

## Operable Units: Environmental Restoration Areas at the Rocky Flats Plant

The Interagency Agreement signed by the U.S. Department of Energy, the U.S. Environmental Protection Agency, and the Colorado Department of Health groups the 178 individual hazardous substance sites (IHSSs) at Rocky Flats Plant (RFP) into 16 "operable units" (OUs). Areas are organized into OUs based upon one or more common features such as the type of contaminant, the contaminated media, the technologies likely to be used for remediation of the area, or the previous use of the contaminated area.

Operable units at Rocky Flats Plant have been ranked according to estimated potential risk to human health or the environment. OU1 has highest priority. However, remediation of one OU does not have to be complete before work can begin at the next OU: activities from one OU may overlap in time with activities at another OU. In addition, an interim remedial action may be started at any time in the event that a short-term solution is considered necessary to protect human health and the environment during the typically lengthy period required to conduct a full investigative study leading to selection of a final remedy. Interim actions must be compatible with the final remedy chosen.

The following paragraphs briefly describe the OUs at Rocky Flats Plant and state when the final RCRA Facility Investigation/Remedial Investigation (RFI/RI) Reports and the final Corrective Measures Study/Feasibility Study (CMS/FS) Reports are scheduled for submittal to the U.S. Environmental Protection Agency and the Colorado Department of Health. These reports, and others pertaining to environmental restoration at Rocky Flats Plant, are made available to

the public in several information repositories in the Denver area (see list at back of this fact sheet).

### OU1 881 Hillside Areas

The main concern at OU1 is the contamination of ground water and soil by volatile organic compounds (VOCs). Prior to 1972, workers stored drums containing solvents on the ground east of Building 881; some of the containers subsequently leaked. Other IHSSs at OU1 include chemical waste pits, an outfall area, out-of-service fuel tanks, and buried radionuclide-contaminated soils.

Although the contamination at OU1 is contained within plant boundaries and poses no immediate threat to public health or the environment, an interim remedial action is being implemented because of 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 calls for constructing an underground drainage system (French drain), which will intercept and contain contaminated ground water from OU1. The collected water will be transferred to an onsite treatment facility, treated, tested, and released onsite into an interceptor ditch.

Final Phase III RFI/RI Report due date:

January 4, 1993

Final Phase III CMS/FS Report due date:

September 27, 1993

## **OU2 903 Pad, Mound, and East Trenches Areas**

Former waste storage practices resulted in contamination of soil, surface water, and ground water at OU2. In several areas, ground water may be visible during several months of the year, where it has surfaced and created seeps.

At the 903 Pad, drums containing plutonium-contaminated lathe coolant were stored on the ground; later, these drums were removed and the area capped with asphalt. At the Mound area, similar drums were buried and later removed. While the drums existed at these two areas, some leaks occurred, and soil removal may have resulted in wind dispersion of contaminants. At the East Trenches areas, drums containing radioactive waste and sanitary sewer sludge were buried, some of which remain in the trenches. Also, sewer plant effluent was spray irrigated on nearby land. The variety of contaminants at OU2 includes VOCs, other organics, radionuclides, and metals.

In accordance with the Interagency Agreement, an interim remedial action plan was proposed to address contaminated surface water and seeps within OU2. The original surface water plan included water in both the Woman Creek and South Walnut Creek basins; however, in response to public comments, the U.S. Department of Energy later prepared separate plans for each of those areas.

Final Phase II RFI/RI Report due date:  
August 9, 1993

Final Phase II CMS/FS Report due date:  
May 10, 1994

## **OU3 Off-Site Releases**

Some off-site land and reservoirs near RFP may have been contaminated by releases from RFP, primarily plutonium and americium. Affected areas include the sediments in three reservoirs (Great Western Reservoir, Standley Lake, and Mower Reservoir), plus some land east of Indiana Street, which is east of the RFP boundary. It is thought that the wind blew plutonium-contaminated soil from the 903 Pad to the off-site land. It is also thought that both airborne and

waterborne releases from the plant in the 1950s, 1960s, and 1970s deposited plutonium in the reservoir sediments.

Final Phase I RFI/RI Report due date:  
December 6, 1993

## **OU4 Solar Evaporation Ponds**

The Solar Evaporation Ponds were used to store low-level radioactive waste, sanitary treatment plant effluent, and contaminated ground water collected downgradient of the ponds. Leaks from the ponds contributed radionuclides, metals, nitrates, acids, and bases to the ground water and soil.

Final Phase II RFI/RI Report due date:  
September 11, 1996

Final Phase II CMS/FS Report due date:  
June 9, 1997

## **OU5 Woman Creek Drainage**

OU5 consists of potentially contaminated surface water, stream sediments, and soil in the Woman Creek drainage. Radionuclides, metals, and nitrates from OU1 and OU2 may have found their way into OU5. There are several types of IHSSs, including an old landfill, ash pits, and retention ponds.

Final Phase I RFI/RI Report due date:  
May 3, 1994

## **OU6 Walnut Creek Drainage**

As with OU5, the surface water, soil, and stream sediments in the Walnut Creek drainage may contain elevated levels of radionuclides, metals, and nitrates. IHSSs include a sludge dispersal area, retention ponds, an old outfall, trenches, and spray fields.

Final Phase I RFI/RI Report due date:  
January 7, 1994

## **OU7 Present Landfill**

The soil and ground water in this area may contain various contaminants such as VOCs and metals. Although the landfill is still being used, currently only nonhazardous sanitary waste is discarded in it.

Final Phase II RFI/RI Report due date:

February 11, 1997

Final Phase II CMS/FS Report due date:

November 4, 1997

## **OU8 700 Area**

OU8 consists of 38 IHSSs, which were the sites of numerous spills during early process operations. The soil may be contaminated with VOCs and other organics, radionuclides, metals, nitrates, acids, bases, and solvents.

Final Phase I RFI/RI Report due date:

July 12, 1994

## **OU9 Original Process Waste Lines**

Soils at OU9 may have been affected by leaking pipes or tanks that were used for transporting various types of process wastes. Possible contaminants include nitrates, acids, caustics, and radionuclides.

