APPENDIX B

EXISTING WASTE SITES

This appendix discusses the existing waste sites at the Savannah River Plant (SRP) and describes each of the waste sites considered in this environmental impact statement (EIS). Data and information in this appendix was derived from the individual waste site Environmental Information Documents (EIDs) referenced at the end of the appendix. TC

The EIS uses the terms "hazardous," "low-level radioactive," and "mixed" (i.e., hazardous and low-level radioactive) in their most common sense, without specific regard to technical or regulatory definitions, unless indicated. The U.S. Department of Energy (DOE) does not intend this EIS to be a permit application for existing SRP facilities or a vehicle to resolve the applicability of Resource Conservation and Recovery Act (RCRA) requirements to existing SRP facilities or waste sites. Ongoing regulatory activities and the expanded SRP groundwater monitoring and characterization program will provide the basis for the application of requirements to existing facilities and waste sites.

B.1 INTRODUCTION

B.1.1 OVERVIEW OF WASTE SITES

Plant operations generate waste materials that include hazardous wastes; low-level radioactive wastes; mixed wastes* containing both hazardous and radioactive materials; and other wastes, such as sanitary and solid wastes, including rubble. On the SRP, 168 sites have received wastes. Ninety-one of these sites are not considered in detail in this EIS. No decision is made on waste management activities that may occur at these 91 waste sites. Of these, 74 active and inactive sites have not received hazardous, low-level radioactive, or mixed wastes. Most of these sites are rubble pits and piles, coal pile runoff containment basins, ash basins and piles, erosion control sites, and experimental sewage/sludge application sites. Table B-1 describes these 74 sites. DOE's Groundwater Protection Plan for the Savannah River Plant (DOE, 1984a) discusses future actions to be taken at several of the 74 sites, including groundwater monitoring and closure actions. TC

In addition to these 74 sites, 17 waste sites have received or could have received hazardous, low-level radioactive, or mixed wastes. These 17 sites are not considered in detail in the sections (2.2 and 4.2) and appendixes (B and F) of this EIS that describe existing waste sites. These sites consist of four hazardous waste storage facilities that have been permitted by the South Carolina Department of Health and Environmental Control (SCDHEC) and meet all applicable Federal and State regulatory requirements; the L-Area seepage basin, which receives periodic low-level radioactive discharges from the TE

*Unless otherwise stated, in this appendix "mixed waste" is a generic term that refers to the waste's characteristics (i.e., having both a hazardous and a low-level radioactive content) rather than its regulatory definition.

Table B-1. Waste Sites Not Containing Hazardous, Low-Level Radioactive, or Mixed Wastes

Waste sites	Number of sites	Description
Rubble and scrap pits and piles (includes former military sites)	25	Contain nonhazardous and nonradioactive materials such as concrete, brick, tile, asphalt, hard plastics, glass, rubber products, scrap metal, burned wood, and nonreturnable drums. Rubble pits no longer receive waste material.
Ash basins and piles	15	Contain ash sluice water or dry ash from powerhouses. Sampling results indicate waste concentrations are not hazardous. Four ash basins and three ash piles no longer receive ash.
Experimental sewage/ sludge application sites	9	Research programs on reclamation of borrow pits and enhancement of forest productivity where sewage sludge is injected below surface of borrow pits and either disked or sprayed on experimental pine plots. Industrial solid waste permit for sites issued by SCDHEC.
Coal-pile runoff containment basins	7	Contain runoff from coal piles. Results of sampling indicate a pH greater than 2.0; waste constituents, including heavy metals, are less than the EP toxicity maximum concentrations.
Erosion control sites	7	Contain nonhazardous and nonradioactive material that includes concrete, asphalt, bricks, roofing material, stumps and spoil. Four sites no longer receive waste material.
Asbestos disposal pits	4	Contain asbestos, metal pipe, plastic bags, scrap, and piping insulation (not regulated as a water contaminant but as an inhalation hazard). Three sites are no longer active. They are permitted by SCDHEC under NESHAP.
Sanitary landfill	1	Contains material such as paper, plastics, rubber, wood, cardboard, and rags. Landfill operated under a domestic waste permit issued by SCDHEC.

Table B-1. Waste Sites Not Containing Hazardous, Low-Level Radioactive, or Mixed Wastes (continued)

Waste sites	Number of sites	Description
Sanitary sludge disposal pit	1	Contains nonhazardous and nonradioactive sanitary sewage sludge.
D-Area waste oil	1	Receives, mixes, and stores waste oil for burning with coal at the D-Area powerhouse. TE
Oil-storage pad	1	Concrete pad with curbing used before February 1979 to store drums of oil and solvents. All material stored on the pad has been removed.
Fire department hose training facility	1	Facility where oil was ignited in a shallow pit surrounded by an asphalt dike. Use of training facility has been discontinued.
Gas-cylinder disposal facility	1	Contains empty gas cylinders, from which all hazardous materials were released. Area covered with asphalt.
TNX storage area	1	Contains drummed, nonhazardous waste stored on pallets that rest on crushed rock.

