

Paul Heinze #1 Flowline Spill IDs: 479232, 480128 Remediation: 18954

Pre Disturbance

**Aerial imagery
date 05/2015*



COLORADO

Oil & Gas Conservation
Commission

Department of Natural Resources

**Paul Heinze Flowline
Spill IDs: 479232, 480128
Remediation: 18954**



Photo 1 – Dated 01/09/2018. Provided by anonymous complainant.



Photo 2 – Dated 01/09/2018. Provided by anonymous complainant.

Paul Heinze Flowline
Spill IDs: 479232, 480128
Remediation: 18954



Photo 3 – Dated 01/09/2018. Provided by anonymous complainant.



COLORADO

Oil & Gas Conservation
Commission

Department of Natural Resources

Paul Heinze #1 Flowline Spill IDs: 479232, 480128 Remediation: 18954

Excavation
footprint and
backfill of
unreported
spill

**Aerial imagery
date 05/2018*



Paul Heinze #1 Flowline Spill IDs: 479232, 480128 Remediation: 18954

Spill Volume Calculation

Table 900-3 Conversion for Sand			
Excavation Length	Excavation Width	Excavation Depth	Excavation Total Cubic Feet 1890
Conversion to cubic yards (total cubic feet/27)			70
High Retention Factor			0.2
Low Porosity			0.35
Conversion Factor: cubic yards/bbl			0.21
Assumed overburden			0.25
Estimated barrels released			6

Table 900-3 Conversion for Silt/Clay			
Excavation Length	Excavation Width	Excavation Depth	Excavation Total Cubic Feet 1890
Conversion to cubic yards (total cubic feet/27)			70
High Retention Factor			0.13
Low Porosity			0.25
Conversion Factor: cubic yards/bbl			0.21
Assumed overburden			0.25
Estimated barrels released			3

$$\text{Volume of Oil (bbls)} = \frac{(\text{Volume of Soil (cubic yards)} \times \text{retention factor}(\%) \times \text{porosity}(\%))}{\text{conversion factor} \left(\frac{\text{cubic yards}}{\text{bbl}} \right)}$$

TABLE 900-3		
	Oil in Silt	Oil in Sand
Volume of spill (bbl)	1	1
High Retention Factor*	0.2	0.13
Low Porosity**	0.35	0.25
Conversion Factor: cubic yds/bbl	0.21	0.21
Volume of soil (cu yard)	3.0	6.5

*after Alaska Clean Seas Technical Manual, 1999, TACTIC T-7 Spill Volume Estimation

**from Freeze and Cherry, 1979

Calculations from 800/900/1200 Series - Mission Change Statement of Basis, Specific Statutory Authority and Purpose (SBP)

****Volumes based on soil staged in Google Earth aerial imagery dated 05/2018 ****



Paul Heinze Flowline
Spill IDs: 479232, 480128
Remediation: 18954



Photo 4 – Dated 01/17/2021. Provided by anonymous complainant.

Photo 5 –Dated 01/17/2021. Provided by anonymous complainant.

Paul Heinze Flowline
Spill IDs: 479232, 480128
Remediation: 18954



Photo 6 – Dated 01/17/2021. Provided by anonymous complainant.



Photo 7 – Dated 01/17/2021. Provided by anonymous complainant.

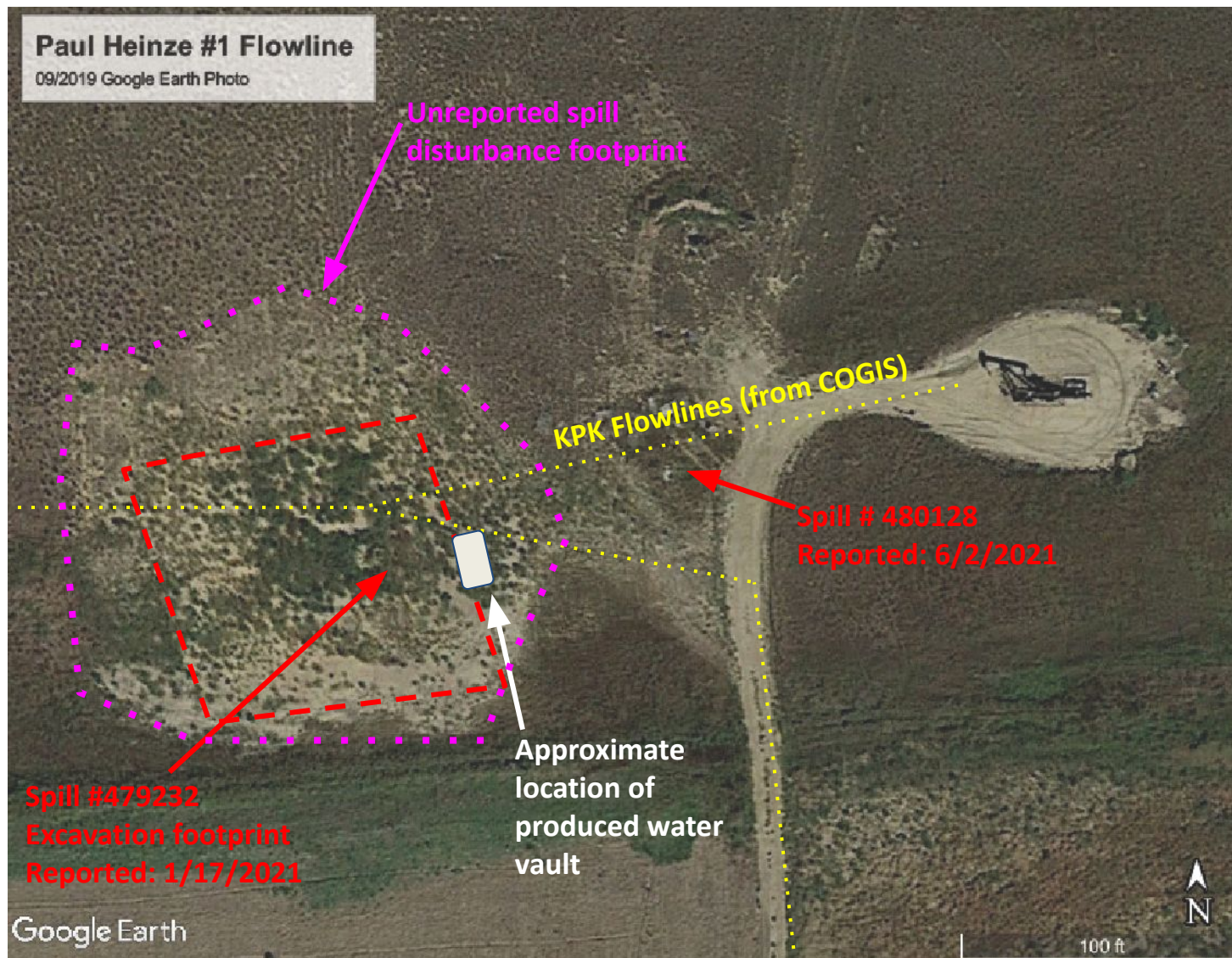
**Paul Heinze Flowline
Spill IDs: 479232, 480128
Remediation: 18954**



Video 1 – Dated 01/17/2021. Provided by anonymous complainant.

Paul Heinze #1 Flowline Spill IDs: 479232, 480128 Remediation: 18954

Site overview



**Paul Heinze Flowline
Spill IDs: 479232, 480128
Remediation: 18954**



**Photo 8 – COGCC inspection 7/9/2021 showing
produced water vault location**



**Photo 9 – COGCC inspection 7/9/2021 showing
produced water vault location and impacts on top of
vault.**