Final Phase II RFI/RI Report due date:

December 4, 1997

Final Phase II CMS/FS Report due date:

September 3, 1998

## **OU10 Other Outside Closures**

OU10 consists of a variety of RCRA closure sites: hazardous waste storage facilities, tanks, and areas where leaks occurred.

Final Phase II RFI/RI Report due date:

March 30, 1998

Final Phase II CMS/FS Report due date:

December 22, 1998

## **OU11 West Spray Field**

From 1982 to 1985, the West Spray Field was spray irrigated with water from solar evaporation ponds that contained elevated levels of nitrates and other wastes. This practice may have contaminated the ground water and the vadose zone (water in the soil lying just above the ground water).

Final Phase II RFI/RI Report due date:

January 16, 1998

Final Phase II CMS/FS Report due date:

October 9, 1998

## **OU12 400/800 Area**

Cooling tower ponds, chemicals from fiberglass operations, leaks, and spills may have contaminated the soil in this area with VOCs and other organics, metals, and acids.

Final Phase I RFI/RI Report due date:

September 15, 1994

## **OU13 100 Area**

OU13 comprises chemical storage areas, an underground tank, waste destruction areas, a valve vault, and places where minor leaks or spills occurred. The soil has received VOCs and other organics, depleted uranium, metals, acids, caustics, and metals from these IHSSs.

Final Phase I RFI/RI Report due date:

January 11, 1995

## **OU14 Radioactive Sites**

"Radioactive sites" refers to storage areas for radioactive soils removed from near the radiological operations buildings.

Final Phase I RFI/RI Report due date:

May 23, 1995

## OU15 Inside Building Closures

OU15 includes structures within buildings where hazardous materials were stored or processed.

Final Phase I RFI/RI Report due date:  
January 4, 1995

## OU16 Low-Priority Sites

This OU covers miscellaneous leak and waste treatment sites that are considered the least likely to cause health or environmental problems. The soils at these sites may have been contaminated by organics, solvents, and nickel carbonyl.

Final "No Further Action Justification" document due date: July 30, 1992

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### Information Repositories

Rocky Flats Public Reading Room  
Front Range Community College Library  
3645 West 112th Avenue  
Westminster, CO 80030  
303-469-4435

Hours: M, T 12:00 pm - 8:00 pm  
W 10:00 am - 4:00 pm  
Th, F 9:00 am - 4:00 pm

Rocky Flats Environmental Monitoring Council  
1536 Cole Boulevard, Suite 325  
Denver West Office Building 4  
Golden, CO 80401  
303-232-1966

Hours: M - F 8:30 am - 5:00 pm

EPA Superfund Records Center  
999 18th Street, Suite 500  
Denver, CO 80202  
303-293-1807

Hours: M - F 7:30 am - 4:30 pm

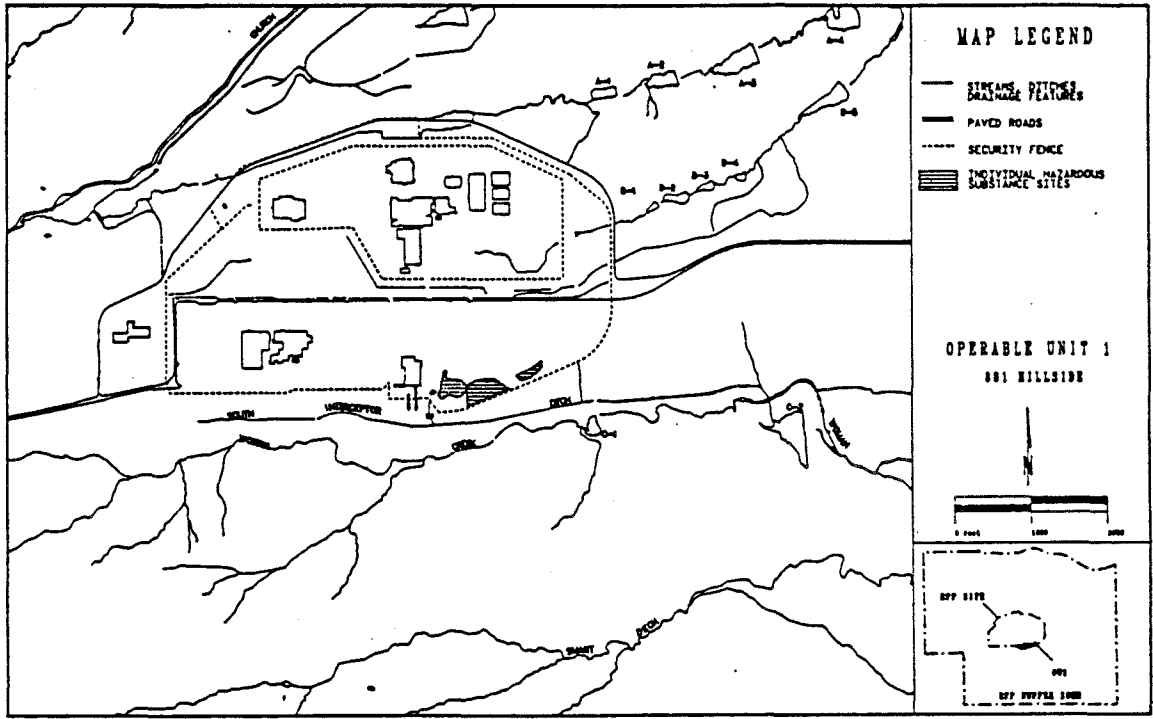
Colorado Department of Health  
Hazardous Materials and Waste  
Management Division  
4210 East 11th Avenue, Room 351  
Denver, CO 80220  
303-331-6733

Hours: M - F 8:00 am - 5:00 pm

U.S. Department of Energy HQ  
FOI and Privacy Branch  
AD234.1, 1G-051/FORS  
1000 Independence Ave., S.W.  
Washington, DC 20585  
202-586-6025

