

What Criteria Does USEPA Use to Select a Remedy Decision?

Effectiveness – Evaluates the ability of each alternative to protect human health and the environment and meet the removal action objectives. It is evaluated in terms of short-term and long-term effectiveness. Short-term effectiveness focuses on impacts during and immediately after the action on the community, workers, and local environment as a result of performing the work. Long-term effectiveness focuses on the ability of the completed action to protect human health and the environment and meet the removal action objectives in the future.

Implementability – Evaluates the difficulty of performing each alternative. This includes, for example, administrative issues such as permits, land access, and the ability to enforce land use controls. It also includes whether a given technology or construction technique is technically feasible and whether equipment and personnel are readily available.

Cost – Evaluates the capital costs of planning, design, and construction and long-term costs for maintenance.

Next Steps in the Cleanup Process

EPA will consider input and feedback from the community and other Navajo Nation representatives on recommended alternative in the Engineering Evaluation/Cost Analysis document (EE/CA). In coordination with Navajo Nation, EPA will collect input on the recommended alternative during the **public comment period from October 21 – December 20, 2023**. It is important that community members from Mariano Lake and Smith Lake chapters attend this meeting and provide their input during the formal comment period of the Superfund Process. The EE/CA will be made available, and a public meeting will be held to gather stakeholder comments on October 21, 2023. **Comments can also be submitted to oppelt.alexandra@epa.gov or by toll-free phone number: 1-833-561-8555.**

How Can You Learn More?

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Public Meeting to present
Ruby Mines EE/CA and
recommended cleanup alternative

October 21, 2023
10:00am 2:00pm

Pinedale Chapter House

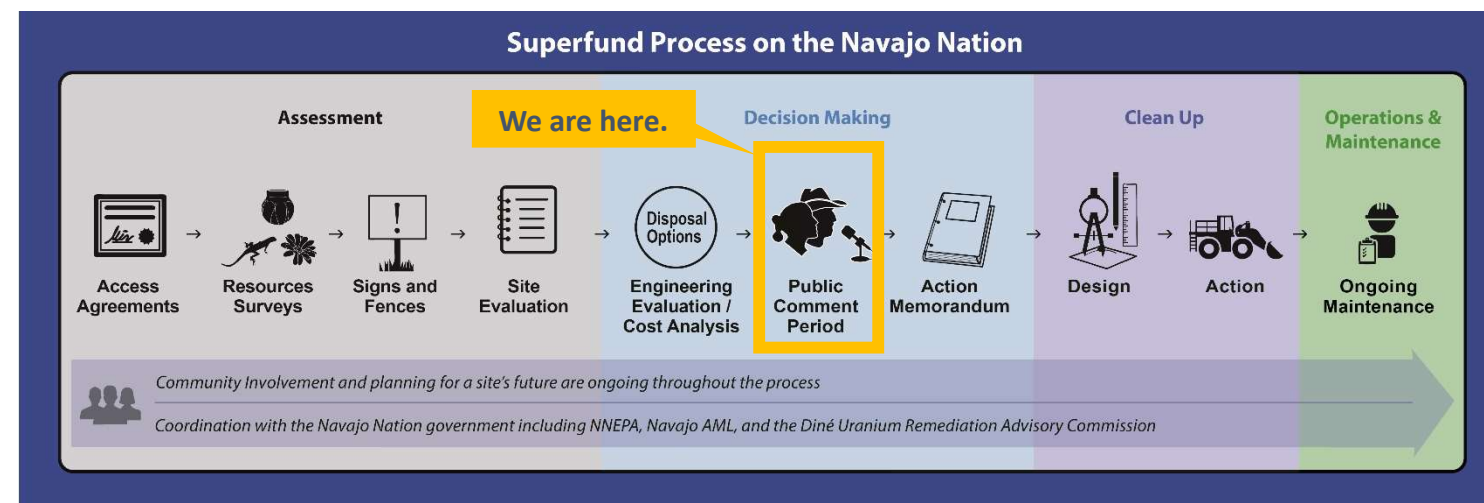
Ruby Mines: <https://www.epa.gov/navajo-nation-uranium-cleanup/ruby-mines>



Ruby Mines Cleanup Alternatives

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • October 2023

U.S. Environmental Protection Agency (USEPA) and Navajo Nation EPA (NNEPA) are requesting community feedback on the best ways to address historic contamination at Ruby Mines. This fact sheet provides background on the mine, an overview of the cleanup alternatives being considered and outlines next steps in the process. This includes upcoming opportunities for community input.

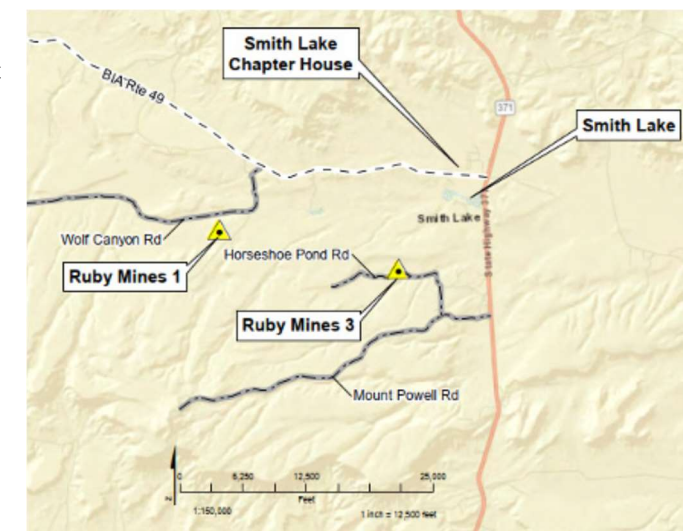


Background

Ruby Mines is located in the Smith Lake Chapter of the Navajo Nation approximately 4 miles southwest of the Smith Lake Chapter House, approximately 2 miles south of BIA Route 49 and 3 miles west of State Highway 371. The closest structures are residences located between approximately 1,600 and 2,300 feet away, which have not been affected by the site.

