

**\*\*\*\*\* LIQUID SPILLS - VOLUME CALCULATIONS \*\*\*\*\***

Location of spill: COG - Skelly Unit #973 Battery

Date of Spill: 16-Apr-2019

If the leak/spill is associated with production equipment, i.e. - wellhead, stuffing box, flowline, tank battery, production vessel, transfer pump, or storage tank place an "X" here: ☒

**Input Data:**

If spill volumes from measurement, i.e. metering, tank volumes, etc. are known enter the volumes here: OIL: 0.0 BBL WATER: 0.0 BBL

If "known" spill volumes are given, input data for the following "Area Calculations" is optional. The above will override the calculated volumes.

| Total Area Calculations |                   |       |        |          |   |         | Standing Liquid Calculations |  |                   |        |              |         |   |         |    |
|-------------------------|-------------------|-------|--------|----------|---|---------|------------------------------|--|-------------------|--------|--------------|---------|---|---------|----|
| Total Surface Area      |                   | width | length | wet soil |   | oil (%) | Standing Liquid Area         |  | width             | length | liquid depth | oil (%) |   |         |    |
|                         | Rectangle Area #1 | 30 ft | X      | 15 ft    | X | 0.50 in | 0%                           |  | Rectangle Area #1 | 0 ft   | X            | 0 ft    | X | 0.00 in | 0% |
|                         | Rectangle Area #2 | 0 ft  | X      | 0 ft     | X | 0.00 in | 0%                           |  | Rectangle Area #2 | 0 ft   | X            | 0 ft    | X | 0 in    | 0% |
|                         | Rectangle Area #3 | 0 ft  | X      | 0 ft     | X | 0.0 in  | 0%                           |  | Rectangle Area #3 | 0 ft   | X            | 0 ft    | X | 0 in    | 0% |
|                         | Rectangle Area #4 | 0 ft  | X      | 0 ft     | X | 0.0 in  | 0%                           |  | Rectangle Area #4 | 0 ft   | X            | 0 ft    | X | 0 in    | 0% |
|                         | Rectangle Area #5 | 0 ft  | X      | 0 ft     | X | 0.0 in  | 0%                           |  | Rectangle Area #5 | 0 ft   | X            | 0 ft    | X | 0 in    | 0% |
|                         | Rectangle Area #6 | 0 ft  | X      | 0 ft     | X | 0 in    | 0%                           |  | Rectangle Area #6 | 0 ft   | X            | 0 ft    | X | 0 in    | 0% |
|                         | Rectangle Area #7 | 0 ft  | X      | 0 ft     | X | 0 in    | 0%                           |  | Rectangle Area #7 | 0 ft   | X            | 0 ft    | X | 0 in    | 0% |
|                         | Rectangle Area #8 | 0 ft  | X      | 0 ft     | X | 0 in    | 0%                           |  | Rectangle Area #8 | 0 ft   | X            | 0 ft    | X | 0 in    | 0% |

**0.1**

**production system leak - DAILY PRODUCTION DATA REQUIRED**

Average Daily Production: Oil 0 BBL Water 0 BBL 0 Gas (MCFD)

Total Hydrocarbon Content in gas: 0% (percentage)

Did leak occur before the separator?: ☒ YES ☒ N/A (place an "X")

H2S Content in Produced Gas: 0 PPM

H2S Content in Tank Vapors: 0 PPM

Amount of Free Liquid Recovered: 0 BBL okay

Percentage of Oil in Free Liquid Recovered: 0% (percentage)

Liquid holding factor \*: 0.14 gal per gal

*Use the following when the spill wets the grains of the soil.*

\* Sand = **0.08** gallon (gal.) liquid per gal. volume of soil.  
 \* Gravelly (caliche) loam = **0.14** gal. liquid per gal. volume of soil.  
 \* Sandy clay loam soil = **0.14** gal liquid per gal. volume of soil.  
 \* Clay loam = **0.16** gal. liquid per gal. volume of soil.

*Use the following when the liquid completely fills the pore space of the soil:*

Occurs when the spill soaked soil is contained by barriers, natural (or not).  
 \* Clay loam = **0.20** gal. liquid per gal. volume of soil.  
 \* Gravelly (caliche) loam = **0.25** gal. liquid per gal. volume of soil.  
 \* Sandy loam = **0.5** gal. liquid per gal. volume of soil.

Total Solid/Liquid Volume: **450** sq. ft. **19** cu. ft. **cu. ft.** Total Free Liquid Volume: **sq. ft.** **cu. ft.** **cu. ft.**

**Estimated Volumes Spilled**

|                 |                |                |
|-----------------|----------------|----------------|
|                 | <b>H2O</b>     | <b>OIL</b>     |
| Liquid in Soil: | <u>0.5</u> BBL | <u>0.0</u> BBL |
| Free Liquid:    | <u>0.0</u> BBL | <u>0.0</u> BBL |
| Totals:         | <u>0.5</u> BBL | <u>0.0</u> BBL |

Total Liquid Spill Liquid: **0.5** BBL **0.00** BBL

**Recovered Volumes**

Estimated oil recovered: **BBL** check - okay  
 Estimated water recovered: **BBL** check - okay

**Estimated Production Volumes Lost**

|                               |                |                |
|-------------------------------|----------------|----------------|
|                               | <b>H2O</b>     | <b>OIL</b>     |
| Estimated Production Spilled: | <u>0.0</u> BBL | <u>0.0</u> BBL |

**Estimated Surface Damage**

Surface Area: **450** sq. ft.  
 Surface Area: **.0103** acre

**Estimated Weights, and Volumes**

Saturated Soil = **2,100** lbs **19** cu. ft. **1** cu. yds.  
 Total Liquid = **BBL** **20** gallon **163** lbs

**Air Emission from flowline leaks:**

Volume of oil spill: - BBL  
 Separator gas calculated: - MCF  
 Separator gas released: - MCF  
 Gas released from oil: - lb  
 H2S released: - lb  
 Total HC gas released: - lb  
 Total HC gas released: - MCF

**Air Emission of Reporting Requirements:**

|                            |                   |              |
|----------------------------|-------------------|--------------|
|                            | <u>New Mexico</u> | <u>Texas</u> |
| HC gas release reportable? | <b>NO</b>         | <b>NO</b>    |
| H2S release reportable?    | <b>NO</b>         | <b>NO</b>    |