

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

Location of spill: Hallertau 5 Federal #4

Date of Spill: 11/12/2019

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: 0.0000 BBL WATER: 200.0000 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 depth	oil (%)		Standing Liquid Area	width	length	liquid depth	oil (%)	
Rectangle Area #1	200 ft X	12 ft X	6 in	0%		Rectangle Area #1	0 ft X	0 ft X	0 in	0%	
Rectangle Area #2	177 ft X	22 ft X	6 in	0%		Rectangle Area #2	0 ft X	0 ft X	0 in	0%	
Rectangle Area #3	0 ft X	0 ft X	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 in	0%		Rectangle Area #4	0 ft X	0 ft X	0 in	0%	
Rectangle Area #5	0 ft X	0 ft X	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%	

okay

Production Data NOT Required

Average Daily Production: Oil 0 BBL Water 0 BBL

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

Amount of Free Liquid Recovered: 120 BBL

ERROR - Recovered volume greater than spilled volume

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 = .08 gallon liquid per gallon volume of soil.
- * gravelly (caliche) loam = .14 gallon liquid per gallon volume of soil.
- * sandy clay loam soil = .14 gallon liquid per gallon volume of soil.
- * clay loam = .16 gallon liquid per gallon 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).
- * gravelly (caliche) loam = .25 gallon liquid per gallon volume of soil.
- * sandy loam = .5 gallon liquid per gallon volume of soil.

Saturated Soil Volume Calculations:

Total Solid/Liquid Volume: 6,294 sq. ft. 3,147 cu. ft. H2O OIL cu. ft.

Estimated Volumes Spilled

Liquid in Soil: 78.5 BBL 0.0 BBL
Free Liquid: 0.0 BBL 0.0 BBL
Totals: 78.465 BBL 0.000 BBL

Total Liquid Spill Liquid: 200.000 BBL 0.000 BBL

Recovered Volumes

Estimated oil recovered: 0.0 BBL check - okay
Estimated water recovered: 120.0 BBL check - okay

Free Liquid Volume Calculations:

Total Free Liquid Volume: sq. ft. .000 cu. ft. H2O OIL cu. ft.

Estimated Production Volumes Lost

Estimated Production Spilled: ##### BBL 0.000000 BBL H2O OIL

Estimated Surface Damage

Surface Area: 6,294 sq. ft.
Surface Area: .1445 acre

Estimated Weights, and Volumes

Saturated Soil = 352,464 lbs 3,147 cu.ft. 117 cu.yds.
Total Liquid = 200 BBL 8,400.00 gallon 69,888 lbs

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