

***** 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: <u>0.0000</u> BBL		WATER: <u>200.0000</u> 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:			Free Liquid Volume Calculations:		
Total Solid/Liquid Volume:	H2O	OIL	Total Free Liquid Volume:	H2O	OIL
<u>6,294</u> sq. ft.	<u>3,147</u> cu. ft.	<u>0.000</u> cu. ft.	<u>0.000</u> sq. ft.	<u>.000</u> cu. ft.	<u>.000</u> cu. ft.
Estimated Volumes Spilled			Estimated Production Volumes Lost		
Liquid in Soil:	<u>78.5</u> BBL	<u>0.0</u> BBL	Estimated Production Spilled:	<u>#####</u> BBL	<u>0.000000</u> BBL
Free Liquid:	<u>0.0</u> BBL	<u>0.0</u> BBL			
Totals:	<u>78.465</u> BBL	<u>0.000</u> BBL			
Recovered Volumes			Estimated Surface Damage		
Estimated oil recovered:	<u>0.0</u> BBL	check - okay	Surface Area:	<u>6,294</u> sq. ft.	
Estimated water recovered:	<u>120.0</u> BBL	check - okay	Surface Area:	<u>.1445</u> acre	
			Estimated Weights, and Volumes		
			Saturated Soil =	<u>352,464</u> lbs	<u>3,147</u> cu.ft.
			Total Liquid =	<u>200</u> BBL	<u>8,400.00</u> gallon
					<u>117</u> cu.yds.
					<u>69,888</u> lbs

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