

Tables

Table 3.1 Estimated Volumes for Removal

North East Church Rock Areas	Estimated Area (sq ft)	Estimated Depth of Mine Wastes (feet)	Estimated Volume (cubic yards)	Estimated Mass ⁶ (tons)
NECR1 West	409,764			
NECR1 East	218,401			
Total NECR-1 Facility Boundary¹	628,165	10	232,654	337,348
Trailer Park	355,516			
Fuel Storage Area	304,004			
Ion-Exchange Plant	54,894			
Sediment Pond	84,531			
NECR1 Stepout North	57,394			
NECR1 Stepout East	1,028,483			
Total NECR-1 Step-Out Area¹	1,884,822	1	75,995	110,193
TOTAL NECR-1 (Facility + stepout areas)	2,512,987		308,649	447,541
Step-Out into Residential Area plus Red Water Pond Road²	793,735	1	29,398	42,627
Pond 3/3a	260,954	6	57,990	84,085
Pond 3 Stepout	587,696	1	21,767	31,561
TOTAL POND 3/3a³	848,650		79,756	115,647
Ponds 1 & 2	174,000	10	64,444	93,444
Ponds 1 & 2 Stepout	301,600	1	11,170	16,197
TOTAL POND 1 & 2⁴	475,600		75,615	109,641
Arroyo from NECR-1 to discharge point	60,390	4	8,947	12,973
Arroyo from NEMSA to Sediment Pad	6,846	4	1,014	1,471
TOTAL ARROYO⁵	67,236		9,961	14,443
Sandfill 1	327,616	3	36,402	52,783
Sediment Pad	157,370	3	17,486	25,354
Sandfill 3	170,114	3	18,902	27,407
NECR-2	426,524	3	47,392	68,718
Sandfill 2	89,104	2	6,600	9,570
NEMSA	186,101	7	48,248	69,960
NEMSA Stepout	5,000	1	185	268
Boneyard	236,399	1	8,756	12,696
Former Magazine Area	72,119	2	5,342	7,746
Vent 8/3 (Combined Areas)	297,750	3	33,083	47,971
TOTAL ALL OTHER AREAS	1,968,097		222,395	322,472
TOTAL	6,666,305		725,773	1,052,371
TOTAL PLUS 20% CONTINGENCY⁶			870,928	1,262,845
TOTAL + CONTINGENCY ROUNDED			871,000	1,263,000

Notes:

- NECR-1 facility boundary based on mining permit; UNC's step-out areas are based on gamma readings greater than the field-screening level (FSL) 2.24 pCi/g
- EPA assumed a Step-out area encompassing the off-site residential area (minus the areas cleaned up during the time-critical removal action) plus Red Water Pond Rd
- Pond 3/3a consists of the middle, deeper part of the pond; Pond 3/3a stepout includes the pond side walls
- Pond 1 & 2 consists of the middle, deeper parts of each pond; Pond 1 & 2 Stepout includes the pond side walls
- Arroyo areas between the upgradient boundary of the Sediment Pad and the down-gradient boundary of NECR-1 Step-Out Area are incorporated into the other removal areas (Sediment Pad, Pond 3/3a, NECR-1 Step-out)
- EPA assumes a 20% contingency to account for uncertainties in the data used to estimate the removal volume
- Conversion of cubic yards to tons assumes a 1.45 multiplier

Table 5.1: Summary of Comparative Analysis of Removal Action Alternatives

Evaluation Criteria Summary	Alternative 1 No Action	Alternative 2 Excavation and Off Site Disposal of Wastes	Alternative 3 Consolidation and Covering of Wastes	Alternative 4 Construction of Lined/Capped Repository at NECR Mine Site	Alternative 5 Construction of Lined/Capped Repository at UNC Mill Facility
Effectiveness					
<i>Protection of Human Health and the Environment</i>	Waste remains exposed to humans, animals, and the environment.	Removal of source material leaves no waste exposed and no further maintenance is required.	Leaves no waste exposed. Long-term maintenance is required for the cover.	Leaves no waste exposed. Long-term maintenance is required for the cap and the repository.	Leaves no waste exposed. Long-term maintenance is required for the repository and the cap.
<i>Compliance with ARARs</i>	Chemical, action and location specific ARARs would not be met.	Chemical and action specific ARARs would be met. Cultural resources protected areas should be considered during excavation in order to meet location-specific ARARs.	Chemical and action specific ARARs would be met. Siting of covered areas needs to consider existing cultural resources to meet location-specific ARARs.	Chemical and action specific ARARs would be met. Siting of repository needs to consider existing cultural resources to meet location-specific ARARs.	Chemical and action specific ARARs would be met. Siting of repository needs to consider existing cultural resources to meet location-specific ARARs.
<i>Long-Term Effectiveness</i>	There is no long-term effectiveness with no action taken, thus allowing current waste to remain on-site.	Long-term effectiveness relies on compliance of off-site disposal facility with state/federal rules and regulations governing solid waste disposal and landfills.	Long-term effectiveness requires long-term maintenance and monitoring of cover and erosion and stormwater controls.	Long-term effectiveness requires long-term maintenance and monitoring of repository cap as well as erosion and stormwater controls.	Long-term effectiveness requires long-term maintenance and monitoring of repository cap as well as erosion and stormwater controls.
<i>Reduction of Toxicity, Mobility, Volume</i>	There will be no reduction of toxicity, mobility, or volume of wastes at the site under this alternative.	Toxicity, mobility and volume of wastes on the NECR mine site would be reduced by removing all wastes to an off-site location	Mobility of waste would be reduced by isolating the waste within a cover; volume would not be reduced except under Alternative 3A or 3B.	Waste would be isolated within a lined and capped repository reducing mobility. Volume would not be reduced except under Alternative 4A or 4B.	Waste would be isolated within a repository reducing mobility.

