

**Forest Service Handbook  
National Headquarters -Washington Office  
Washington, DC**

**Forest Service Handbook 7409.11 – Sanitary Engineering And Public Health Handbook**

**Chapter 50 - Wastewater**

**Amendment:** 7409.11-Amendment-10

**Effective date:** October 1979

**Duration:** This amendment is effective until superseded or removed.

**Superseded Directive:**

**Approved by:**

**Date approved:**

**Responsible Staff:**

**Explanation of changes:**

58.93d Table 2

Method	Sludge Solids Content (Percent)	Trench Width (ft)	Bulking Required	Bulking agent	Bulking Ratio	Cover required	Method of Cover Application	Cover thickness (ft)		Imported Soil Required	Sludge Application Rate (In Actual Areas)	Equipment
								Interim	Final			
Narrow Trench...	15-20 20-28	2-3 3-10	No No	--- ---	---	Yes Yes	Land-based equipment Land-based equipment	--- ---	2-3 3-4	No	1,200-5,600	Backhoe with loader, excavator, trenching machine
Wide Trench.....	20-28 ≥28	>10 >10	No No	--- ---	---	Yes Yes	Land-based equipment Sludge-based equipment	--- ---	3-4 4-5	No	3,200-14,500	Tractor, loader, dragline, scraper, track dozer
Area fill mound...	≥20	---	Yes	Soil	0 5-2 soil 1 Sludge	Yes	Sludge-based equipment	3	1	Yes	3,000-14,000	Track loader, backhoe with loader, track dozer
Area fill Layer.....	≥15	---	Yes	Soil	0 25-1 soil 1 Sludge	Yes	Sludge-based equipment	0 5-1	1	Yes	2,000-9,000	Tract dozer, grader track loader
Dried containment.....	20-28 ≥28	---	No b No b	Soil Soil	0 25-0.5 soil 1 Sludge	Yes Yes	Land-based equipment Sludge-based equipment	1-2 2-3	3-4 4-5	Yes	4,800-15,000	Dragline, track dozer, scraper
Sludge/refuse mixture.....	≥3	---	Yes	Refuse	4-7 tons refuse 1 wet ton sludge	Yes	Sludge-based equipment	0 5-1	2	No	500-4,200	Track dozer, track loader
Sludge/solid mixture.....	≥20	---	Yes	Soil	1 soul: 1 sludge	No	---	---	---	No	1,600	Tractor with disc. grander, track dozer, track loader
*Volume basic unless otherwise noted. *But sometimes used  1lt = 0.305 m 1 yd <sub>3</sub> = 0.765 m <sub>3</sub> 1 acre = 0.405 ha												