

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

Location of spill: Antelope Ridge SWD

Date of Spill: 7/18/2019

Site Soil Type: Lined facility

Average Daily Production: BBL Oil BBL Water

Total Area Calculations						
Total Surface Area	width		length		wet soil depth	oil (%)
Rectangle Area #1	40 ft	X	90 ft	X	4 in	0%
Rectangle Area #2	40 ft	X	90 ft	X	1 in	1%
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	3600 sq. ft.	1,215 cu. ft.		cu. ft.
Area #2	3600 sq. ft.	297 cu. ft.	3	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:	7,200 sq. ft.	1,512 cu. ft.	3	cu. ft.

Estimated Volumes Spilled

	<u>H2O</u>	<u>OIL</u>	
Liquid in Soil:	43.1 BBL	0.1	BBL
Liquid Recovered :	407.0 BBL	0.0	BBL
Spill Liquid	450.1 BBL	0.1	BBL
Total Spill Liquid:	450.2		

Recovered Volumes

Estimated oil recovered: **0.0 BBL**
 Estimated water recovered: **407.0 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
Gravely 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	