

# Spill Volume Calculations

Table 900-3 Conversion for Silt			
Excavation Length	Excavation Width	Excavation Depth	Excavation Total Cubic Feet
13.5	8	2	216
Conversion to cubic yards (total cubic feet/27)			8
High Retention Factor			0.2
Low Porosity			0.35
Conversion Factor: cubic yards/bbl			0.21
<b>Estimated barrels released</b>			<b>2.67</b>

Table 900-3 Conversion for Sand			
Excavation Length	Excavation Width	Excavation Depth	Excavation Total Cubic Feet
13.5	8	2	216
Conversion to cubic yards (total cubic feet/27)			8
High Retention Factor			0.13
Low Porosity			0.25
Conversion Factor: cubic yards/bbl			0.21
<b>Estimated barrels released</b>			<b>1.24</b>

Excavation size measured on 10/10/2024 by ECMC staff

$$\text{Volume of Oil (bbls)} = \frac{(\text{Volume of Soil (cubic yards)} \times \text{retention factor}(\%) \times \text{porosity}(\%))}{\text{conversion factor} \left( \frac{\text{cubic yards}}{\text{bbl}} \right)}$$

Oil retention should increase with decreasing grain size, poorer sorting of soils, and increased oil viscosity.

TABLE 900-3		
	Oil in Silt	Oil in Sand
Volume of spill (bbl)	1	1
High Retention Factor*	0.2	0.13
Low Porosity**	0.35	0.25
Conversion Factor: cubic yds/bbl	0.21	0.21
Volume of soil (cu yard)	3.0	6.5

\*after Alaska Clean Seas Technical Manual, 1999, TACTIC T-7 Spill Volume Estimation

\*\*from Freeze and Cherry, 1979

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Table 900-3 Conversion for Silt			
Excavation Length	Excavation Width	Excavation Depth	Excavation Total Cubic Feet
13.5	8	5	540
Conversion to cubic yards (total cubic feet/27)			20
High Retention Factor			0.2
Low Porosity			0.35
Conversion Factor: cubic yards/bbl			0.21
<b>Estimated barrels released</b>			<b>6.67</b>

Table 900-3 Conversion for Sand			
Excavation Length	Excavation Width	Excavation Depth	Excavation Total Cubic Feet
13.5	8	5	540
Conversion to cubic yards (total cubic feet/27)			20
High Retention Factor			0.13
Low Porosity			0.25
Conversion Factor: cubic yards/bbl			0.21
<b>Estimated barrels released</b>			<b>3.10</b>

Excavation size measured on 10/10/2024 by ECMC staff

$$Volume\ of\ Oil\ (bbls) = \frac{(Volume\ of\ Soil\ (cubic\ yards) \times retention\ factor(\%) \times porosity(\%))}{conversion\ factor\ \left(\frac{cubic\ yards}{bbl}\right)}$$

TABLE 900-3		
	Oil in Silt	Oil in Sand
Volume of spill (bbl)	1	1
High Retention Factor*	0.2	0.13
Low Porosity**	0.35	0.25
Conversion Factor: cubic yds/bbl	0.21	0.21
Volume of soil (cu yard)	3.0	6.5

\*after Alaska Clean Seas Technical Manual, 1999, TACTIC T-7 Spill Volume Estimation

\*\*from Freeze and Cherry, 1979