DOE Public Affairs 966-5993
EG&G Community Relations 966-5754

Rocky Flats *Information*

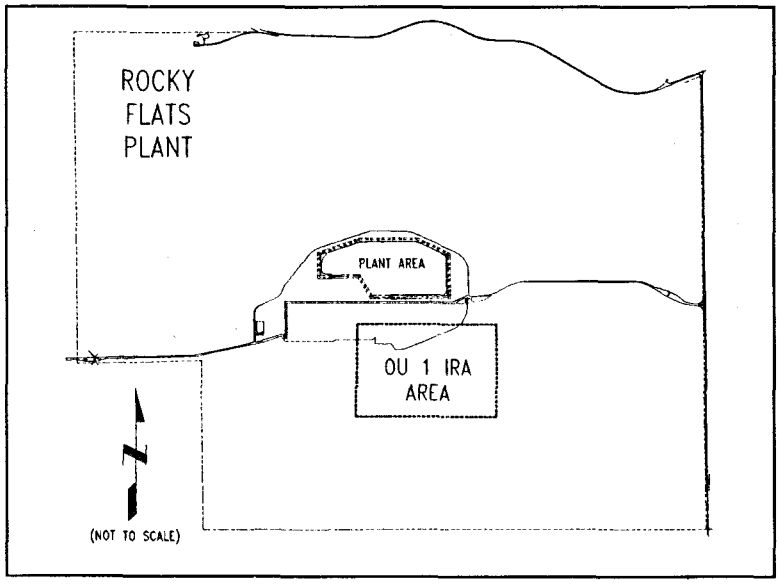
OU1

Interim Measures/ Interim Remedial Action

The soil and ground water in an area of the Rocky Flats Plant known as the 881 Hillside became contaminated in the 1950s, 1960s and 1970s with solvents and radionuclides. The 881 Hillside, the area that comprises Operable Unit No. 1 (OU 1), is located north of Woman Creek in the southeast section of the plant. The area is almost two miles from the outer edge of the plant's buffer zone at Indiana Street.

Operable Unit No. 1 is one of 16 operable units identified by the Interagency Agreement (IAG) for environmental restoration, which was signed in January 1991 by the U.S. Department of Energy, the U.S. Environmental Protection Agency and the Colorado Department of Health. The IAG establishes priorities and schedules for cleanup of the Rocky Flats Plant.

In accordance with the IAG, which was in draft form at the time, an interim remedial action plan was proposed in October 1989 to address contaminated ground water within OU 1. The contamination poses no immediate threat to public health and the environment because it is contained within the plant's boundaries. However, interim remedial action is being implemented due to the proximity of the contamination to Woman Creek coupled with the significant length of time necessary to thoroughly investigate the nature and extent of contamination and analyze cleanup options.



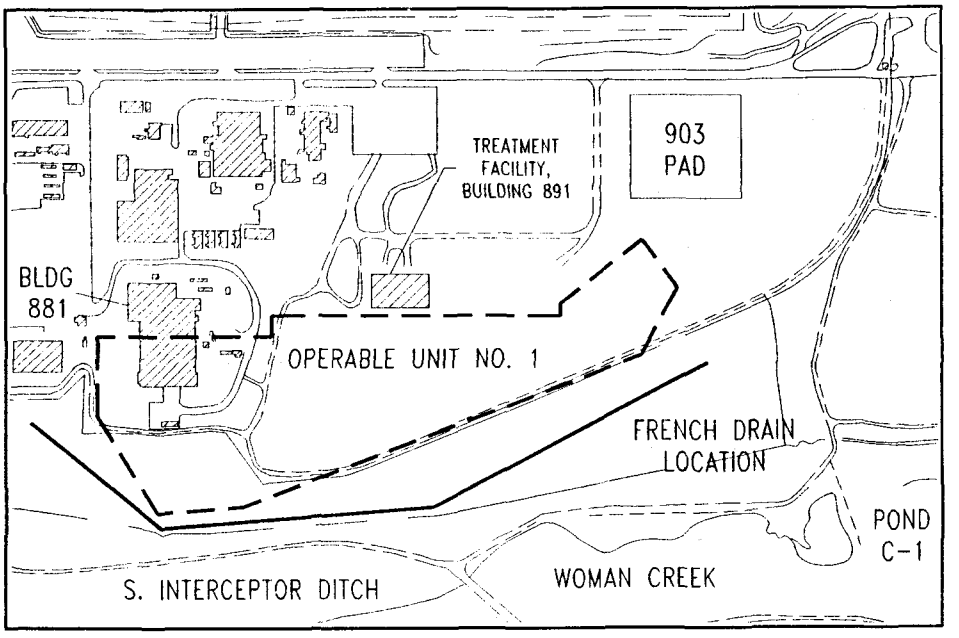
The interim remedial action plan for OU 1 involves the construction of an underground drainage system called a French drain, which will be designed to intercept and contain contaminated ground water from OU 1. The collected water will be transferred to an onsite treatment facility for removal of volatile organic compounds, radionuclides and metals. After treatment and testing, the water will be released onsite into the South Interceptor Ditch.

