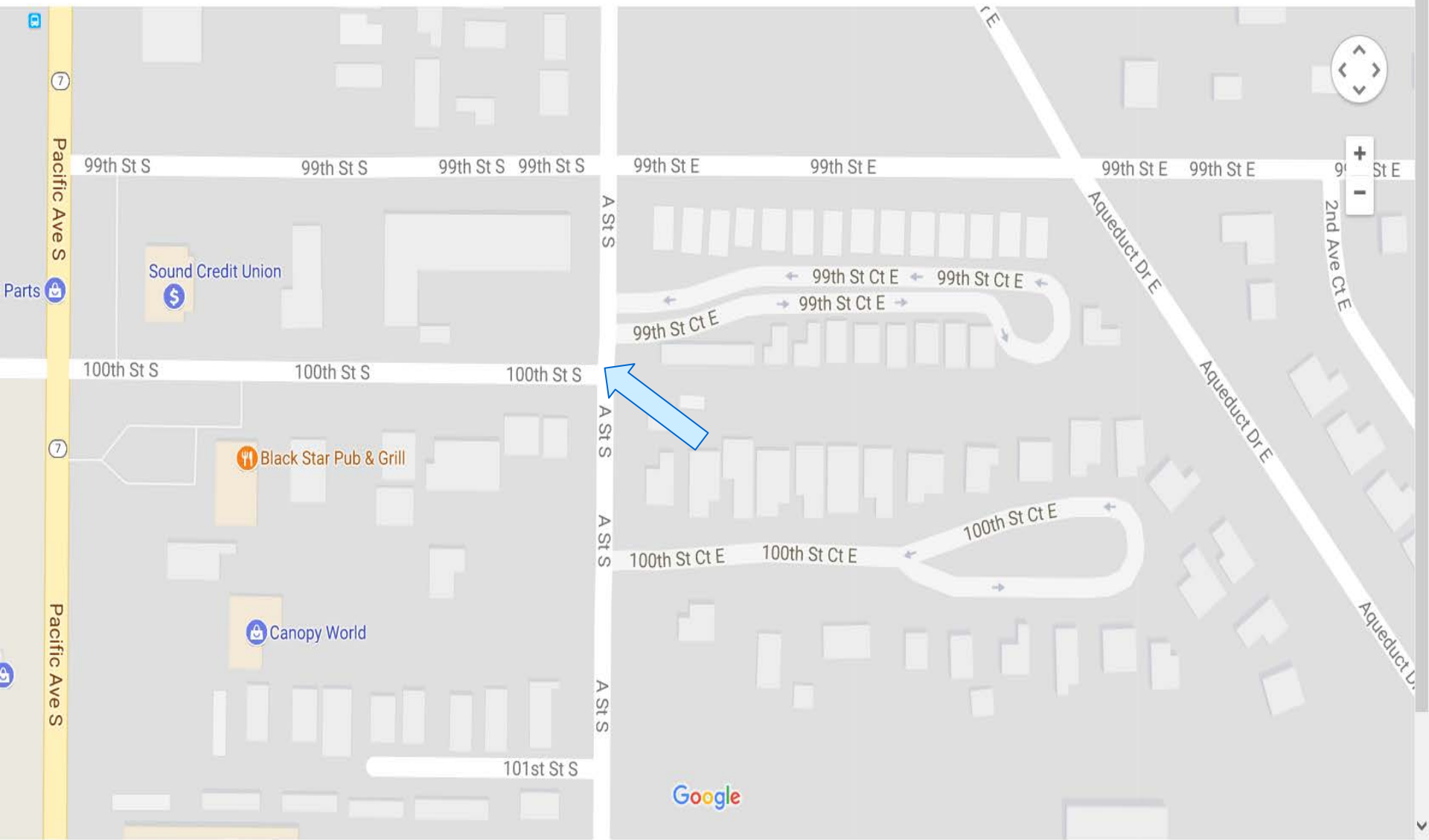
Google Maps

You can enter notes here.