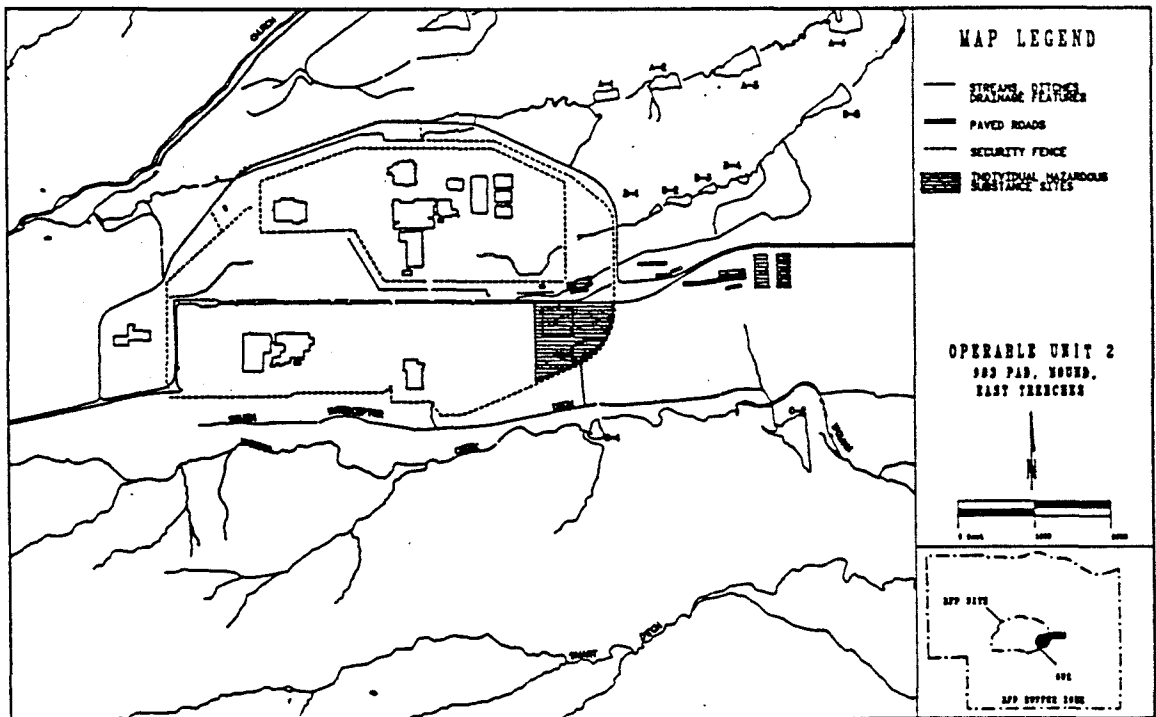
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(Eastern Time)





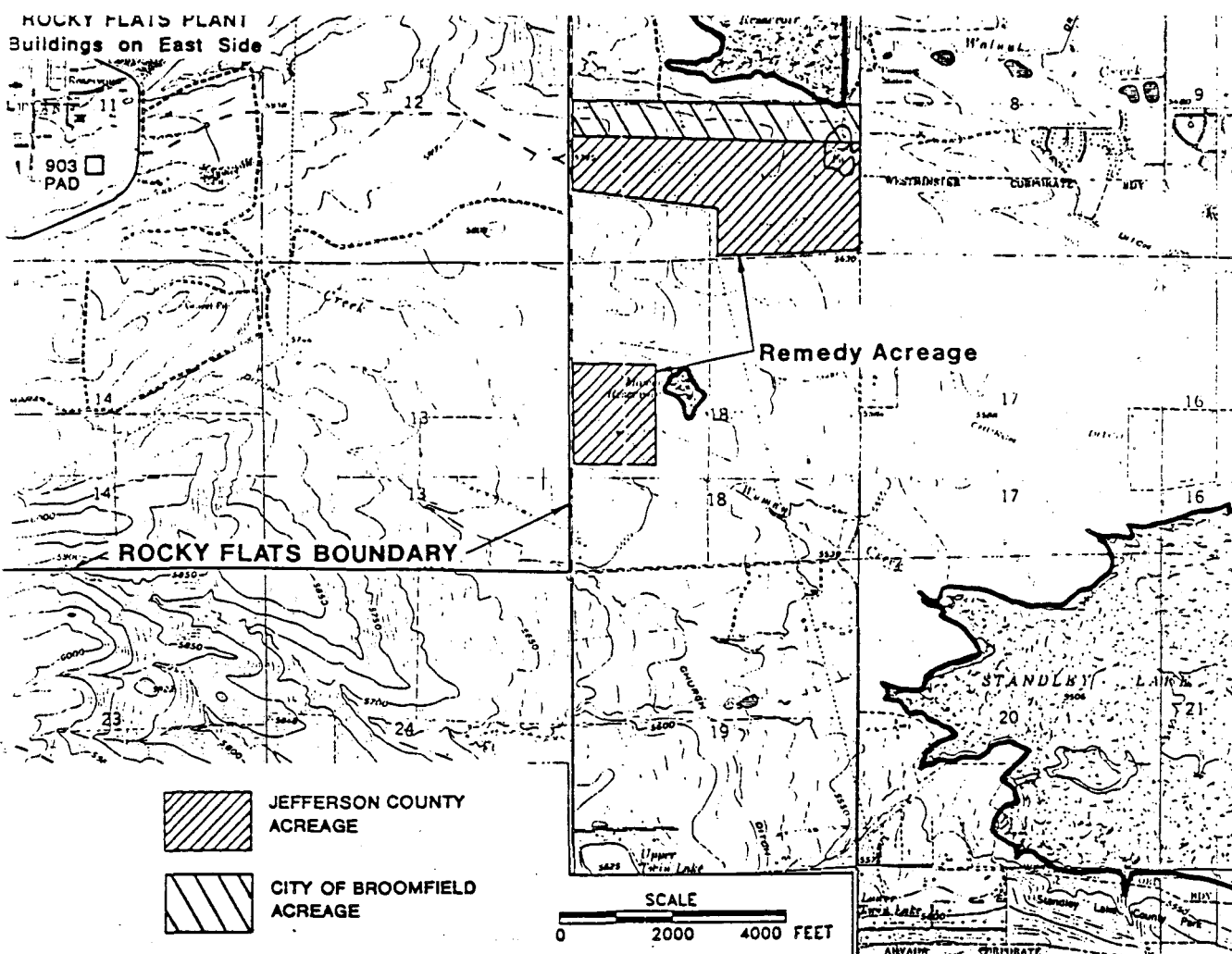
Operable Unit 1: 881 Hillside

(shaded areas indicate Individual Hazardous Substance Sites)