L-Reactor disassembly basin, and which was discussed extensively in the Final Environmental Impact Statement, L-Reactor Operation, Savannah River Plant (DOE, 1984b); three reactor containment basins in P-, L-, and C-Areas; six active reactor seepage basins and the K-Area containment basin; and two linedretention basins in the F and H Separations Areas that would be used to store and contain radioactive water temporarily in the event of an accident or emergency.

The three 190-million-liter earthen containment basins in P-, L-, and C-Areas would receive radioactive water only if a reactor accident, such as a loss of coolant or a loss of circulation, were to occur and a 225,000-liter underground tank and a 1.9-million-liter tank in each reactor area were unable to contain the contaminated water. With completion of the F- and H-Area effluent treatment facility (see Section 1.2.1), the two lined 15-million-liter retention basins in F- and H-Areas would be used only as an emergency backup to two 9.4-million-liter basins whose purpose is to store potentially contaminated water temporarily before treatment in the effluent treatment facility. The six active reactor seepage basins and the K-Area containment basin receive periodic low-level radioactive discharges from the disassembly basins at C-, TC

K-, and P-Reactors. These active sites are discussed in Sections 2.4 and 4.4 of this EIS, which assess various approaches to the management of disassembly-basin purge water.

TE The remaining 77 active and inactive waste sites on the SRP contain or might contain hazardous, low-level radioactive, or mixed wastes. The identification and numbers of sites are based on the facility numbering system used at the SRP. For example, the F-Area seepage basins are interconnected and received the same waste. These basins were analyzed as a single unit (for modeling, risk assessment, and closure options). However, for consistency with the SRP facility numbering system, they are counted as three "waste sites" in summary tables and text. The actual number of waste systems assessed in this EIS is 47 in contrast to the 77 sites identified below.

These 77 sites include 37 that have received or might have received hazardous wastes. These 37 sites, none of which currently receives waste, include 15 burning rubble pits; 7 chemicals, metals, and pesticides (CMP) pits; 6 acid/caustic basins; 2 waste-oil seepage basins; a basin that has received miscellaneous chemicals; the metals burning pit; the Silverton Road waste site; the metallurgical laboratory basin; a hydrofluoric acid spill area; the Savannah River Laboratory (SRL) oil test site; and the Gunsite 720 rubble pit.

The 77 waste sites also include 19 that have received or might have received low-level radioactive waste. These include 1 active site, the radioactive waste burial ground, which currently receives low-level radioactive waste. There are also 18 inactive sites: 7 basins that have received periodic discharges of disassembly-basin purge water, 7 Bingham pump outage pits, 2 separations area retention basins (unlined), the Ford Building waste site, and the TNX burial ground. None of the 18 sites receives low-level radioactive waste.

In addition to sites that have received or might have received either hazardous or low-level radioactive waste, 21 have received or might have received mixed waste (a combination of hazardous and low-level radioactive waste). These include six active separations area seepage basins. There are also 15 inactive sites: 4 SRL seepage basins, 2 separations area seepage basins, the new TNX seepage basin, the M-Area settling basin, Lost Lake, the old TNX seepage basin, the Road A chemical basin, the L-Area oil and chemical basin, the old radioactive waste burial ground, the Ford Building seepage basin, and the mixed waste management facility. TE

B.1.2 GEOGRAPHIC GROUPINGS OF WASTE SITES

In general, the locations of the 77 waste sites that contain or might contain hazardous, low-level radioactive, or mixed wastes are near the facilities from which they receive or received waste. This results in several clusters, or groupings, of waste sites.

Because actions at a waste site, including groundwater withdrawal, might affect the groundwater transport of waste in other sites, SRP calculated a conservative boundary of influence for each waste site based on the planned actions, extent of data availability, and type of waste (Du Pont, 1984). The intersections and overlappings of the individual site boundaries led to the identification of 10 geographic groupings of waste sites and two miscellaneous areas, each containing a single waste site, where a crossover of actions taken for waste sites in one grouping with actions taken in another grouping would not be expected. Figure B-1 shows these geographic groupings and miscellaneous areas.

Table B-2 lists the 77 waste sites in the geographic groupings and the miscellaneous areas that contain or might contain hazardous, low-level radioactive, and mixed wastes. This table also lists the type of waste that is contained or that might be contained at each site and whether the site currently receives waste material.

B.2 A- AND M-AREA WASTE SITES

The location of this geographic grouping of waste sites is along the northwest edge of the SRP where Road 1 leads to the Administration Area (700-A). Figure B-2 shows the boundaries of this geographic grouping and the locations of the waste sites within it. The boundaries are defined primarily by the areas of influence assigned to the SRL seepage basins, the M-Area settling basin, and Lost Lake. A-Area, the Fuel and Target Fabrication (300-M) Area, and most of Road D are within these boundaries. Surface drainage is primarily to Tims Branch, a tributary of Upper Three Runs Creek.