# Damage Location

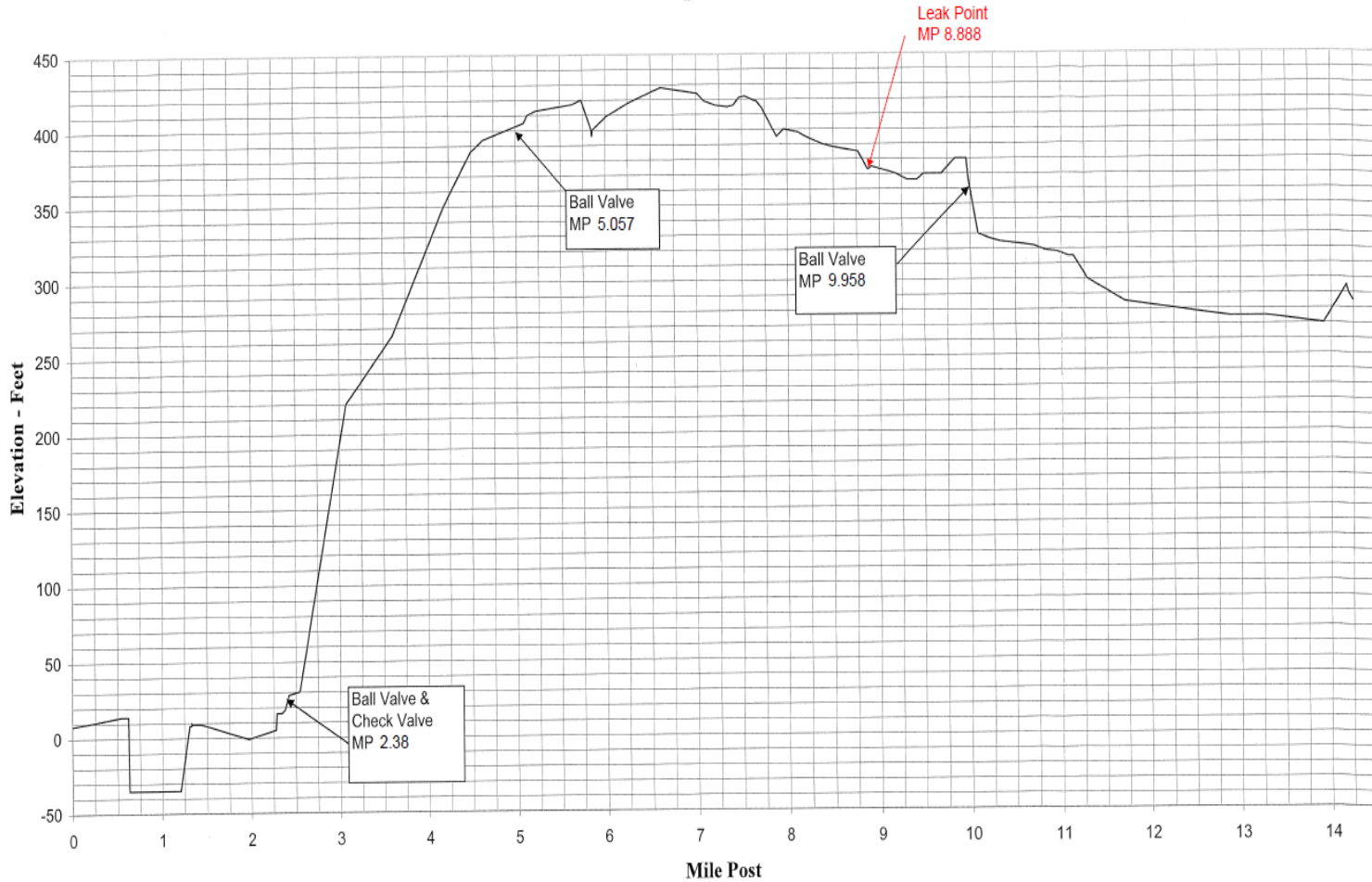
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# Elevation Profile

