

Corrective Measure Technology Category	Sub Category Technology	Candidate Technology	Description	Screening Comments
Containment	Vertical Barriers	Slurry Walls	A trench or series of boreholes around a disposal shaft to avoid island filled with cement-grout or other barrier material to impede lateral movement of contaminants	Potentially applicable
		Rock-Grout Mixing	Formed by drilling adjacent deep shafts around a disposal shaft, then mixing the cut rock with injected grout as the shaft is drilled to impede lateral movement of contaminants	Potentially applicable
		Synthetic Membrane	A membrane or liner placed in a vertical trench to form a wall to impede lateral movement of contaminants	Potentially applicable
	Deep-Subsurface Horizontal Barriers	Deep-Subsurface Horizontal Barriers	A horizontal layer placed beneath a disposal shaft to contain downward aqueous phase transport	Not applicable to site release and transport pathways
	Near-Surface Horizontal Barriers	Soil-Grout Mix	A layer of grout-stabilized soil overlying the existing concrete caps to enhance impermeability to water and impenetrability by plants and animals	Potentially applicable
		Vitrification	The formation of an impermeable, impenetrable layer of glass-like material by using electrical resistance to melt existing soil or rock	Potentially adverse to some waste types at the site
	Surface Barriers	Asphalt Cover	An asphalt layer placed to impede surface erosion	Asphalt traps moisture beneath cover which is not desirable
		Compacted Clay Cover	Designed to control excess infiltration into disposal units	Limited effectiveness in arid environments
		Multi-Layer Cover	Layers of geologic and synthetic materials placed to inhibit infiltration, erosion, and biotic intrusion	Disruption in the continuity of discreet layers can go undetected and compromise functionality
		Evapotranspiration Cover	A single thick layer of non-clayey soil which imbibes and holds moisture near the surface to be evaporated or transpired	Potentially applicable
		Biotic Barriers	Horizontal barriers of various geologic or manmade materials placed to control the intrusion of plants or animals	Potentially applicable

Technology or process option eliminated from further evaluation

Figure 12 (1). Screening of Corrective Measures Technologies.

Corrective Measure Technology Category	Sub Category Technology	Candidate Technology	Description	Screening Comments
In Situ Treatment	Biological Treatment Methods	Microorganisms	Microorganisms that feed on organic material have been effective in treating low-level concentrations of radioactive waste in wastewater treatment processes	Method has not been shown to be effective in treating variable waste types (paper, HE, metals, plastics, etc.)
		Soil-Gas Venting	Open boreholes allow the release of subsurface vapors and gases to the atmosphere or to a treatment system	Potentially applicable for tritium plume reduction
	Physical Treatment Methods	Soil Vapor Extraction	Use of air pressure, vacuum, or diffusion force to remove subsurface vapors or gases to a treatment system	Potentially applicable for tritium plume reduction
		Pneumatic Fracturing	Injection of pressurized fluid to create open fractures to allow access to contaminated media for removal or treatment	Introduces large volumes of water into a low-moisture system and may potentially detonate HE
		Electrokinetic Soil Treatment	In situ process that uses an electrical current for the continuous removal of ionic or charged species from soils including heavy metals, radionuclides, and select organic chemicals	Direct current may potentially detonate HE
		Electroacoustic Treatment	In situ process that electroacoustically decontaminates soils containing hazardous organic chemicals	Not applicable because the shafts contain very little soil
		Dynamic Compaction	Compaction used to compact and consolidate wastes in place to reduce subsidence	Subsidence of minor concern with shafts; may potentially detonate HE
		Waste Stabilization	Injection of grout around or mixing with waste, or heat-induced vitrification to solidify waste	Void space reduction does not improve site performance; wastes not amenable to pulverization; and use of heat may be adverse to some waste types at the site
Thermal Treatment	Thermal treatment generated using microwave, radio frequency, or thermal radiation to decompose heat sensitive contaminants into less toxic or mobile forms, or to enhance extractability	Treatment type may be adverse to some waste types at the site		

Technology or process option eliminated from further evaluation

Figure 12 (2). Screening of Corrective Measures Technologies.

Corrective Measure Technology	Remedial Technology	Process Options	Description	Screening Comments
Excavation and Removal	Excavation	Vertical Shaft Excavation	Removal of concrete caps and lifting wastes from small diameter shafts using a crane	Manual rigging in narrow shafts at depth would be required for some inventory items, which carries undesirable worker risk
		Trench Excavation	Excavation of a trench along each side of the row of shafts and removing materials by backhoes and cranes	Potentially applicable for a portion of site wastes
Excavation and Treatment	Waste Treatment	Neutralization	Neutralization of reactive inventory items by leaching them with water	Potentially applicable
		Thermal Treatment	High explosives and HE-contaminated wastes may be treated by burning to destroy the explosive compounds	Potentially applicable for HE wastes
		Cement Stabilization	Stabilization of materials in cement prior to disposal as a hazardous waste	Potentially applicable for a portion of site wastes
		Debris Treatment	The site waste meets the RCRA definition of debris; the best demonstrated technologies for treatment are specified in 40CFR Part 268.45, e.g., microencapsulation prior to disposal of lead or lead-containing debris	Potentially applicable

Technology or process option eliminated from further evaluation

Figure 12 (3). Screening of Corrective Measures Technologies.