B.2.1 POTENTIALLY HAZARDOUS WASTE SITES*

B.2.1.1 716-A Motor Shop Seepage Basin (904-101G)

The 716-A motor shop seepage basin is adjacent to Building 716-A in A-Area. The basin is about 63 meters long, 11 meters wide, and 2 meters deep. The sloping berm of adjacent railroad tracks constitutes one side of the basin while the other three are an earthen dike about 2 meters high.

History of Waste Disposal

In 1977, the 716-A motor shop seepage basin began receiving liquid effluent from the 716-A motor shop oil-water separator by means of an underground drain line. Waste types in water included trace amounts of engine oil, kerosene, ethylene glycol, and soapy water. In the basin, the liquid wastes were permitted to seep naturally into the soil. In August 1983, all discharges to the basin ceased.

Evidence of Contamination

Initial sampling of the liquid remaining in the 716-A motor shop seepage basin indicated the presence of low quantities of motor oil, grease, ethylene glycol, and kerosene. The results of extraction procedure (EP) toxicity analyses found all metals were below RCRA guidelines (Huber, Johnson, and Bledsoe, 1987). TC

SRP installed two groundwater monitoring wells near the basin in May 1983. Well sampling began in February 1984. Results of groundwater-quality analyses indicate elevated levels of total organic halogens, which are attributed to M-Area sources. TC

*See discussion of site type on page B-1.

Table B-2. Waste Sites by Geographic Grouping

	Areas/waste sites	Building	Currently receiving waste	Potential category[a]
A- and M-Areas				
1-1[b]	716-A motor shop seepage basin	904-101G	No	Hazardous
1-2	Metals burning pit	731-4A	No	Hazardous
1-3	Silverton Road waste site	731-3A	No	Hazardous
1-4	Metallurgical laboratory basin	904-110G	No	Hazardous
1-5	Miscellaneous chemical basin	731-5A	No	Hazardous
1-6	A-Area burning/rubble pit	731-A	No	Hazardous
1-7	A-Area burning/rubble pit	731-1A	No	Hazardous
1-8	SRL seepage basin	904-53G	No	Mixed
1-9	SRL seepage basin	904-53G	No	Mixed
1-10	SRL seepage basin	904-54G	No	Mixed
1-11	SRL seepage basin	904-55G	No	Mixed
1-12	M-Area settling basin	904-51G	No	Mixed
1-13	Lost Lake	904-112G	No	Mixed
F- and H-Areas				
2-1	F-Area acid/caustic basin	904-74G	No	Hazardous
2-2	H-Area acid/caustic basin	904-75G	No	Hazardous
2-3	F-Area burning/rubble pit	231-F	No	Hazardous
2-4	F-Area burning/rubble pit	231-1F	No	Hazardous
2-5	H-Area retention basin	281-3H	No	Low-level radioactive
2-6	F-Area retention basin	281-3F	No	Low-level radioactive
2-7	Radioactive waste burial ground	643-7G	Yes	Low-level radioactive
2-8	Mixed-waste management facility	643-28G	No	Mixed

Footnotes on last page of table.

Table B-2. Waste Sites by Geographic Grouping (continued)

	Areas/waste sites	Building	Currently receiving waste	Potential category[a]
F- and H-Areas (continued)				
2-9	Radioactive waste burial ground (inactive)	643-G	No	Mixed
2-10	F-Area seepage basin	904-41G	Yes	Mixed
2-11	F-Area seepage basin	904-42G	Yes	Mixed
2-12	F-Area seepage basin	904-43G	Yes	Mixed
2-13	F-Area seepage basin (old)	904-49G	No	Mixed
2-14	H-Area seepage basin	904-44G	Yes	Mixed
2-15	H-Area seepage basin	904-45G	Yes	Mixed
2-16	H-Area seepage basin	904-46G	No	Mixed
2-17	H-Area seepage basin	904-56G	Yes	Mixed
R-Area				
3-1	R-Area burning/rubble pit	131-R	No	Hazardous
3-2	R-Area burning/rubble pit	131-1R	No	Hazardous
3-3	R-Area acid/caustic basin	904-77G	No	Hazardous
3-4	R-Area Bingham Pump outage pit	643-8G	No	Low-level radioactive
3-5	R-Area Bingham Pump outage pit	643-9G	No	Low-level radioactive
3-6	R-Area Bingham Pump outage pit	643-10G	No	Low-level radioactive
3-7	R-Area seepage basin	904-57G	No	Low-level radioactive
3-8	R-Area seepage basin	904-58G	No	Low-level radioactive
3-9	R-Area seepage basin	904-59G	No	Low-level radioactive
3-10	R-Area seepage basin	904-60G	No	Low-level radioactive
3-11	R-Area seepage basin	904-103G	No	Low-level radioactive
3-12	R-Area seepage basin	904-104G	No	Low-level radioactive
C- and CS-Areas				
4-1	CS burning/rubble pit	631-1G	No	Hazardous
4-2	CS burning/rubble pit	631-5G	No	Hazardous
4-3	CS burning/rubble pit	631-6G	No	Hazardous
4-4	C-Area burning/rubble pit	131-C	No	Hazardous

Footnotes on last page of table.