McChord Pipeline Profile



# Damage Event

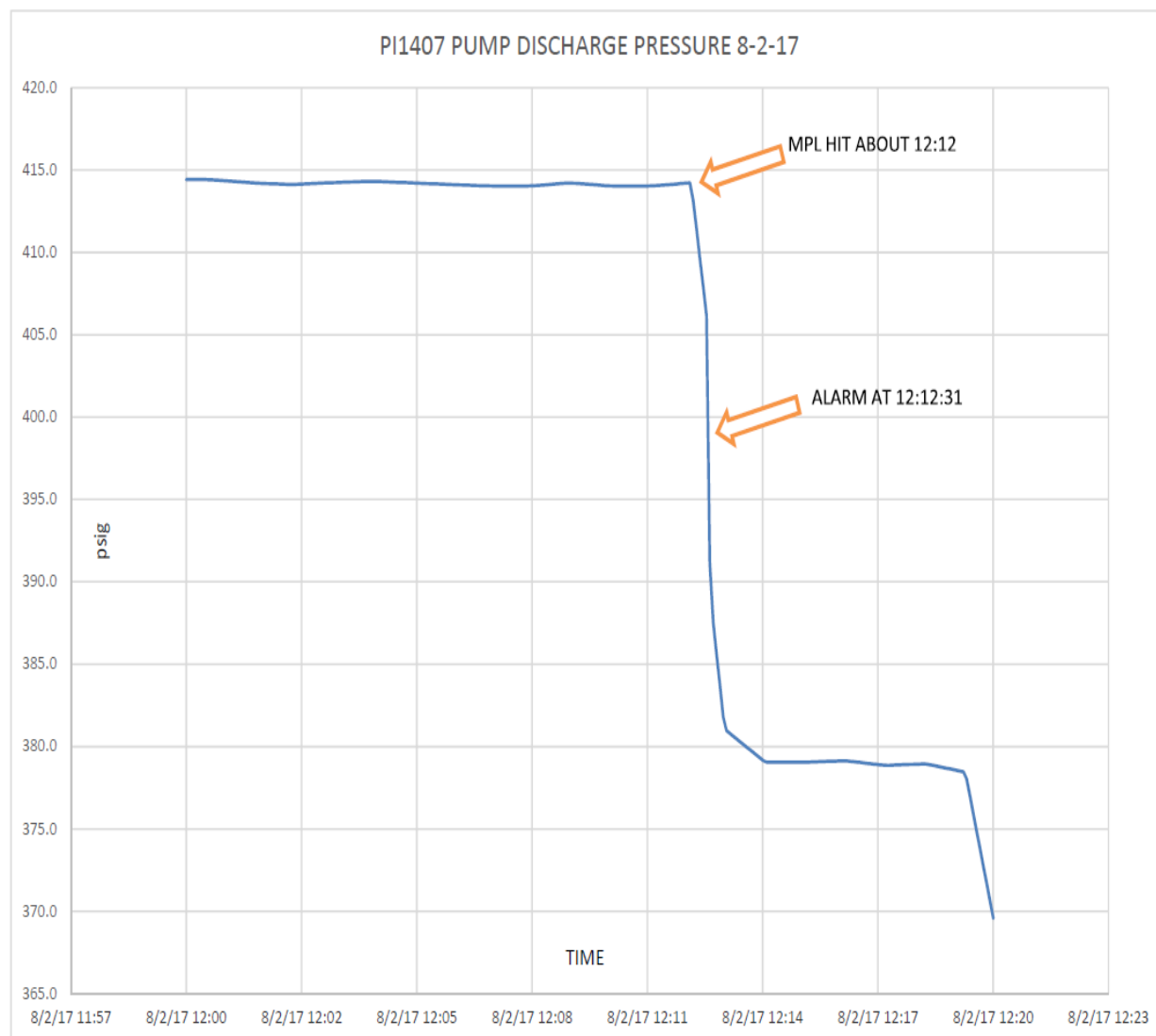
- ❖ On 8/2/17, USOR was in the process of transferring 10,000 bbl of jet to JBLM (about 34% complete)
- ❖ At approx. 1212, MPL was damaged by a directional drill operated by SEFNCO, a 3<sup>rd</sup> party contractor installing cable TV for Comcast
- ❖ Pipeline was punctured causing a spill of jet fuel west along 100<sup>th</sup> St and north / northwest into parking lot and landscaping for adjacent apartment complex



