

Vitrification Cost Analysis

Initial Assumptions:

sediment to be mechanically dewatered to 50 % solids
784,000 yd³ in situ = 374,212 wet tons at 50% solids - FS App. H, page 34

Costs of 250 glass ton per day facility with storage from Revised Unit Cost Study, page A-2

Capital cost = \$32.30 million
Annual O&M = \$6.42 million

Time to treat OU1 sediments:

Treatment capacity from Revised Unit Cost Study, page A-2 = 540 wet tons per day for 350 days per year

540 wet tons per day
240 days per year
129600 wet tons per year

2.9 years to treat 374,212 wet tons of OU1 sediment

Net present value of O&M cost computed assuming:

$$NPV = FV / (1+r)^n$$

FV = \$18.62 (2 years O&M at \$6.42 million per year)
r = 5% (discount rate)
n = 2.9 (years of operation)

NPV = \$16.16

Adding capital cost and NPV of O&M cost yields

Capital \$32.30
NPV O&M \$16.16

Total \$48.46

SAY \$48.5 million cost of vitrification alone

Other Costs:

\$2.80 soil loading cost per ton from FS App H, page 36
\$1.17 soil hauling cost per ton from FS App H, page 36
\$1,047,794 cost of soil loading for 374,212 wet tons based on \$2.80 per ton
\$438,530 cost of soil hauling for 374,212 wet tons based on \$1.17 per ton

Total direct cost:

\$48,461,589 vitrification
\$1,047,794 soil loading
\$438,530 soil hauling
\$49,947,912 direct cost

Total cost (adding 12% for engineering, procurement, and construction management, per FS App. H, page 34)

\$49,947,912 direct capital
\$5,993,749 engineering, procurement and construction management
\$55,941,662 TOTAL COST
Other total: \$7,480,073

SAY \$55.9 million total cost of disposal by vitrification

TOTAL ALTERNATIVE E COST:

\$22.1 SEDIMENT REMOVAL
\$16.9 SEDIMENT DEWATERING
\$1.4 WATER TREATMENT
\$55.9 VITRIFICATION
\$4.5 INSTITUTIONAL CONTROLS
\$100.8 TOTAL