Table B-2. Waste Sites by Geographic Grouping (continued)

	Areas/waste sites	Building	Currently receiving waste	Potential category[a]
C- and CS-Areas (continued)				
4-5	Hydrofluoric acid spill area	631-4G	No	Hazardous
4-6	Ford Building waste site	643-11G	No	Low-level radioactive
4-7	Ford Building seepage basin	904-91G	No	Mixed
TNX-Area				
5-1	D-Area burning/rubble pit	431-D	No	Hazardous
5-2	D-Area burning/rubble pit	431-1D	No	Hazardous
5-3	TNX burying ground	643-5G	No	Low-level radioactive
5-4	TNX seepage basin (old)	904-76G	No	Mixed
5-5	TNX seepage basin (new)	904-102G	Yes	Mixed
D-Area				
6-1	D-Area waste oil basin	631-G	No	Hazardous
Road A Area				
7-1	Road A chemical basin	904-111G	No	Mixed
K-Area				
8-1	K-Area burning/rubble pit	131-K	No	Hazardous
8-2	K-Area acid/caustic basin	904-80G	No	Hazardous
8-3	K-Area Bingham Pump outage pit	643-1G	No	Low-level radioactive
8-4	K-Area seepage basin	904-65G	No	Low-level radioactive
L-Area				
9-1	L-Area burning/rubble pit	131-L	No	Hazardous
9-2	L-Area acid/caustic basin	904-79G	No	Hazardous

Footnotes on last page of table.

Table B-2. Waste Sites by Geographic Grouping (continued)

Areas/waste sites		Building	Currently receiving waste	Potential category[a]
L-Area (continued)				
9-3	CMP pit	080-17G	No	Hazardous
9-4	CMP pit	080-17.1G	No	Hazardous
9-5	CMP pit	080-18G	No	Hazardous
9-6	CMP pit	080-18.1G	No	Hazardous
9-7	CMP pit	080-18.2G	No	Hazardous
9-8	CMP pit	080-18.3G	No	Hazardous
9-9	CMP pit	080-19G	No	Hazardous
9-10	L-Area Bingham Pump outage pit	643-2G	No	Low-level radioactive
9-11	L-Area Bingham Pump outage pit	643-3G	No	Low-level radioactive
9-12	L-Area oil and chemical basin	904-83G	No	Mixed
P-Area				
10-1	P-Area burning/rubble pit	131-P	No	Hazardous
10-2	P-Area acid/caustic basin	904-78G	No	Hazardous
10-3	P-Area Bingham Pump outage pit	643-4G	No	Low-level radioactive
Miscellaneous Areas				
11-1	SRL oil test site	080-16G	No	Hazardous
11-2	Gunsite 720 rubble pit	N80,000; E27,350[c]	No	Hazardous

[a]This EIS uses the terms "hazardous," "low-level radioactive," and "mixed" (i.e., hazardous and low-level radioactive) in their most common sense, without specific regard to technical or regulatory definitions, unless indicated.

[b]The numbering system arbitrarily identifies the geographic group and each site with that group. For example, Site 1-1 represents the first site in geographic group 1.

[c]No building number; located by SRP map coordinate system.

TE The sediment beneath the basin will be sampled and characterized at a future date prior to finalizing any closure plans.

Waste Characterization

Limited data are available on the extent of contamination and the characteristics of the wastes involved at the 716-A motor shop seepage basin. Most of the available raw data have been gathered via groundwater monitoring (Huber, Johnson, and Bledsoe, 1987). TC

B.2.1.2 Metals Burning Pit (731-4A)

The metals burning pit is in A-Area to the northwest of Road C-1 and between M-Area and Road C. The site is approximately 2130 meters south of the M-Area settling basin and 3350 meters from the closest SRP boundary. It has dimensions of approximately 120 meters by 120 meters.

History of Waste Disposal

The history of the metals burning pit is uncertain. The site was originally a disposal pit for lithium-aluminum and other waste metals generated from M-Area operations, which began in 1952. According to 1974 photographs, the waste metals were burned periodically within an area of approximately 3900 square meters. Photographs of the metals burning pit taken in late 1973 and early 1974 show piles of metal shavings, pieces of aluminum metal, plastic pipe, approximately 30 metal drums, and other miscellaneous metal scraps. These wastes were in two discrete areas: a large, long pile approximately 2 to 3 meters high, 10 meters wide, and 30 meters long, and a series of small piles oriented in a semicircular arc. Some of the piles appeared to contain ash from metal burning operations. The area was graded and backfilled with 1 to 2 meters of cover in the spring of 1974. TC

Evidence of Contamination

No characterization studies of the soils under or around the metals burning pit have been performed to date. However, soil sampling is planned. Four groundwater monitoring wells have been installed at the site (Pickett, Muska, and Marine, 1987). TC

Waste Characterization

Limited data are available to verify the existence or define the extent of contamination at the metals burning pit or to characterize the wastes that might be present. Most of the available raw data pertain to the groundwater. The migration potential of the waste deposited in the metals burning pit cannot be determined readily from the available data.