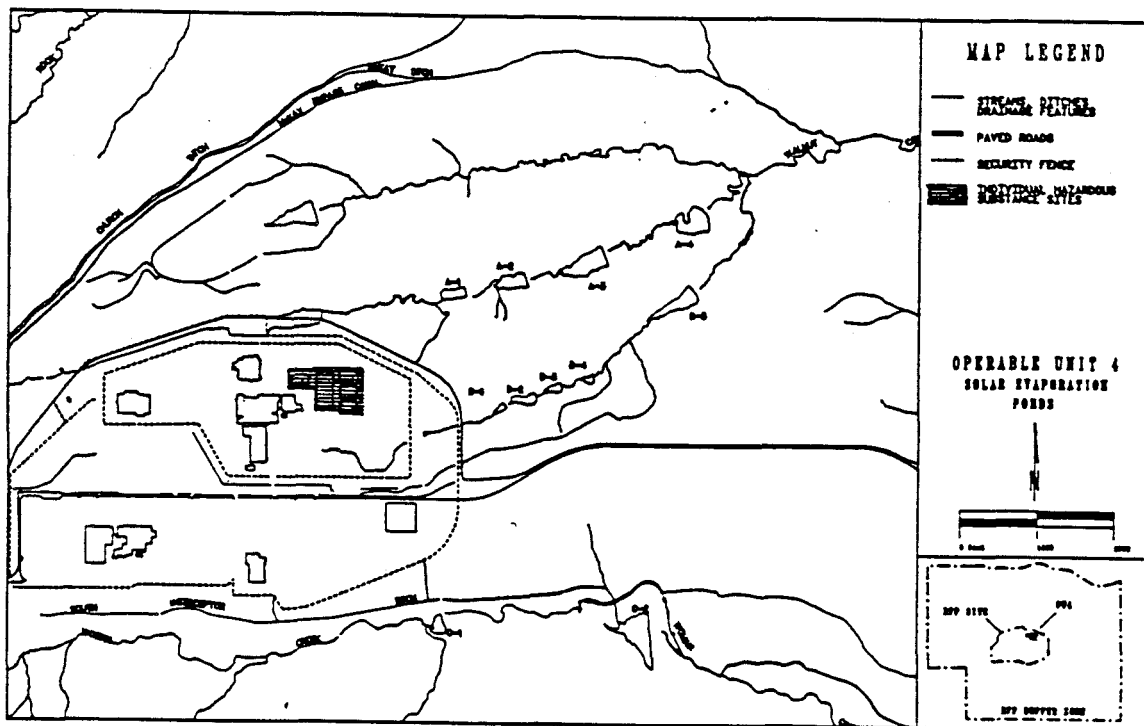
Operable Unit 2: 903 Pad. Mound, East Trenches

(shaded areas indicate Individual Hazardous Substance Sites)



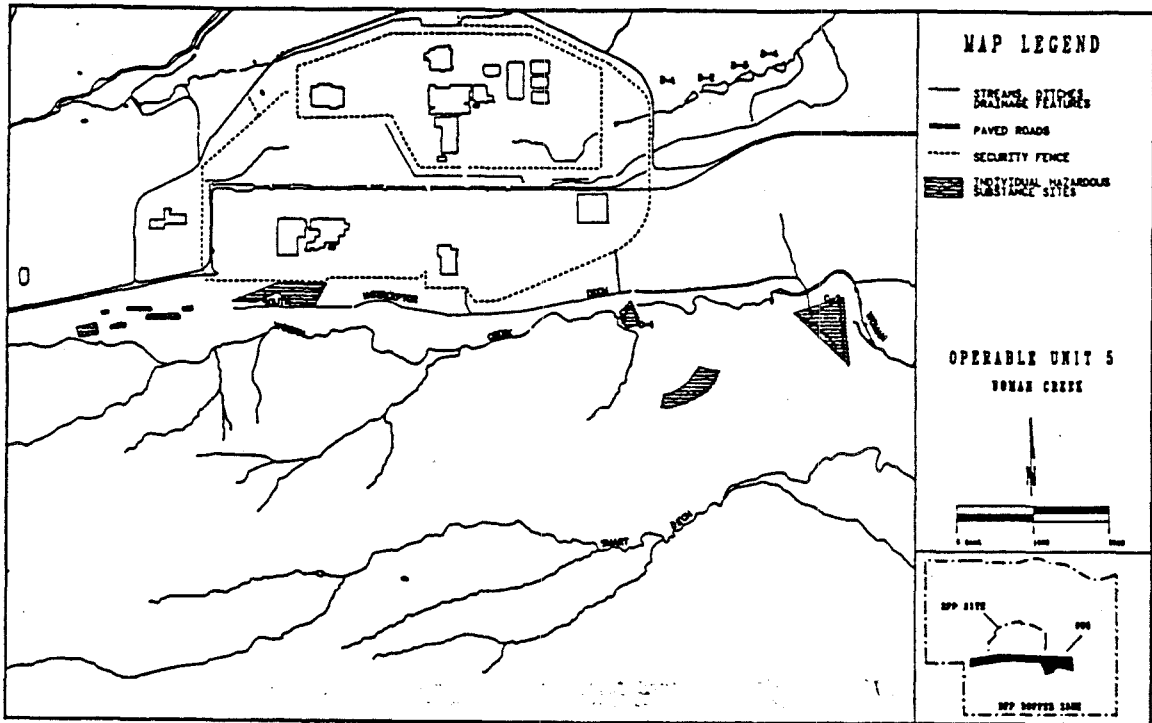
Operable Unit 3: Off-Site Releases

(shaded areas indicate Individual Hazardous Substance Sites)

