STATEMENT OF BASIS/FINAL DECISION AND RESPONSE TO COMMENTS SUMMARY

REGION X
ID# 2631

PacifiCorp (Utah Power & Light)

Idaho Falls, ID
(Signed November 27, 1988)

Facility/Unit Type: Creosote treatment of power poles
Contaminants: Creosote, PAHs and Phenols
Media: Ground water and soil
Remedy: Pump and treat ground water, excavation, capping

FACILITY DESCRIPTION

In March 1988, EPA and the Idaho Department of Health and Welfare (IDHW) jointly issued a post-closure permit to Utah Power and Light Company (UPLC) pursuant to §3004 and §3005 of RCRA, and Idaho Code §39.4409(5). Corrective action conditions under the permit require remediation of ground water and soil contaminated with creosote.

In 1988, UP&L merged with PacifiCorp, and operating responsibility for the site was transferred to Pacific Power & Light, a Division of PacifiCorp. The PacifiCorp pole treatment yard is located in a commercial and industrial area in the southern part of Idaho Falls. From the early 1920s through 1983, electrical power poles were treated on site by soaking them in a vat of heated creosote and then allowing the excess creosote to drip off into a receiving tank. In July 1983, creosote was found to be leaking from underground piping connecting the treatment vat to a storage tank.

Approximately 37,000 tons of creosote-contaminated soil and rock were subsequently excavated from the area, forming a pit that extended down 25 feet to the native basalt bedrock. Borings extending into the bedrock showed the presence of creosote as a nonaqueous phase liquid. The installation of ground water monitoring wells revealed creosote contamination of Snake River Aquifers 1 and 2.

Depth to ground water is approximately 130 feet. The site is underlain by surficial silt, sand and gravel ranging in thickness from a few feet to about 20 feet. Below this zone, interlayered basalt extends to a depth of 400 feet. Three interconnected aquifers have been identified beneath the site. Contamination was found to be limited to Aquifers 1 (130 - 160 feet) and 2 (240 - 260 feet).

The site lies approximately 1000 feet east of the Snake River. There are no known Snake River drinking water intakes within three miles downgradient of the site. The city of Idaho Falls obtains municipal water from three wells located upgradient of the site.

EXPOSURE PATHWAYS

There is low potential for human exposure to contaminants via the ground water pathway. Water samples taken by EPA in 1985 showed no contamination in any of the off-site wells located within 1 mile of the site. There is negligible potential for a significant release to surface water since ground water does not recharge to surface water in the vicinity. Contaminated soil is not an exposure pathway because the highly contaminated soils were removed, and the remaining affected area has been capped.

CONTAMINATION DETECTED AND CLEANUP GOALS

Media	Estimated Volume	Contaminant	Maximum Concentration (µg/l)	Action Level	Cleanup Goal** (µg/l)	Point of Compliance
ground water	Not given	naphthalene	24,0[illegible]	Not given	5	Ground-water wells
		fluoranthene	14,00[illegible]		7	A-1, A-2, B-1, B-2,
		chrysene	3,000		8	C-1, C-2, D-1, D-2,
		benzo (a) anthracene	3,000		2	MW-4, MW-14
		benzo (b) fluoranthene	1,600		16	
		benzo (a) pyrene	1,200		8	
		indeno (1,2,3, -cd) pyrene	180		12	
		phenol	120		5	
		2,4-demithylphenol	460		9	
		2-methyl phenol	460		9	
		4-methyl phenol	480		9	
		acenaphthylene	28		10	
		acenaphthene	18,000		10	
		anthracene	2,400		10	
		benzo (k) fluoranthene	*		10	
		benzo (g,h,i) perylene	200		10	
		dibenzo (a,h) anthracene	ND		10	
		dibenzofuran	6,500		10	
		fluorene	10,200		10	
		phenanthrene	28,000		10	
		pyrene	11,000		10	
		2 methyl naphthalene	8,000		10	
		2 nitrophenol	36		50	

* maximum concentration shown for benzo (b) fluoranthene is the sum of benzo (b) fluoranthene and benzo (k) fluoranthene.

** the ground water protection standards (i.e., cleanup goal) are the practical quantitation limits of SW-846 Method 8270.

SELECTED REMEDY

The primary objective of ground-water remediation at this site is to hydraulically contain the contaminants to prevent them from moving off site, and to produce local reversal of the downward flow of ground water from Aquifer #2 to Aquifer #3. A ground-water extraction and treatment system was activated in February 1987. The treatment train consists of activated charcoal, followed by a clarifier, a dewatering unit, and an activated carbon system. Treated ground water is discharged to the POTW. **During the extraction pilot study, it was found that creosote was incompatible with PVC, causing the piping to become brittle and crack.** All PVC piping in the treatment facility was replaced with steel.

In 1983, 37,000 tons of creosote contaminated soil were removed from the site. Contaminated soil was disposed of at an approved hazardous waste management facility. The pit was lined with a 12-foot layer of compacted clay, backfilled with clean gravel, capped with a clay layer, and topped with asphalt. All remaining areas of contaminated soil were capped with asphalt.

The total capital and O&M costs associated with the remedy are estimated to be $6.8 million.

INNOVATIVE TECHNOLOGIES CONSIDERED

In 1988 and 1989, in situ bioremediation pilot studies were conducted on site to determine if white rot fungus could effectively remediate creosote in soil. The technology was not demonstrated to be effective, possibly because of insufficient moisture and elevated pH in the native soil.

PUBLIC PARTICIPATION

The public comment period began on November 27, 1987, and closed on January 10, 1988. Two sets of written comments were received, which resulted in minor changes to the permit. A public hearing was tentatively scheduled for January 19, 1988. However, because no requests or inquiries were made about the public hearing, it was cancelled.

NEXT STEPS

IDHW will continue to monitor the groundwater recovery system to ensure the effectiveness of the system. Because of the existence of creosote in the aquifers as a nonaqueous phase, it is unlikely that aquifer restoration to cleanup goals will be attained within the foreseeable future. Contaminant concentrations have declined significantly, however, during the 5 years of recovery system operation.

KEY WORDS

ground water, soil; ingestion, dermal contact; creosote, organics, phenols, PAHs; on-site treatment, excavation, capping

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