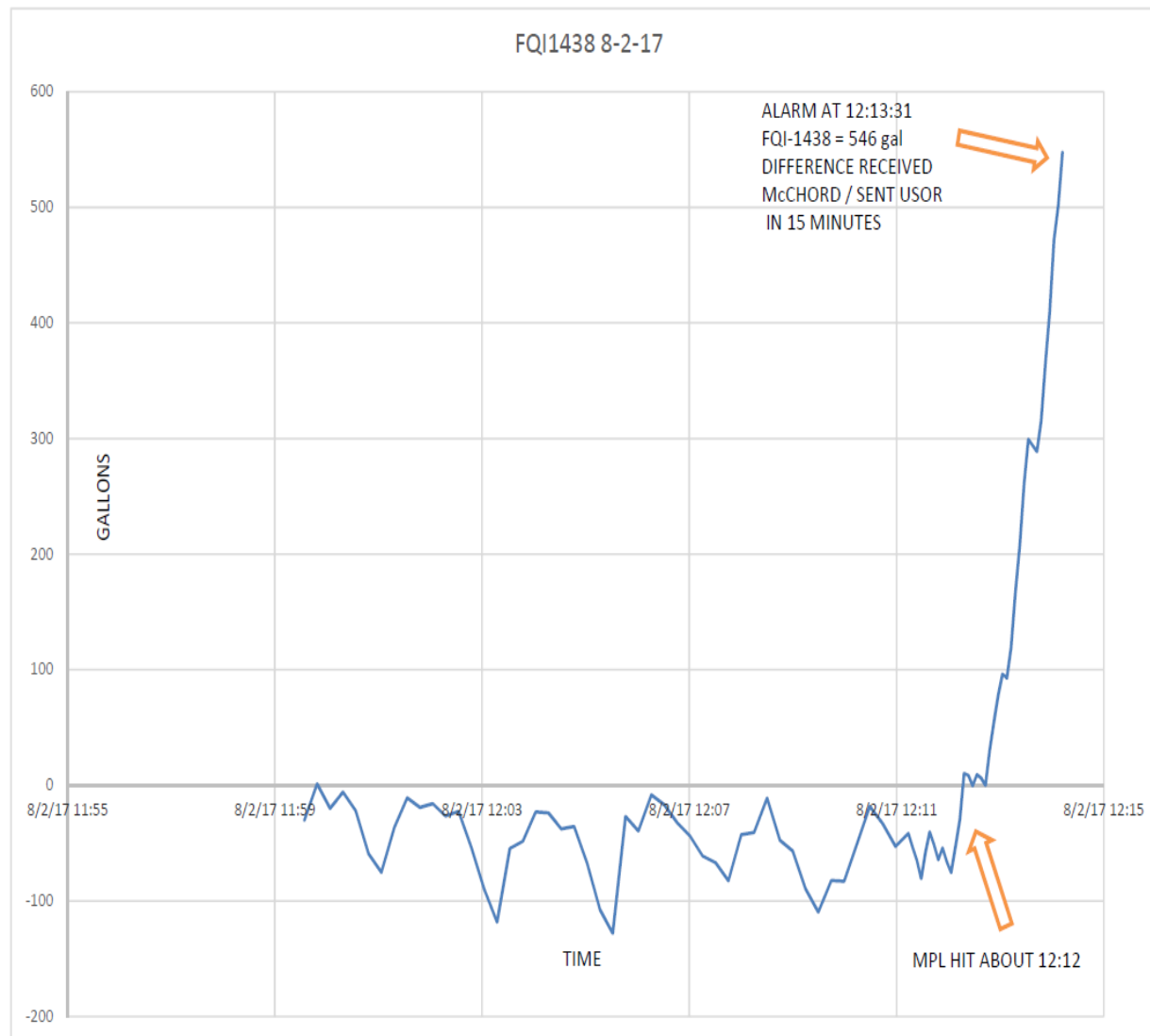
# How does the Operator determine there is a leak? By looking at trends:

- **PI-1407**, pump discharge pressure, compares current value to 15 minute average (alarms at 15 psi difference)
- **FQI-1438**, flow totalizer that compares the volume shipped by USOR to the volume received by JBLM over a 15 minute interval (alarms at 546 gallons difference)
- **FQI-1436**, flow totalizer that compares the volume shipped by USOR to the volume received by JBLM (alarms at 2000 gallons difference)

