

US EPA ARCHIVE DOCUMENT

**BETTIS ATOMIC POWER LABORATORY
West Mifflin, Pennsylvania
(Signed September 29, 1995)**

Facility/Unit Type:	Design, development, testing, and operation of nuclear reaction propulsion plants for used U.S. Naval nuclear powered vessels
Contaminants:	VOCs, perchloroethylene, trichloroethylene, 1-2 trans dichloroethylene, PCBs, benzene, benzo(a)pyrene, arsenic, and mercury
Media:	Soil and groundwater
Remedy:	Implement institutional controls, maintain vegetative cover and warning signs, conduct periodic environmental monitoring, construct a system that uses subsurface drainage, remediate VOCs in soils, remove and properly dispose of soils, remove and properly dispose of sections of the inactive gas lines, and remove and properly dispose of sediments containing PCBs

FACILITY DESCRIPTION

From 1983 to 1989, under the Atomic Energy Act of 1954, Bettis Atomic Power Laboratory (Bettis) conducted environmental studies to identify and define contaminated areas resulting from the disposal, spilling or discharge of chemicals at the Facility. These studies revealed the presence of PCBs and VOCs in soils at the Facility and the presence of VOCs in groundwater. In 1986, Bettis opened and sampled the residual waste in ten steel underground storage tanks (USTs) and surrounding soils; the tanks had been used for the collection and temporary storage of waste oil, and were emptied and sealed in 1979. VOCs and PCBs were found in the subsurface soil. In 1987, Bettis removed the ten USTs and excavated the surrounding soils.

In 1990, subsequent to these investigations, Bettis entered into an Administrative Consent Order, issued to Bettis on September 28, 1990, pursuant to Section 3008(h) of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6928(h). A RCRA Facility Investigation Workplan (RFI) was approved on August 2, 1994, a Corrective Measures Study (CMS) was conducted, and a CMS report was approved on March 16, 1995.

The Facility is located on 202 acres of land in the Borough of West Mifflin, which is approximately eight miles southeast of the downtown section of the city of Pittsburgh. Waters and sediments discharge to the Northeast, Bull Run, and Thompson Run streams, which are located to the east of the Facility. The Thompson stream

discharges into the Monongahela River. The stratigraphy under the Facility consists of five water bearing zones that are hydraulically interconnected. Three of these water bearing zones do not flow beyond the Facility's boundary. There are six springs within the property boundary.

From 1926 until 1948, the site was used as an airfield. In 1949, the Bettis Atomic Power Laboratory was organized. Bettis is a government-owned (U.S. Department of Energy) contractor-operated (Westinghouse Electric Corporation) facility dedicated to the design, development, testing, and operation of nuclear reaction propulsion plants for used U.S. Naval nuclear powered vessels.

EXPOSURE PATHWAYS

The exposure pathways via soil are ingestion, inhalation, and dermal contact. Exposure pathways via groundwater are ingestion. Current workers and trespassers are at risk through soil ingestion, inhalation, and dermal contact, but not groundwater ingestion. Future workers and residents are at risk through soil ingestion, inhalation, and dermal contact, as well as groundwater ingestion, assuming that an industrial facility or residential area is developed and groundwater is used as a residential water source. Constituents of concern (COCs) include: VOCs, perchloroethylene (PCE), trichloroethylene (TCE), 1-2 trans dichloroethylene (DCE), PCBs, benzene, benzo(a)pyrene, arsenic, and mercury.

CONTAMINATION DETECTED AND CLEANUP GOALS

Media	Estimated Volume	Contaminant	Maximum Concentration (l)	Action Level	Cleanup Goal	Point of Compliance
Soil	Various depths for various sites	PCE	3,470	Not given	Not given	Not given
		PCBs	2.1			
		Benzene	1,800			
		Benzo(a) pyrene	250			
		Arsenic	41.9			
		Mercury	453			
Groundwater	Not given	PCE	5.6	Not given	Not given	Not given
		TCE	1.6			
		DCE	2.4			

SELECTED REMEDY

Groundwater and soils located in the inactive waste site, UST areas, trash chute, valley welding supply company, F-shop and Bettis landfill (BL) areas, sludge in the inactive gas lines, and storm sewer system have been identified as the areas that require remediation. The proposed remedy involves the following activities:

- Implement institutional controls including: 1) restrict and control access to, and work in, the vicinity of two inactive, underground, 40-Inch Coke Gas Lines to prevent potential exposure of on-site workers to hazardous constituents and to prevent disruptions to the integrity of the lines; 2) follow health and safety procedures contained in 29 CFR 1910.120 during any work around the inactive gas lines, the inactive waste site, the UST/WOT areas, and the trash chute areas; and 3) place restrictions on the deed to Facility property to prevent the installations of on-site drinking water wells.
- Maintain vegetative cover and warning signs at the inactive waste site. Maintain existing covers at UST areas and maintain existing covers and warning signs at the trash chute area.
- Submit all design plans and/or plans for changes to the Facility that involve soil disturbances to EPA for approval for the inactive waste site, inactive gas lines, UST areas, trash chute area.
- Conduct periodic environmental monitoring of the following media to detect changes in

concentration of the contaminants of concern: 1) water and sediments in runoff from Facility to the Valley Welding Supply Company property; 2) materials deposited in storm sewer system manholes; 3) on-site and off-site wells; and 4) surface water and sediments in the Bull Run stream.

- Conduct periodic inspections of access points in the inactive gas lines to detect changes in volume of deposited materials.
- Construct a system that uses subsurface drainage at the northern and southeastern portions of the Facility to collect groundwater before it discharges to the surface through seeps and natural springs. Collected groundwater will be treated using granulated activated carbon or air strippers with air emission controls. Treated water will be disposed of through NPDES permitted outfalls. Residues from treatment units will be disposed off-site in accordance with applicable regulations.
- Remediate VOCs in soils at the BL using a VE system.
- Remove and properly dispose of soils in the F-shop.
- Remove and properly dispose of contaminated sludge from access points of the inactive gas lines.
- Remove and properly dispose of sections of the inactive gas lines that could release contaminants of concern into the environment.

- Remove and properly dispose of sediments containing PCBs from storm sewer system manholes.

The total cost, including capital, operation and maintenance costs, is approximately \$1.7 million.

INNOVATIVE TECHNOLOGIES CONSIDERED

None.

PUBLIC PARTICIPATION

The public comment period is 30 calendar days.

NEXT STEPS

EPA will prepare a Final Decision and Response to Comments that will identify the selected Corrective Measure Alternative and will address all significant written comments. The Final Decision and Response to Comments will be made available to the public for comment. EPA will select a final corrective measure and will implement the measure using available legal authorities including, but not limited to, RCRA Section 3008(h).

KEY WORDS:

soil, groundwater; dermal contact, inhalation, ingestion; VOCs, PCE, TCE, DCE, PCBs, benzene, benzo(a)pyrene, arsenic, mercury; containment, excavation, institutional controls, monitoring, disposal, soil cover, subsurface drain

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