

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

Location of spill: Oxy Riverbend 23 Federal 0016

Date of Spill: 1/10/2019

Site Soil Type: Fine Sand

Average Daily Production: NA BBL Oil BBL Water

Total Area Calculations						
Total Surface Area	width		length		wet soil depth	oil (%)
Rectangle Area #1	134 ft	X	134 ft	X	2 in	15%
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 #4	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 #7	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #8	0 ft	X	0 ft	X	0 in	0%

Porosity 0.16 gal per gal

Saturated Soil Volume Calculations:

		<u>H2O</u>	<u>OIL</u>
Area #1	17956 sq. ft.	1,908 cu. ft.	337 cu. ft.
Area #2	0 sq. ft.	cu. ft.	cu. ft.
Area #3	0 sq. ft.	cu. ft.	cu. ft.
Area #4	0 sq. ft.	cu. ft.	cu. ft.
Area #5	0 sq. ft.	cu. ft.	cu. ft.
Area #6	0 sq. ft.	cu. ft.	cu. ft.
Area #7	0 sq. ft.	cu. ft.	cu. ft.
Area #8	0 sq. ft.	cu. ft.	cu. ft.
Total Solid/Liquid Volume:	17,956 sq. ft.	1,908 cu. ft.	337 cu. ft.

Estimated Volumes Spilled

	<u>H2O</u>	<u>OIL</u>
Liquid in Soil:	54.4 BBL	9.6 BBL
Liquid Recovered :	5.0 BBL	1.0 BBL
Spill Liquid	59.4 BBL	10.6 BBL
Total Spill Liquid:	70.0	

Recovered Volumes

Estimated oil recovered: **1.0 BBL**
 Estimated water recovered: **5.0 BBL**

<u>Soil Type</u>	<u>Porosity</u>
Clay	0.15
Peat	0.40
Glacial Sediments	0.13
Sandy Clay	0.12
Silt	0.16
Loess	0.25
Fine Sand	0.16
Medium Sand	0.25
Coarse Sand	0.26
Gravelly Sand	0.26
Fine Gravel	0.26
Medium Gravel	0.25
Coarse Gravel	0.18
Sandstone	0.25
Siltstone	0.18
Shale	0.05
Limestone	0.13
Basalt	0.19
Volcanic Tuff	0.20
Standing Liquids	