# PI-1407

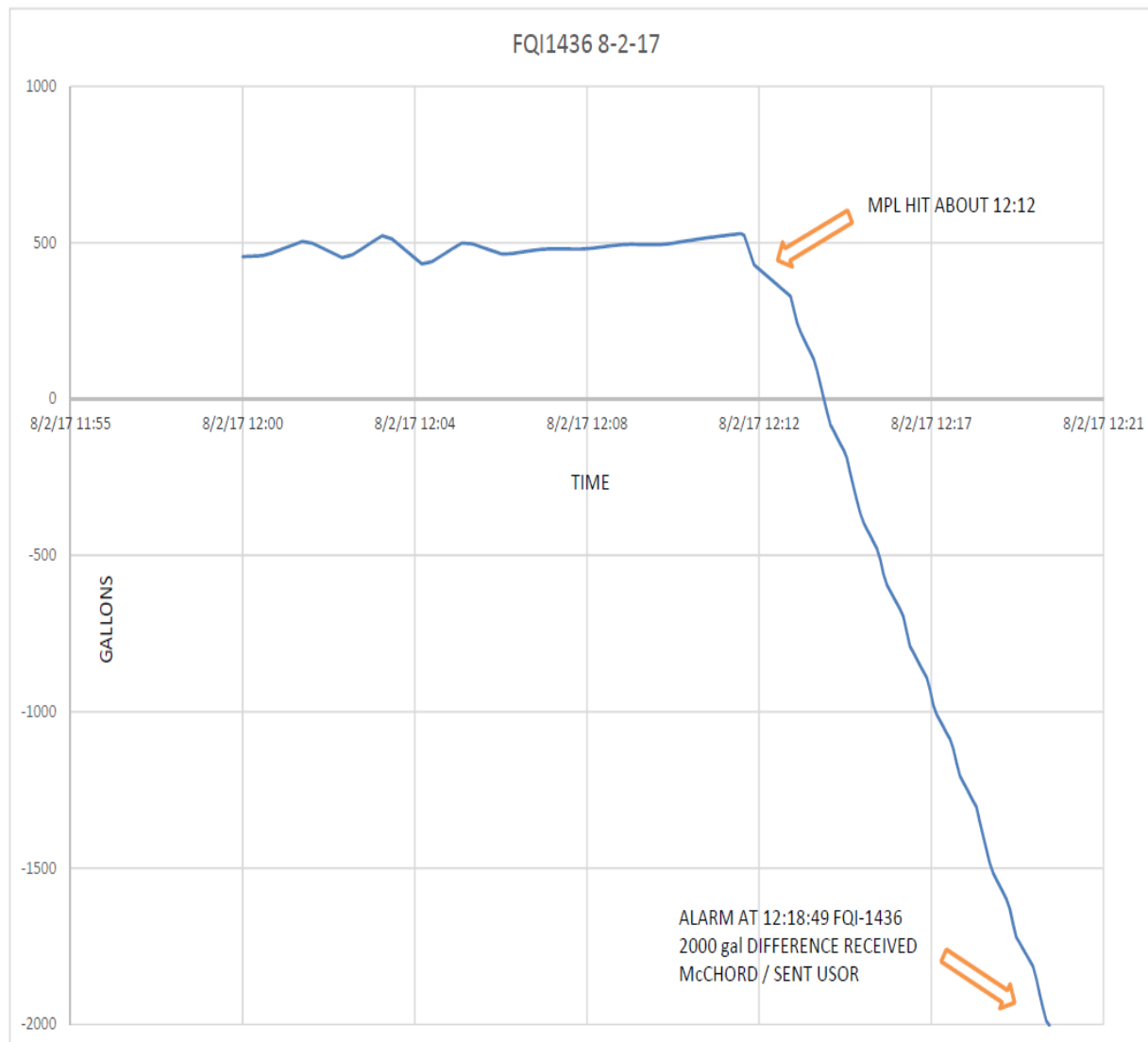


# FQI-1438





# FQI-1436



# Timeline on 8/2/17

- **0658:** USOR starts a scheduled 10,000 bbl transfer to JBLM
- **1212:** SEFNCO tool punctures MPL
- **1212:** MPL alarm for sudden pressure drop, PI-1407 (~30 seconds after event)
- **1213:** MPL 15 minute alarm for 546 gal differential between USOR / JBLM, FQI-1438
- **1216:** Board Operator and Shift Supervisor determine trends look “real” indicating a leak
- **1218:** Outside Operator shuts down MPL