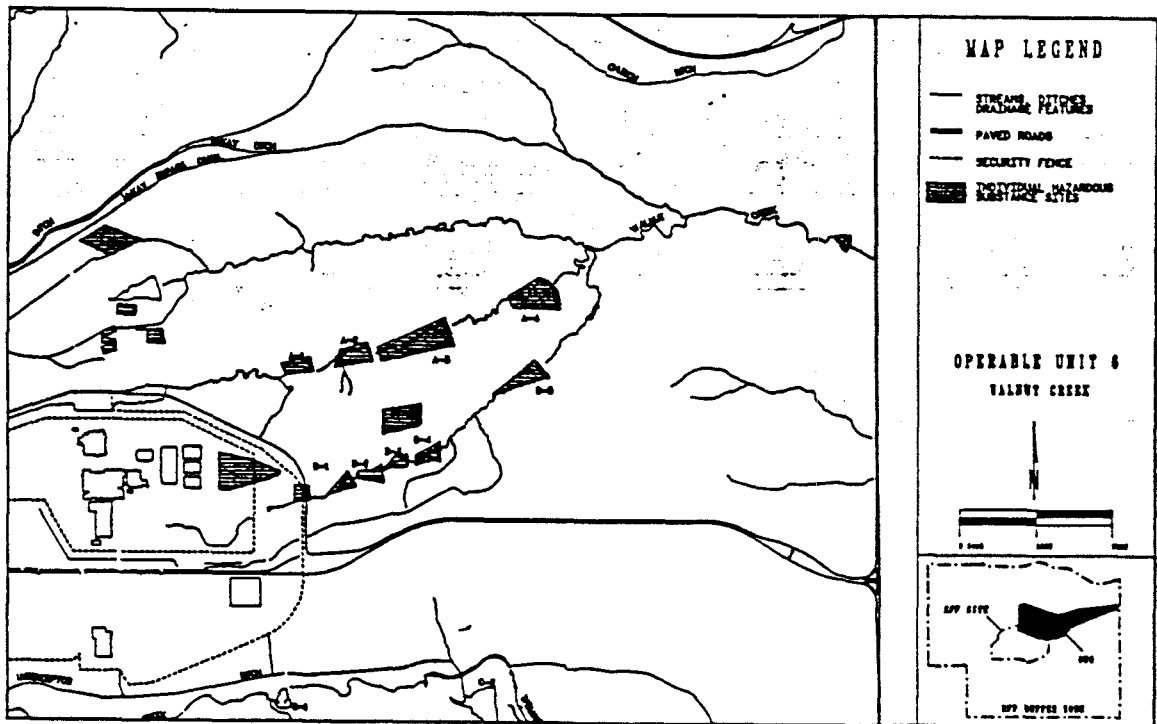


Operable Unit 4: Solar Evaporation Ponds

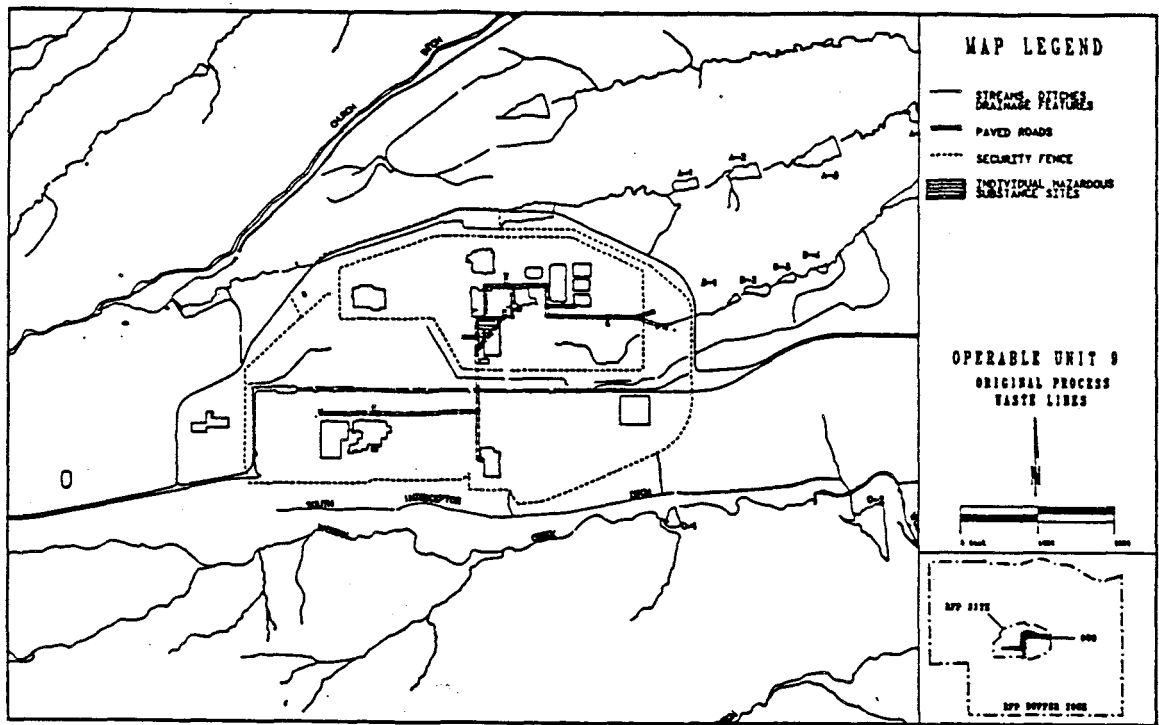
(shaded areas indicate Individual Hazardous Substance Sites)