Preliminary engineering and construction activities leading to construction of the French drain itself have been ongoing for the last year. Construction of the drain is currently planned to begin in June 1991, ahead of the IAG schedule. Standard operational testing will begin in August 1991 to ensure that the treatment plant can effectively clean the contaminated water.

In response to concerns that cleanup activities in OU 1 could cause plutonium in soils to be resuspended into the air, several steps are being taken to suppress dust in the area. OU 1 work procedures require the Rocky Flats Plant to stop construction activities if wind speeds at the 881 Hillside exceed 15 miles per hour for two consecutive 15 minute periods, if soil moisture is less than

ADMIN RECORD
A-OU01-000219

15 percent or if dust suspension is greater than 6.0 milligrams per cubic meter.



Wind and dust monitors are located at the 881 Hillside to verify that work in the area is conducted safely and within these established criteria. In addition, four high volume air samplers, which measure the concentration of radionuclides in dust, are maintained at the 881 Hillside construction site. The air samplers are used to monitor the airborne dust concentrations of plutonium-239, the primary radionuclide of concern regarding potential resuspension.

Ground Water Collection and Transfer

A 2,700-foot long French drain will be constructed downgradient of the 881 Hillside to collect the contaminated ground water. A synthetic membrane liner, spanning the length of the drain, will be placed on the downhill side of the drain to capture ground water flowing from the hillside. The liner will extend down through the layer of alluvial soil, which varies from 10 to 40 feet in thickness, and will be tied to the bedrock layer underneath. Ground water monitoring wells will be installed downhill from the French drain to monitor its effectiveness in intercepting contaminated ground water.

The water collected in the bottom of the trench-like drain will then be pumped to an onsite treatment facility for the removal of organic compounds, radionuclides and metals. In addition, a pumping well at the area of highest volatile organic compound concentration will aid in contaminated ground water removal.

Ground Water Treatment

The selected water treatment methods in the OU 1 interim remedial action plan are ultraviolet peroxide oxidation for removal of organic compounds and ion exchange for removing radionuclides and metals. The treatment units will be enclosed in a new building to protect weather- or temperature-sensitive components.

Four 15,000-gallon surge tanks will be located outside the treatment building. Since flows from the collection areas are expected to vary, the surge tanks will maintain the flow of water through the treatment unit at 30 gallons per minute for eight hours per day. The surge tanks will also provide water storage when the treatment unit is undergoing cleaning or repairs.

Untreated water from the surge tanks will pass through a series of filters in the treatment building to remove particulates before undergoing ultraviolet peroxide oxidation. In this treatment process, peroxide is added to the water to form a solution that is then exposed to ultraviolet light. The light causes the peroxide to form a reactive chemical that decomposes the organic material.

The water will then enter the ion exchange system, where radionuclides and metals will be removed. The ion exchange method involves passing water through a tube containing a bed of resin beads. The bead surface reacts with soluble radionuclides and metals, causing the material to adhere to the resin.

All treated water will be analyzed before release. Three 160,000 gallon storage tanks located outside the building will hold the treated water while samples are analyzed to determine water quality. If the water meets quality standards, it will be released. If it does not meet quality standards, it will be redirected through the treatment system.

Ground Water Discharge

The treated ground water will be released into the South Interceptor Ditch, which drains into pond C-2, an onsite holding pond. Water held in pond C-2 is sampled and analyzed and, if necessary, it is treated before being transferred to ponds on Walnut Creek. Walnut Creek water flows into the Broomfield Diversion Ditch, bypassing Great Western Reservoir.

Final Remedial Action

The Rocky Flats Plant will continue to perform extensive technical evaluations of the contamination within OU 1 during implementation of the interim remedial action plan. Field work in support of the long-term evaluations is scheduled to begin in May 1991. Based on these evaluations, the plant will develop a proposed plan for final cleanup of the area.

In accordance with current IAG schedules, the proposed plan will be released for public comment in January 1994, and a final decision on the proposed remedy will be issued in November 1994. Final cleanup field activities, beginning with construction of the remedial action, are scheduled to occur in mid-1996.

For more information about cleanup activities at the 881 Hillside, contact:

Jill G. Paukert, Information Coordinator
Community Relations Plan
EG&G Rocky Flats
P.O. Box 464
Building T130F
Golden, Colorado 80402-0464
(303) 966-6160