# Timeline Cont'd

- **1221:** Shift Supervisor calls MPL Inspector to let him know MPL is shut down
- **1225:** MPL Inspector receives a call from SEFNCO that they hit our line at 100<sup>th</sup> and A Street, heads to close intermediate valve along with two other Inspectors (3 valves total)
- **1245 - 1254:** All 3 intermediate valves are closed
- **1254:** MPL Inspector arrives on site at 100<sup>th</sup> and A Street and begins air monitoring, securing the area



# Timeline Cont'd<sup>2</sup>

- **1300:** First vacuum trucks arrive on site, begin recovering jet through a pothole of a Tacoma Water line
- **~1430:** Staff from the Washington Utilities and Transportation Commission (WUTC) arrive on site to assess the damage and the spill
- **1600:** Hydroexcavating begins around the pipeline in order to make a temporary repair
- **2000:** A temporary clamp is installed to stop the flow of jet

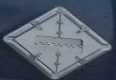




GUARDIAN  
EQUIPMENT

DOT 899817

9-16  
9-16











08/02/2017 19:01





08/02/2017 20:09





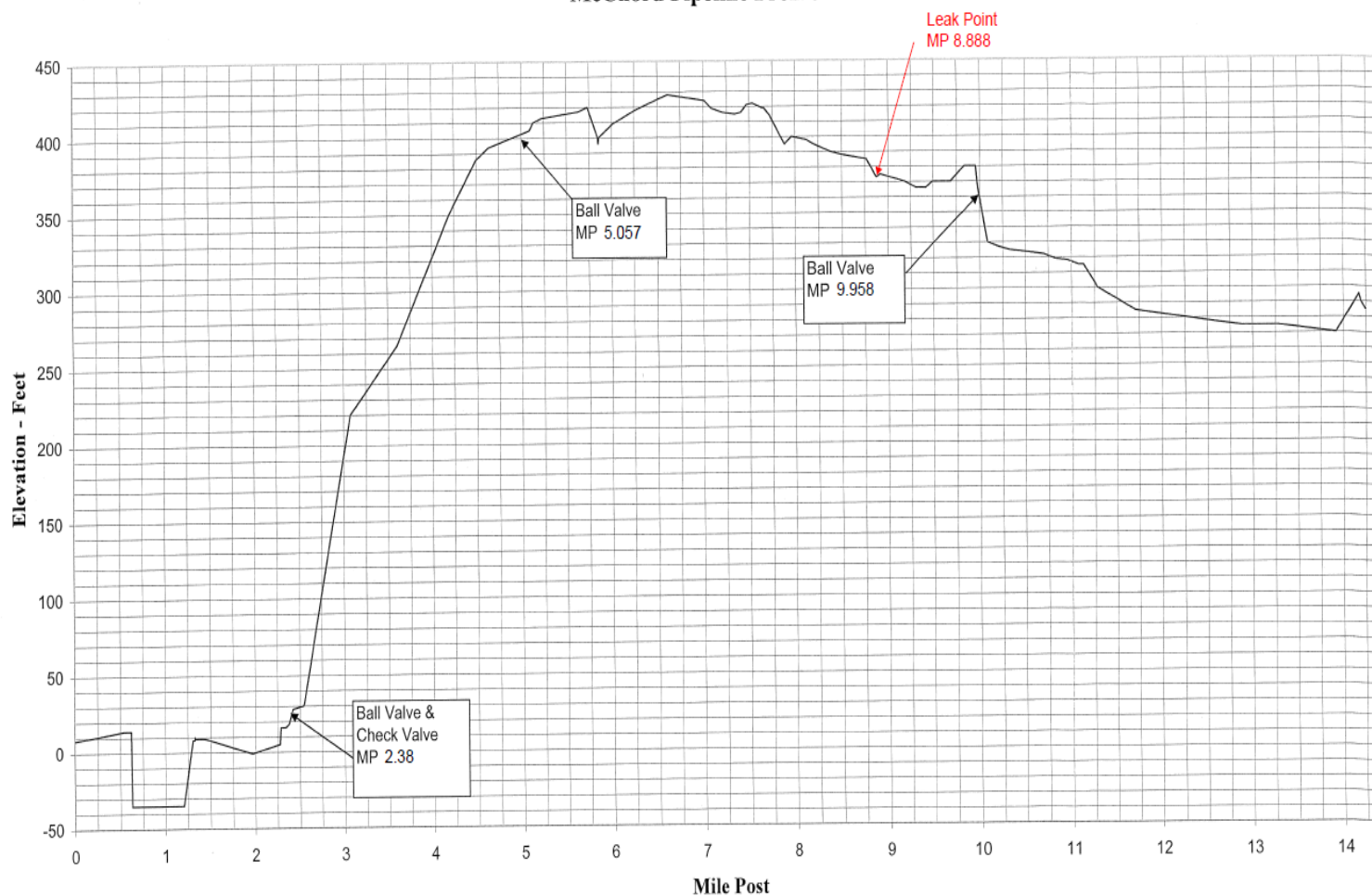


# Pipeline Repair

- ❖ Valves were opened on either side of the leak point to drain jet towards the AFB, and USOR

# Elevation Profile

McChord Pipeline Profile



# Pipeline Repair Cont'd

- ❖ Pipe was cold cut to remove the damaged section and bentonite plugs installed to isolate the repair area