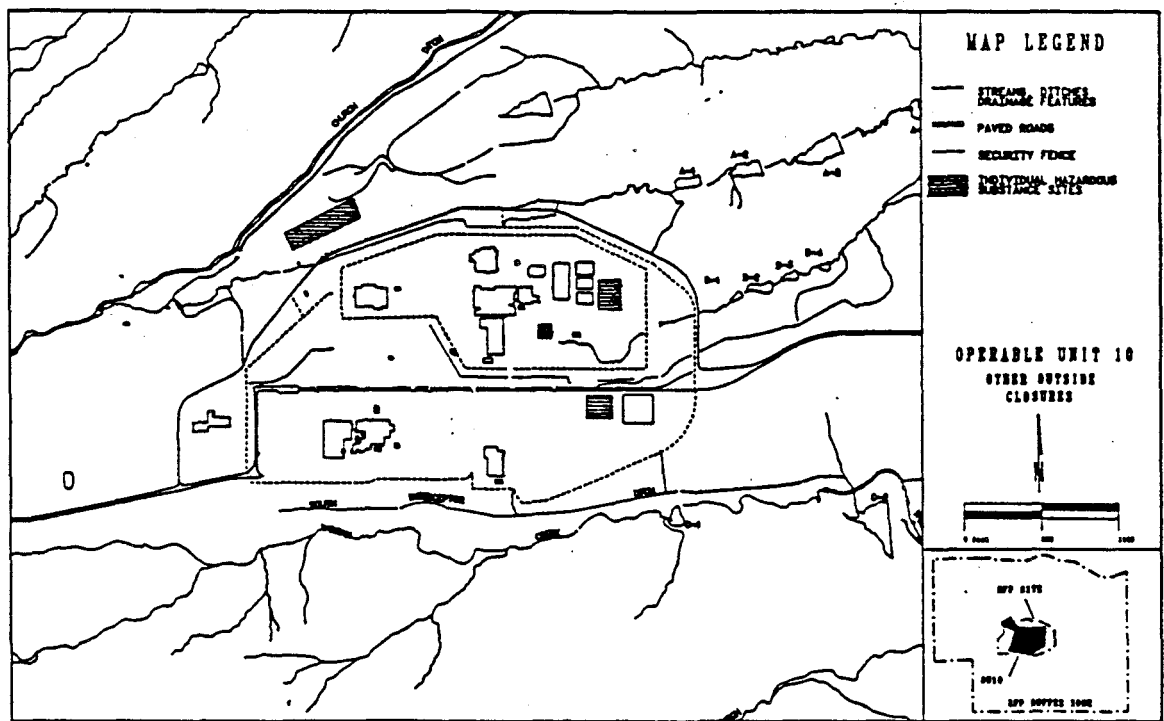
Operable Unit 5: Woman Creek  
(shaded areas indicate Individual Hazardous Substance Sites)



Operable Unit 6: Walnut Creek  
(shaded areas indicate Individual Hazardous Substance Sites)

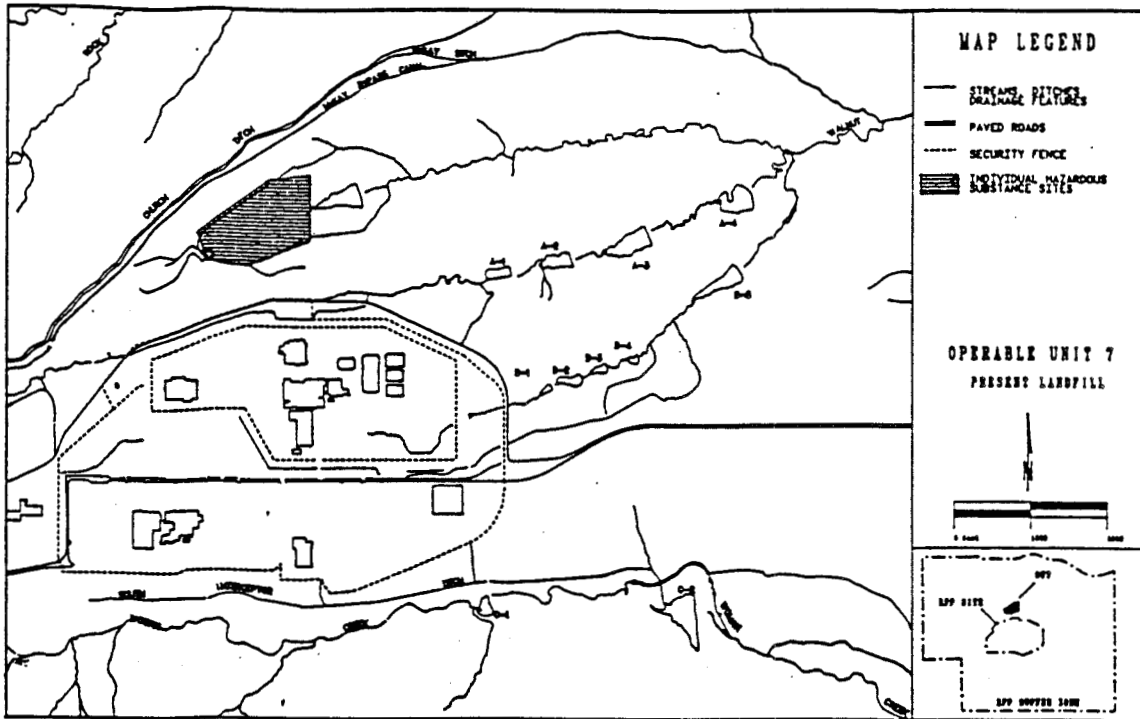


Operable Unit 9: Original Process Waste Lines  
(shaded areas indicate Individual Hazardous Substance Sites)