B.2.1.3 Silverton Road Waste Site (731-3A)

The Silverton Road waste site is just south of M-Area and north of Route 125. The nearest SRP boundary is about 1.6 kilometers northwest of the site. The site covers a total area of approximately 13,150 square meters, with dimensions of about 62 meters by 212 meters.

History of Waste Disposal

The site startup date is unknown; no records of waste disposal activities have been kept. Visual inspection and photographic documentation indicate that metal shavings, construction debris, tires, drums, tanks, and asbestos were major components of the waste. The site was closed in 1974 and is now covered with soil and vegetation.

Evidence of Contamination

Groundwater at the Silverton Road waste site has been monitored since 1981. Nine single groundwater monitoring wells and seven 3-well clusters are located near the site. To date, the contaminants identified in the groundwater are trichloroethylene, tetrachloroethylene, trichloromethane, and 1,1,1-trichloroethane. Most of the constituents found in the groundwater near the site were below Federal drinking-water standards. Infrequently, concentrations of barium, cadmium, chromium, and lead were found to exceed the standards. However, because such concentrations were observed infrequently, the data were considered to be nonrepresentative and possibly erroneous (Scott, Killian, Kolb, Corbo, and Bledsoe, 1987).

Waste Characterization

Limited data are available on the extent of contamination and characteristics of the wastes at the Silverton Road site. Most of the available raw data pertain to the groundwater (Scott, Killian, Kolb, Corbo, and Bledsoe, 1987).

Historic data from monitoring wells indicate the presence in the groundwater of chlorinated aliphatic hydrocarbons (trichloroethylene, 1,1,1-trichloroethane, trichloromethane, and tetrachloroethylene), which have a potential for transport by advection as solutes.

B.2.1.4 Metallurgical Laboratory Basin (904-110G)

The metallurgical laboratory basin is in A-Area adjacent to Building 745-A. The basin is approximately 31 meters long, 12 meters wide, and 1.5 meters deep.

History of Waste Disposal

The metallurgical laboratory basin received wastewater effluent from Building 723-A from 1956 to 1985. Discharges to the basin consisted of small quantities of laboratory wastes from metallographic sample preparation (degreasing, cleaning, etching) and corrosion testing of stainless steels and nickel-based alloys. The wastewater flowed to the basin via an underground process sewer pipeline. The discharge rate to the basin was 3.8 cubic meters per day. Historically, the typical wastes released to the basin were water and nitric acid. From 1983 on, hazardous substances and materials were bottled and stored. Before 1983, hazardous materials were sent to the basin only in trace amounts. Table B-3 lists the estimated composition of releases to the basin during its operational history (Michael, Johnson, and Bledsoe, 1987).

Evidence of Contamination

A characterization study of the sediments in and around the metallurgical laboratory basin has been completed, as has an analysis of the basin water and groundwater. Soil analyses indicate that all tested parameters are below EP toxicity guidelines. Analysis of water samples collected from the basin indicate that drinking standards are met for all parameters except pH and iron.

Table B-3. Estimated Composition of Wastes Released to Building 723-A Metallurgical Laboratory Basin (1956-1985)[a]

TE

Chemical	Total release over 30 years	Present release
Acetone	20 liters	Not released after 3/83
1,1,1-trichloroethane	150 liters (past 3-5 years)	Not released after 3/83
Trichloroethylene	6 liters	Not released after 1978
Carbon tetrachloride (tetrachloromethane)	500 liters	Not released after 1978
Hydrofluoric acid[b]	2 liters	Not released after 3/83
Nitraad[b] (as purchased, is composed of HF, acetic acid, and fluoride salts)	140 liters	Not released after 3/83
Potassium cyanide or sodium cyanide	1 liter	Not released after 1976
Cyanide (plating solution)[c]	4 liters	Not released after 1976
Hydrochloric acid	190 liters	45 liters/year
Nitric acid (65%)	39,800 liters	1,300 liters/year
Molybdic acid	10 grams	1 gram (rarely used)
Oxalic acid	23 liters	10 liters/year
Phosphoric acid	53 liters	1.6 liters/year
Picric acid	100 grams	0.4 liter/year
Sulfuric acid	15 liters	4 liters/year
Sodium hydroxide	3 liters	2 liters/year
Potassium hydroxide	30 liters	8 liters/year
Trisodium phosphate	60 liters	8 liters/year

Footnotes on last page of table.