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<i>Short Term Effectiveness</i>	This Alternative is not effective in the short term to reduce contamination nor does it offer protection to human health or the environment.	Benefits would be achieved relatively quickly without subjecting workers, the community, or the environment to unacceptable risk.	Benefits would be achieved relatively quickly without subjecting workers, the community, or the environment to unacceptable risk.	Benefits would be achieved relatively quickly without subjecting workers, the community, or the environment to unacceptable risk.	Benefits would be achieved relatively quickly without subjecting workers, the community, or the environment to unacceptable risk.
<i>Implementability</i>					
Technical and Administrative Feasibility, Availability of Services	Technically and administratively feasible. No services or materials are required.	Technically and administratively feasible. Services and materials are commercially available.	Technically and administratively feasible. Services and materials are commercially available.	Technically and administratively feasible. Services and materials are commercially available.	Technically and administratively feasible. Services and materials are commercially available.

Table 5.2 Summary of Removal Alternatives Estimated Costs

Alternative	Description	Estimated Construction Cost
2	All mine wastes taken to licensed disposal facility in Grandview, Idaho	\$ 293,600,000
3	On-site Consolidate & Cover, no off-site disposal	\$ 25,800,000
3A	On-site Consolidate & Cover, with principal threat waste (PTW) taken to Grandview, ID	\$ 28,500,000
3B	On-site Consolidate & Cover, with PTW taken to UNC mill waste site for incorporation into existing containment	\$ 26,700,000
4	On-site Lined and Capped Repository, no off-site disposal	\$ 32,000,000
4A	On-site Lined & Capped Repository, with PTW taken to Grandview, ID	\$ 34,700,000
4B	On-site Lined & Capped Repository, with PTW taken to UNC mill waste site for incorporation into existing containment	\$ 32,800,000
5	All mine wastes take to UNC mill waste site and placed on Lined & Capped Repository there	\$ 41,600,000
5A	All mine wastes take to UNC mill waste site and placed on Lined & Capped Repository there with PTW taken to Grandview, ID	\$ 44,300,000

Table 5.3 Estimated Trucking Emissions

	Truckloads	Miles/Roundtrip	Nitrogen oxides (NOX): metric tons	Carbon monoxide (CO): metric tons	Volatile organic compounds (VOCs): metric tons
Alternative 1 - No Action	0	0	0	0	0
Alternative 2 Off-site Disposal	34840	1400	604	70	13
Alternative 3 - Consolidation & Capping	51660	1.0	0.6	0.1	0.0
Alternative 4 - On-site lined repository	58067	1.0	0.7	0.1	0.0
Alternative 5 - Consolidate at UNC Mill Site	58067	6.0	4.3	0.5	0.1

**Table 5.4
NECR Action Levels**

Contaminant of Concern	Residential	Industrial	Screening Level	Basis
Ra 226	1.24 pCi/g		2.24 pCi/g	10-4 risk + background
As	22 mg/kg nc, 0.39 mg/kg ca	1.6 ca mg/kg	22 mg/kg	PRG for non-cancer effects
Mo	390 nc mg/kg	5100 nc mg/kg	390 mg/kg	PRG
Se	390 mg/kg nc	5100 nc mg/kg	390 mg/kg	PRG
U	230 mg/kg nc	3100 nc mg/kg	230 mg/kg	PRG for non-cancer effects
V	390 mg/kg nc	5200 nc mg/kg	390 mg/kg	PRG

ca – cancer end point
nc- non cancer end point