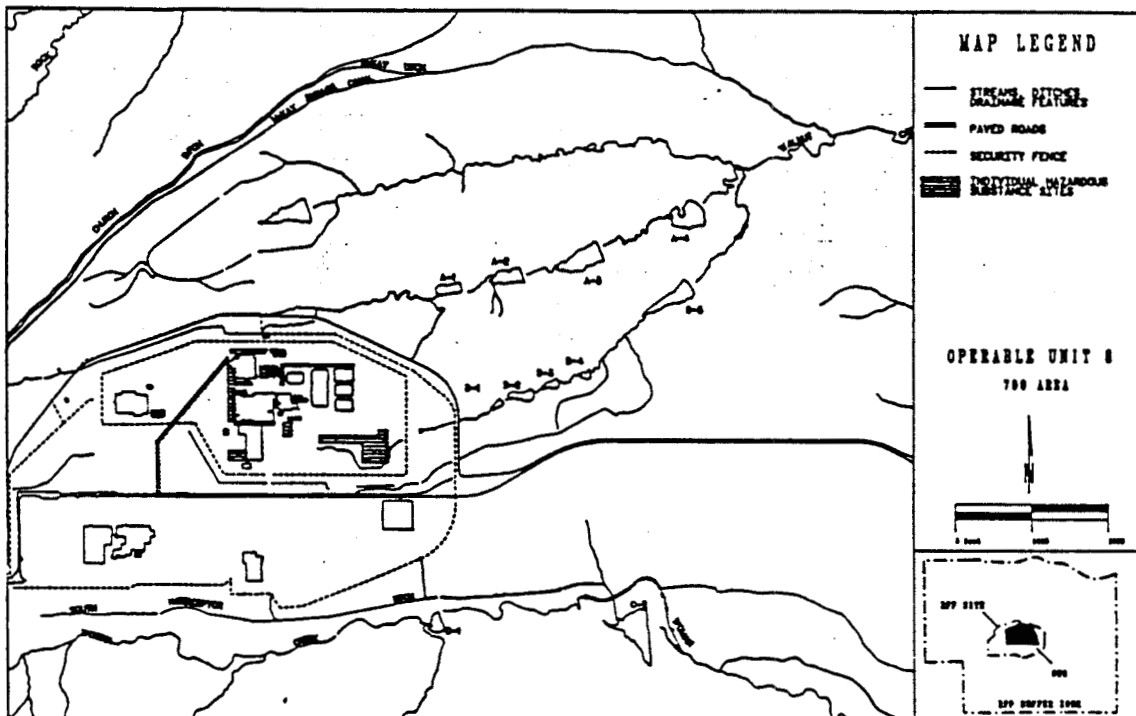


Operable Unit 10: Other Outside Closures  
(shaded areas indicate Individual Hazardous Substance Sites)



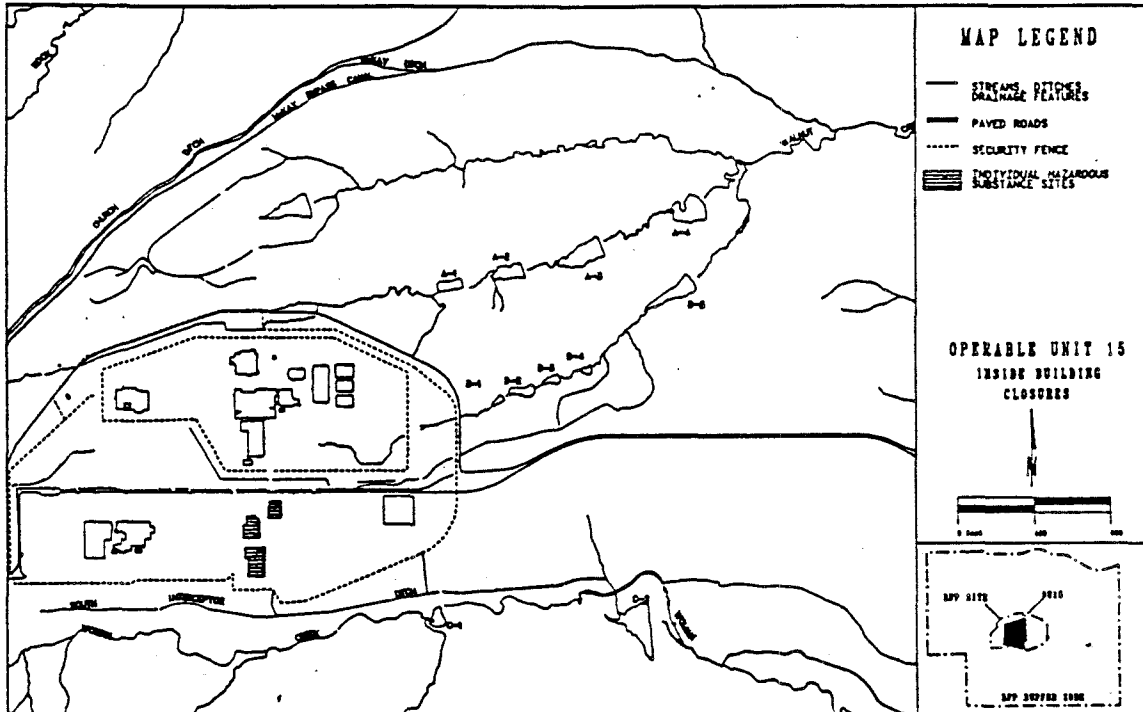


Operable Unit 7: Present Landfill  
(shaded areas indicate Individual Hazardous Substance Sites)