TE Table B-3. Estimated Composition of Wastes Released to Building 723-A Metallurgical Laboratory Basin (1956-1985)[a] (continued)

Chemical	Total release over 30 years	Present release
Sodium sulfite	270,000 grams	11,000 grams/year
Sodium carbonate/bicarbonate	45 liters	8 liters/year
Ammonium persulfate	1 liter	0.5 liter/year
Ethyl alcohol	1,300 liters	420 liters/year
Kerosene	114 liters	Not released after 2/85
Methyl methacrylate (Koldweld resin)	150 liters	6 liters/year
Ferric chloride	1,900 liters	0.4 liter/year
Water (cooling water from corrosion test, rinse water from photo process, lab rinsewater)	3,800 liters/day	3,800 liters/day

TC [a]Source: Michael, Johnson, and Bledsoe, 1987.
[b]Currently bottled and stored.
[c]Solution reused until all metal is depleted.

Waste Characterization

Data are available for the chemical analyses performed on the basin water, TC groundwater, and sediments from the metallurgical laboratory basin. Lead and volatile organic compounds were assessed at this site.

TC The potential for the migration of contaminants deposited in the metallurgical laboratory basin cannot be determined readily from the available data.

B.2.1.5 Miscellaneous Chemical Basin (731-5A)

The miscellaneous chemical basin site is located to the northeast of Road C-1 and between the A/M-Area and Road C. The site is approximately 2 kilometers south of the M-Area settling basin and 3 kilometers from the closest SRP boundary. The chemical basin is approximately 6 meters wide, 6 meters long, and 0.3 meter deep.

History of Waste Disposal

The origin and history of this site are not certain. This small, shallow basin was located in an old "borrow pit." The basin received liquid chemical wastes, presumably waste solvents and used oil. A 1974 photograph of the site shows a small, discolored (possibly from the disposal of waste oil) sandy area inside a shallow berm. Partially full drums might have been emptied at this site and the empty drums discarded in the metals burning pit. The basin was posted with a sign that read "Chemical Waste Disposal - Keep Out." The site has been regraded, although the exact date is not recorded (probably 1974).

Evidence of Contamination

There are no groundwater wells currently in place. An analysis of surface soils at the miscellaneous chemical basin in January 1986 detected several chlorinated hydrocarbons (Pickett, Muska, and Marine, 1987). TC

Waste Characterization

A program of soil gas sampling undertaken in January 1986 indicated the presence of volatile organic compounds (VOCs), some of which might have originated in M-Area and been disposed of at this site. Modeling assessed trichloroethylene at this site. TC

B.2.1.6 A-Area Burning/Rubble Pits (731-A and 731-1A)

The A-Area burning/rubble pits are at the northwest corner of the Plant, south of M-Area and west of Road D. The pits (731-A) are approximately 100 meters long, 55 meters wide, and 3 meters deep. Pit 731-1A measures 174 meters long, 10 meters wide, and 3 meters deep.

History of Waste Disposal

The A-Area burning/rubble pits are two of the many burning pits utilized on the Savannah River Plant. They consisted of shallow excavations, usually 3 to 4 meters deep, where burnable waste was disposed of on a continuous basis beginning in 1951. Waste types reportedly included paper, plastics, wood, rubber, rags, cardboard, oil, degreasers, and drummed solvents. The waste was burned periodically, usually monthly. Disposal of chemically contaminated oils was not permitted.

The burning of waste in the pits was discontinued in October 1973. At that time, a layer of soil was placed over the remaining waste and the pits were opened to receive rubble. Rubble disposed of at this site reportedly includes paper, lumber, cans, and empty galvanized-steel barrels and drums. As each pit reached its capacity, it was closed and covered with soil to grade level.

Evidence of Contamination

No sampling and analysis of the soil underlying these pits have been performed. However, groundwater monitoring wells were installed at all of the burning/rubble pits in 1983 and 1984. No groundwater contamination has been observed to date (Huber, Johnson, and Marine, 1987). TC

Waste Characterization

Limited data are available for these sites. Most of the available raw data have been gathered via groundwater monitoring. No groundwater contamination has been observed to date (Huber, Johnson, and Marine, 1987). TC

B.2.2 MIXED WASTE SITES*

B.2.2.1 SRL Seepage Basin 1 (904-53G)

Seepage basin 1 is one of a group of four basins south of Road A-1 and west of Road D-1 in the northwestern section of the SRP, about 1 kilometer from the nearest boundary. The four basins are connected sequentially in cascade via overflow channels. The final basin has no overflow; consequently, fluid losses from the SRL waste sites are from seepage through the bottom of the basins or from evaporation (Fowler et al., 1987).

History of Waste Disposal

Basins 1 (904-53G), 2 (904-53G), and 3 (904-54G) were excavated from natural soils and surrounded by perimeter dikes. By contrast, the construction of basin 4 (904-55G) required substantial filling at the north end (adjacent to Tims Branch) to achieve both the basin bottom and the dike crest elevations.

The capacity of basin 1 is 1520 cubic meters; basin 2, 3200 cubic meters; basin 3, 5440 cubic meters; and basin 4, 14,700 cubic meters. Basins 1 and 2 were placed in operation in 1954, and basins 3 and 4 were added in 1958 and 1960, respectively. The basins were in operation until October 1982. The depth of water remaining varies from dry (basin 4) to 1.2 meters (basin 2).