# Pipeline Repair Cont'd<sup>2</sup>

- ❖ A piece of certified replacement pipe was welded in place





CAUTION DO NOT











# Root Cause Investigation

- The original One Call came out on 7/26/17, indicating the location of the work was 9911 Pacific Ave, with the nearest cross street as 100<sup>th</sup> St E.
- MPL Inspector marked it the same day “MPL OK”.

Ticket No: 17284954 2 FULL BUSINESS DAYS

Send To: MCCHRD01 Seq No: 1 Map Ref:

Transmit Date: 7/26/17 Time: 7:22 AM Op: webusr

Original Call Date: 7/26/17 Time: 6:45 AM Op: webusr

Work to Begin Date: 7/29/17 Time: 12:00 AM

State: WA County: PIERCE Place: TACOMA

Address: 9911 Street: PACIFIC AVE

Nearest Intersecting Street: 100TH ST E

Twp: 19N Rng: 3E Sect-Qtr: 4-NW-NE

Twp: Rng: Sect-Qtr:

Type of Work: INSTALL CATV MAINLINE

Location of Work: PLEASE PLACE LOCATES FROM THE SOUTH SIDE OF BUILDING TO

: POLE AND THEN EAST BOUND DOWN 100TH ST TO POLE ON EAST SIDE OF  
INTERSECTION

: OF A ST AND 100TH TO THE POLE

Remarks: AREA MARKED IN WHITE

:

# RCI Cont'd

- Here is an excerpt from RCW 19.122.030:
  - ◆ ***“Excavator and facility operator duties before excavation.***
  - ◆ (1)(a) *Unless exempted under RCW 19.122.031, before commencing any excavation, an excavator must mark the boundary of the excavation area with white paint applied on the ground of the worksite, then provide notice of the scheduled commencement of excavation to all facility operators through a one-number locator service.”*