Ruby Mines was operated by Western Nuclear Incorporated (WNI) between September 1975 and February 1985. The site consists of four inactive, related underground mines (Ruby Mines Nos. 1, 2, 3, and 4). Ruby Mines were connected and were mined by underground methods. Ores from Ruby Mines Nos. 2 and 4 were transported up declines through openings at the surface called adits located at Ruby Mines Nos. 1 and 3, respectively. Ore from the mines was transported offsite for processing. Waste rock (rock generated during the advancement of declines and development of the underground mines that did not contain uranium at levels that were economical to process) was placed outside the adits (entrances) of Ruby Mines Nos. 1 and 3. A total of 790,360 tons of ore was mined and trucked off-site for milling.

In 1985, reclamation efforts were performed by WNI with approval from the New Mexico Mining and Minerals Division, Bureau of Land Management, and the Bureau of Indian Affairs (BIA). As part of the efforts, the Ruby Mines Nos. 1 and 3 adits were physically closed and waste rock piles were capped with compacted fill and revegetated. Known vents were sealed with concrete and buildings were removed.



ALTERNATIVES	FRAME	EVALUATION	IMPACTS TO COMMUNITY AND EARTH			
			Trucks through community	Equipment/Truck Fuel and Mileage	Water Usage	Cost
1 No Action Site left in the existing condition. No removal or consolidation of impacted materials.	Not Applicable	<ul style="list-style-type: none"> Does not protect people and the environment Baseline alternative for comparison Ineligible for selection, it is not protective of human health 	Ineligible for selection, not protective of human health			
2 Consolidate and Repair Existing Caps Excavate impacted soil, place within footprint of waste rock piles, and repair existing caps at each site.	4 months	<ul style="list-style-type: none"> Protects people and the environment Future land use is restricted to grazing and gathering Caps would be monitored and maintained into perpetuity Standard construction practices will be used to perform cleanup Least disturbance to residents, most land with restricted future use, least effective long term, most susceptible to floods and other damage 	2,200	27,500 gal 198,000 mi	216,000 gallons	\$4.1M
3 Consolidate and Cap in Place at Each Mine Site Excavate impacted soil, place within footprint of waste rock piles, and cover with ET cap at each site.	7 months	<ul style="list-style-type: none"> Protects people and the environment Future land use is restricted to grazing and gathering Caps would be monitored and maintained into perpetuity Standard construction practices will be used to perform cleanup Low disturbance to surrounding residents, most land with restricted future use, engineered to withstand future extreme weather events 	3,300	41,250 gal 297,000 mi	330,000 gallons	\$6.2M
4 Consolidate and Cap at a Local Repository Excavate waste rock pile from Ruby Mines No. 3 and impacted soil, place within footprint of waste rock pile at Ruby Mines No. 1, and cover with an ET cap.	4 years	<ul style="list-style-type: none"> Protects people and the environment Future land use is restricted to grazing and gathering at Ruby Mines No. 1 and unrestricted at Ruby Mines No. 3 Caps would be monitored and maintained into perpetuity Standard construction practices will be used to perform cleanup Medium disturbance to surrounding residents, half the land with restricted future use, engineered to withstand future extreme weather events 	17,100	113,750 gal 819,000 mi	1,700,000 gallons	\$16.3M
Excavate and Manage at One or More Regional Repositories Excavate both waste rock piles and impacted soil, transport to an on-Navajo Nation repository, and cover with an ET cap.	7 years	<ul style="list-style-type: none"> Protects people and the environment Future land use is unrestricted Maintenance not required at the Ruby Mines after action Standard construction practices will be used to perform cleanup Large disturbance to surrounding residents, no future land use restrictions at Ruby sites, repositories will have restricted future use and will be engineered to withstand future extreme weather events 	29,000	150,400 gal 1,083,000 mi	2,900,000 gallons	\$25.5M
Excavation and Dispose Off-Navajo Nation Excavate both waste rock piles and impacted soil, transport to off-Navajo Nation disposal facility.	>34 years	<ul style="list-style-type: none"> Protects people and the environment Future land use is unrestricted Maintenance not required at the Ruby Mines after action Standard construction practices will be used to perform cleanup Generational disturbance to surrounding residents, no future land use restrictions 	22,000	3,000,000 gal 21,900,000 mi	2,200,000 gallons	\$344M

U.S. EPA's Recommended Alternative

Why is EPA Recommending Alternative 3?

EPA is recommending Alternative 3: Consolidate and Cap in Place at Each Mine Site as the recommended cleanup. The alternative protects the community and the environment. It provides the best overall balance of short and long-term effectiveness by minimizing impacts to surrounding residents, reducing construction duration, and withstanding future extreme weather events. Finally, it minimizes water usage, which is a precious resource on Navajo Nation, and results in the least impact on climate change.