Evidence of Contamination

Most of the radionuclides and inorganics are strongly sorbed to basin sediments. Their concentrations are elevated in the first 30 centimeters and decline to "background" levels at about 62 centimeters. The constituents include americium-241, cesium-137, cobalt-60, curium-243 and 244, plutonium-239 and 240, radium-228, strontium-90, uranium-235 and 238, cerium-144, ruthenium-106, arsenic, barium, cadmium, chromium, copper, lead, magnesium, manganese, nickel, silver, zinc, mercury, cyanide, fluoride, and sulfate. Analysis of core samples for volatile, base/neutral, and acidic organic compounds indicates very little contamination. Most elements were detected at levels below 1 microgram per gram of soil (Fowler et al., 1987).

Twelve monitoring wells have been installed around the basins. Six water-table monitoring wells were drilled in 1981 immediately adjacent to the basins. Three water-table wells and three deep wells were installed as part of a basin characterization program in 1983.

Data from the nine groundwater monitoring wells indicate the following:

- Inorganic contaminants are generally below maximum contaminant levels (MCLs).

- Trichloroethylene and tetrachloroethylene are significant organic contaminants. The pattern of contaminated wells indicates that these constituents are from sources other than the basins.

*See page B-1 for a discussion of waste site categories.

Waste Characterization

During the A-Area basins' 28-year loading history, 128,820 cubic meters of water were discharged to them. Alpha and beta-gamma activity in the total discharge did not exceed 100 and 50 disintegrations per minute per milliliter, respectively. The average of alpha and beta-gamma activity was 50 disintegrations per minute per milliliter. Fissile content of the waste transferred to the basins in 1982 averaged 0.4 millicurie per month. The levels of uranium and plutonium in the analyses were as follows: uranium-238, 90 percent; plutonium-238, 5 percent; and plutonium-239, 5 percent.

Table B-4 compares the MCL observed in the SRL seepage basins with the U.S. Nuclear Regulatory Commission (NRC) Class A limits. The sediments are well below the limits for land disposal.

Table B-4. Measured Soil Contamination Versus NRC 10 CFR 61 Land-Disposal Limits for SRL Seepage Basins (pCi/g)

Nuclide	Maximum basin-soil measurement	NRC Class A limit
Tritium	7×10^4	3×10^7
Cobalt-60	9×10^1	5×10^8
Strontium-90	2×10^3	3×10^4
Cesium-137	2×10^3	3×10^4
Plutonium-239	2×10^2	1×10^5
Americium-241	3×10^1	1×10^5
Curium-243	4×10^2	1×10^5

The RCRA EP toxicity test establishes the guidelines for classifying a waste as hazardous or nonhazardous. Test results indicate that concentrations in the SRL seepage-basin sediments of constituents classified as hazardous by the U.S. Environmental Protection Agency (EPA) are generally low (less than 1 microgram per gram); in most cases these compounds are undetectable or are present at "laboratory-blank" levels that follow no clear source/transport pattern. The test also indicates that the sediments in the basins do not contain toxic levels of metals. No samples exceed the EPA maximum concentrations, and only mercury in basin 1 exceeds 10 percent of the EPA maximum concentration (40 CFR 261.24). The sediments in the SRL seepage basins contain very low levels of hazardous constituents. Therefore, no contamination is present in the sediments other than low-level radioactivity. Organic constituents in the groundwater do not exceed primary drinking-water standards (40 CFR 141). TE

TE B.2.2.2 SRL Seepage Basins 2 (904-53G), 3 (904-54G), and 4 (904-55G)

The general history of all SRL seepage basins is discussed in Section B.2.2.1.

History of Waste Disposal

Basins 2, 3, and 4 are part of the four-basin system discussed in Section B.2.2.1.

Evidence of Contamination

TC In August 1972, basin 4 temporarily went dry. Four 30-centimeter-deep core samples were obtained and divided into segments for gamma spectroscopy (Stone and Christensen, 1983). The levels of strontium-89 and 90 in the cores were determined. The top sediment sample contained from 80 to 90 percent of each of the radionuclides except strontium. The other radionuclides showed decreases in activity with increasing depth. The calculated inventories were as follows: cesium-137, about 0.46 curie; ruthenium-106, 0.41 curie; cerium-141 and 144, 0.05 curie; cobalt-60, 0.04 curie; and strontium-89 and -90, 0.01 curie.

Basin 4 refilled during 1973, went dry again in 1974, and has remained dry since 1974. Four sediment samples were collected and analyzed in 1974. Table B-5 lists the results of analyses of these cores. The highest measured
TC activity was near the surface, and the values decreased with depth.

Waste Characterization

Waste characteristics for all four basins are discussed in Section B.2.2.1
TC (Fowler et al., 1987).