08/02/2017 14:22



11/20/17

Red

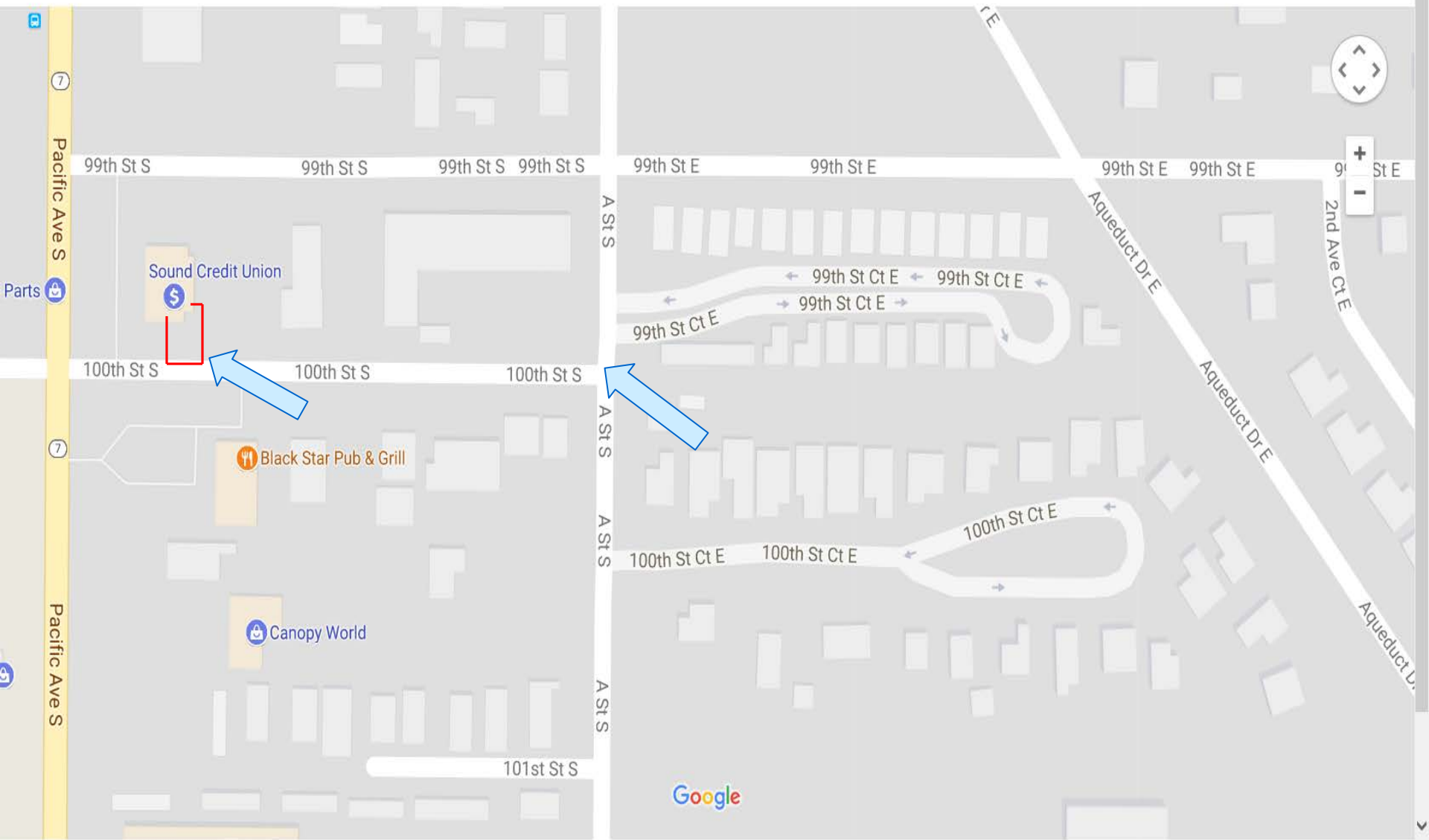
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Yellow

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# Damage Location and Marks



# Recovery Efforts

- Jet fuel recovered by vacuum trucks, hydro excavators, bucket excavators
- 180 bbl jet unintentional or controlled release
- 155 bbl jet recovered (86%)
- 15 - 20 bbl may have been lost to evaporation
- Some volume may be under asphalt in adjacent parking lot

















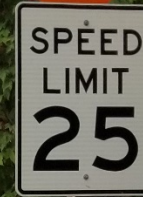
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# Conclusion

- The root cause of the damage to MPL and subsequent jet fuel leak is inadequate location marking by a third party contractor, SEFNCO
- SEFNCO did not follow the marking requirements spelled out in RCW 19.122.030, and did not contact MPL when they marked the intersection of 100<sup>th</sup> and A Street less than one day before the incident. A damage report has been filed with the WUTC to this effect



# Questions?



**Nicholas D. Peelo**  
**Chief Engineer**  
**McChord Pipeline Co.**