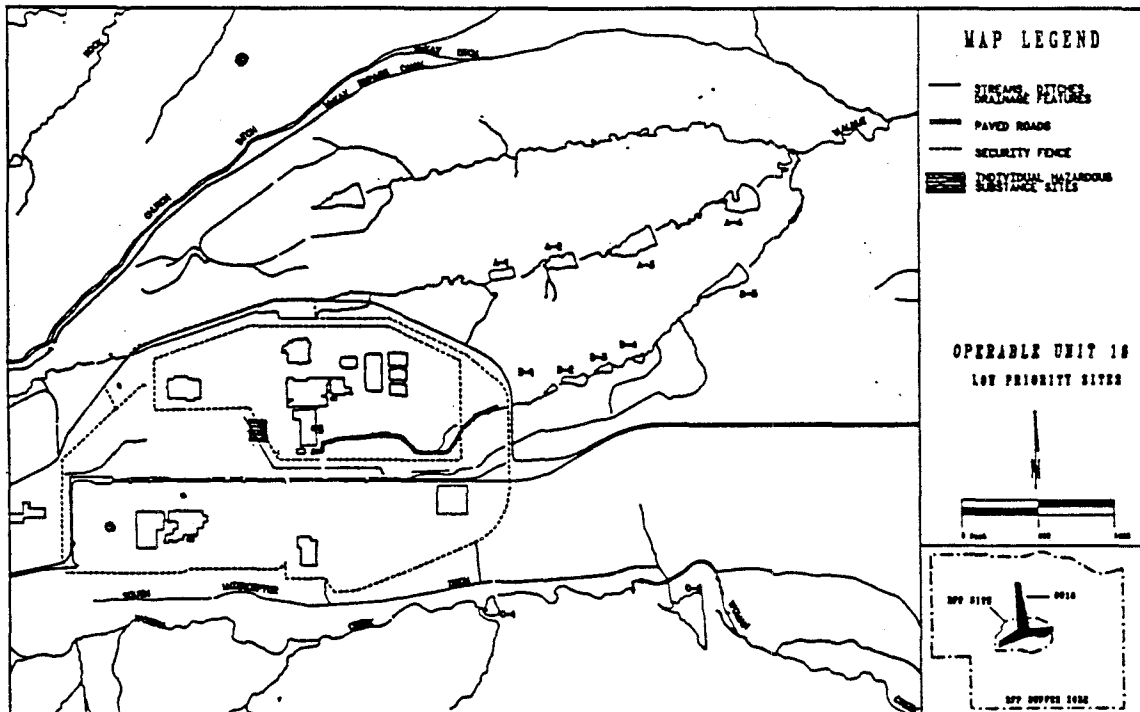


Operable Unit 8: 700 Area  
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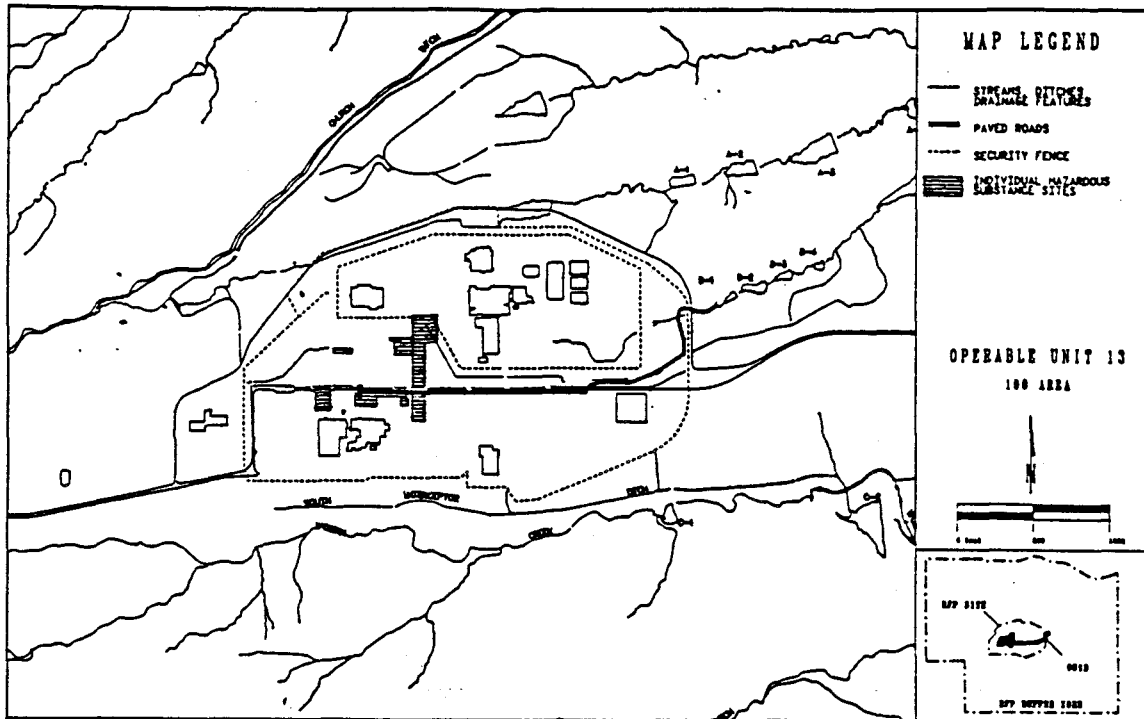




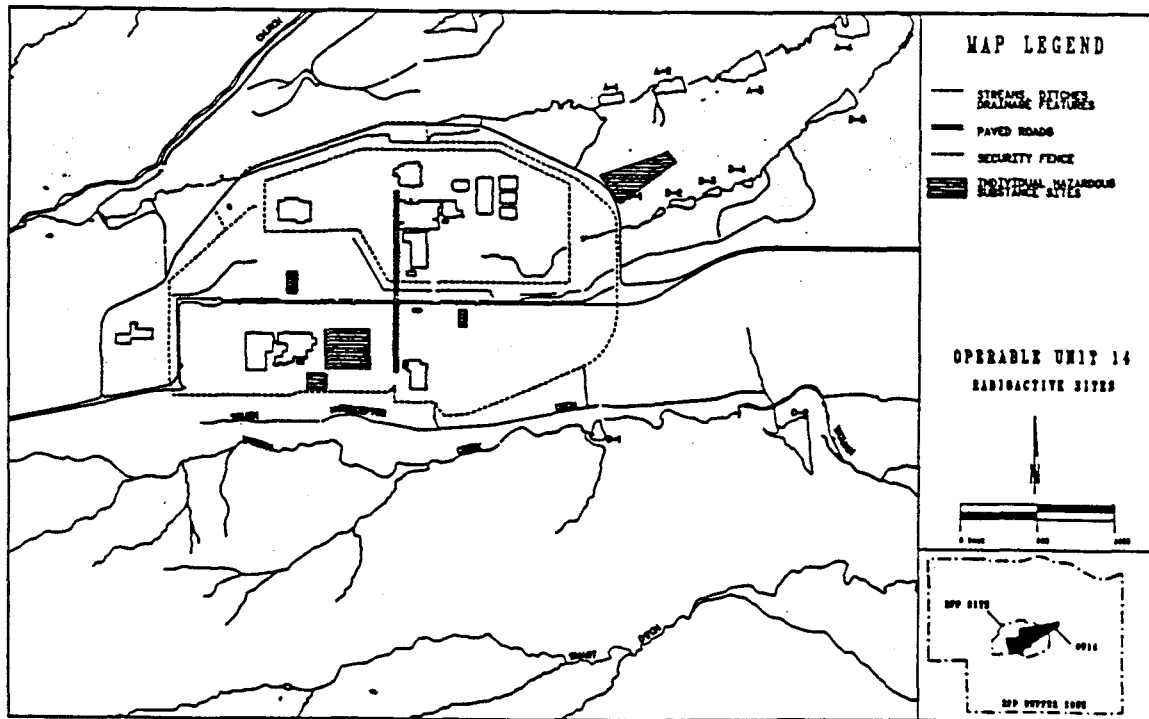
Operable Unit 15: Inside Building Closures  
(shaded areas indicate Individual Hazardous Substance Sites)



Operable Unit 16: Low-Priority Sites  
(shaded areas indicate Individual Hazardous Substance Sites)



Operable Unit 13: 100 Area  
(shaded areas indicate Individual Hazardous Substance Sites)



Operable Unit 14: Radioactive Sites  
(shaded areas indicate Individual Hazardous Substance Sites)