STATEMENT OF BASIS/FINAL DECISION AND RESPONSE TO COMMENTS SUMMARY

Region V
ID# 3450

U.S. ECOLOGY

Sheffield, Illinois
(signed October 19, 1990)

Facility/Unit Type:	**Landfill**
Contaminants:	**Arsenic, benzene, chloroform, methylene chloride, vinyl, chloride, PCE, TCE, 1,1-DCA, 1,2-DCA, 1,1-DCE, 1,2-DCP**
Media:	**Soil, ground water, sediment, surface water**
Remedy:	**Ground water pump and treat with Granular Activated Carbon; caps and slurry walls**

FACILITY DESCRIPTION

On September 30, 1985, EPA and U. S. Ecology entered into a Consent Order pursuant to Section 3008(h) of RCRA. Under the terms of the Consent Order, U. S. Ecology was required to complete on-site and off-site investigation of the extent of releases of hazardous waste and hazardous constituents.

The 45.8-acre U. S. Ecology facility is a disposal facility that consists of two inactive disposal areas, a 5.8-acre landfill called the Old Site and a 40-acre landfill called the New Site. The facility accepted industrial, laboratory, and agricultural waste from 1967 to 1983. Over 90 percent of the reported 4.4 million cubic feet of waste at the facility is in the New Site landfill. Adjacent to the south side of the Old Site is a 20-acre low-level radioactive waste (LLRW) site that is not addressed by this remedy. The Old Site is situated east of the New Site; the LLRW site is south of the Old Site and southeast of the New Site.

The site is underlain by a bedrock aquifer. A 23-acre contaminated ground water plume extends to the north, east, and southeast from the Old Site. The southeast plume is mixing with a plume of radionuclides from the LLRW site. Contaminated ground water is migrating south and north from the New Site. Trout Lake, which lies east of the facility, is the nearest body of surface water and has been contaminated by the ground water plumes. Contaminated surface water is also found along the north slope of the New Site where the ground water discharges to seeps.

The rural area in which the facility is located is zoned primarily for agricultural use. A 160-acre area 1500 feet south and southwest of the site is zoned for recreational use such as hunting and camping.

EXPOSURE PATHWAYS

Public health is threatened by human exposure to contaminants in ground water, surface water, and soil. Exposure risks from these pathways vary. The greatest threat to human health is associated with long term ingestion of shallow ground water.

CONTAMINATION DETECTED AND CLEANUP GOALS

Media	Est. Volume	Contaminant	Maximum Concentration	Action Level	Cleanup Goal*	Point of Compliance
ground water	Not Provided	Benzene	Not provided	Not Provided	2.0 ug/l	well G-120
		1, 1-DCA	Not provided		1.0 ug/l	
		1, 2-DCA	Not provided		0.5 ug/l	
		1, 1-DCE	Not provided		1.0 ug/l	
		1, 2-DCP	Not provided		0.5 ug/l	
		Vinyl chloride	Not provided		1.0 ug/l	
Soil		Arsenic	2.6 mg/kg		1.0 ug/l	
		Chloroform	21.0 mg/kg		0.5 ug/l	
		Methylene Chloride	.01 mg/kg		5.0 ug/l	
		PCE	1.2 mg/kg		5.0 ug/l	
		TCE	.20 mg/kg		1.0 ug/l	

* Cleanup goals are based on the practical quantitation limits (PQLs) listed in 40 CFR Part 264, Appendix IX.

SELECTED REMEDY

The selected corrective measure consists of constructing slurry walls around the Old Site and portions of the New Site and extending existing landfill caps to cover the area beyond the slurry walls. Sixteen ground water extraction wells and a subsurface drain system will capture and treat ground water using chemical precipitation, air stripping, and carbon adsorption. Treated water will be discharged to surface water. Sludge generated from the ground water treatment process will be disposed of at an off-site landfill.

The selected corrective measure is an effective and reliable method that will reduce the toxicity, mobility, and volume of contamination. This alternative offers a cost-effective, permanent solution that uses innovative technologies to attain long and short term remediation.

The total estimated capital costs associated with the remedy are $3,918,500. The estimated capital cost to construct the soil caps and slurry walls is approximately $1,153,500, with a construction and implementation time of 2 years. The estimated capital cost for implementing the ground water pumping and treating systems is $2,765,000. The ground water O&M costs will be $852,000 per year. The estimated construction and implementation time for the pumping and treating system will be 18 months. Remediation of ground water will take a minimum of 30 years. The estimated present worth cost for the entire selected remedy is $11,950, 500.

EPA required modifications to U.S. Ecology's proposed alternatives for ground water extraction and treatment and source control. EPA's modifications for ground water include additional extraction wells, screening of wells in the glacial aquifer as well as the bedrock aquifer, and sampling for radionuclides. EPA also required that source control specifically address repair or modification of trench barrier walls to control the release south of the New Site and incorporation of controls for releases from the New Site into the post-closure permit.

PUBLIC PARTICIPATION

EPA established a public comment period which began on May 28, 1990 and ended on July 11, 1990.

EPA held a public hearing on June 28, 1990 to solicit public comments on the proposed remedy. Approximately 150 people attended the hearing, and 15 individuals gave oral testimony. Several requirements were amended based on comments received:

- Several new monitoring wells will be added around the New Site to facilitate detection of any future or presently undetected releases to the ground water.
- Revised ground water protection standards are included.

- Ground water modeling will be required to predict the effect of these corrective measures on the LLRW site.
- Contingency plans will be developed to negate any adverse effects on the LLRW site.
- Performance standards will be required and established for each component of the corrective measures.

INNOVATIVE TECHNOLOGIES CONSIDERED

- Chemical addition, flocculation, and precipitation.

NEXT STEPS

- Future remedial action will have to be taken to address the LLRW disposal site adjacent to the facility
- The closure permit should consider containment strategies for addressing possible releases from the north and west slopes of the New Site.

KEY WORDS

ground water; soil; ingestion; VOCs, organics, pesticides; PCE, TCE, DCE, DCA, arsenic, benzene; on-site treatment, slurry walls, capping; off-site disposal of residuals; extraction; filtration; excavation; carbon adsorption, air stripping.

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