TE B.2.2.3 M-Area Settling Basin (904-51G)

TC Figure B-2 shows the location of the M-Area settling basin. Water flows from the M-Area manufacturing facility entered the settling basin via a process-sewer line. A ditch conveyed overflows from the settling basin through a natural seepage area; the discharges eventually entered Lost Lake.
TC Lost Lake has no outlet (Pickett, Colven, and Bledsoe, 1987). The following sections discuss the history of waste disposal, evidence of contamination, and
TC waste characteristics at the settling basin (Pickett, Colven, and Bledsoe, 1987; Hollod et al., 1982).

History of Waste Disposal

When production started in M-Area in 1954, process waters were released to Tims Branch, a tributary of Upper Three Runs Creek. In an effort to restrict the offsite transport of enriched uranium, the settling basin was constructed in 1958 to settle out and contain the uranium (Christensen and Gordon, 1983). Process sewers continued to direct some M-Area waste flows to Tims Branch. In the fall of 1978, eleven 208-liter drums containing tetrachloroethylene were dumped into the settling basin, but the exact location of the dumping is not known. In addition, from the fall of 1978 to the spring of 1979, drums of tetrachlorethylene were dumped into the sewer line leading to the settling basin to dispose of remaining solvent after the transition to a new cleaning solvent (1,1,1-trichloroethane).

Table B-5. Radioactivity of Sediment in SRL Seepage Basin 4 (nCi/g)

TE

Radionuclide	Sediment depth (cm)	Sample site[a] 1	2	3	4
Cesium-137	0-6.4	0.714	0.044	1.100	0.215
	6.4-12.7	0.042	0.002	0.207	0.034
	12.7-19.1	0.007	0.001	0.036	0.002
	19.1-24.1	0.003	0.001	0.004	-
	24.1-30.5	0.002	-	0.001	-
Cesium-134	0-6.4	0.037	0.003	0.092	0.016
	6.4-12.7	0.003	0.001	0.009	0.001
	12.7-19.1	0.001	0.001	0.001	0.001
	19.1-24.1	0.001	0.001	0.001	0.001
	24.1-30.5	0.001	0.001	0.001	0.001
Ruthenium-106	0-6.4	Trace	Trace	Trace	Trace
Cobalt-60	0-6.4	0.050	0.007	0.078	0.020
	6.4-12.7	0.002	0.001	0.008	0.001
	12.7-19.1	0.001	0.001	0.004	0.001
	19.1-24.1	0.001	0.001	0.001	-
	24.1-30.5	0.001	-	0.001	-
Alpha	0-6.4	0.150	0.140	0.230	0.020
	6.4-12.7	0.020	0.002	0.019	0.006
	12.7-19.1	0.009	0.002	0.007	0.002
	19.1-24.1	0.003	0.002	0.006	-
	24.1-30.5	0.002	0.002	0.001	-

[a]Samples taken in 1974 at four locations in basin 4, with the northwest corner designated as 1 and the others numbered counterclockwise from inlet.

In May 1982, all discharges to Tims Branch were diverted to the settling basin. Most noncontact process effluents, such as cooling water and surface drainage, were diverted back to Tims Branch in November 1982. In late 1983, significant flow-rate reductions were implemented in the 300-M Area processes. All discharges to the settling basin stopped on July 16, 1985. The current water level in the settling basin fluctuates with rainfall events but, in general, has receded approximately 0.5 meter from the normal operating level.

Evidence of Contamination

A 1982 study of soils beneath the settling basin indicates that the top of the soil column has higher than background concentrations of such metals as zinc, lead, mercury, copper, and uranium (Hollod et al., 1982). Nickel concentrations decline to background level at about 0.3 meter. The average concentrations of metals observed in a 1985 study (Pickett, 1985) are similar, in most cases, to the results reported in the 1982 study. Uranium was detected at four locations sampled in 1985. The 1985 study also included soils next to the settling basin, which yielded no evidence of metals contamination.

The 1982 study found the concentration of each of three chlorinated hydrocarbons (trichloroethylene, tetrachloroethylene, and 1,1,1-trichloroethane) in the underlying basin soil to be quite variable, both vertically and horizontally. Unlike the data on metal contaminants, the analyses for hydrocarbons in 1985 differ from those of 1982 (Pickett, 1985).

These results indicate that the more mobile hydrocarbons in the soil beneath the settling basin have migrated toward the water table, while the less mobile metals have remained fairly stationary. These results indicate that the basin and its sediments are no longer a source of organic contamination.

Analyses of samples indicate that the settling basin and process-sewer line are the major sources of organic or inorganic contamination of groundwater in M-Area. The data also indicate that the seepage and Lost Lake areas are also sources of organic or inorganic contamination, but to a lesser degree. Judging from their elevated levels in settling basin influents and the consistency of their background and downgradient concentrations, the following are probable contaminants: nitrate, sodium, total dissolved solids, and organics.

Degreaser solvents have entered the groundwater in the Tertiary sediments in M-Area from several known surface sources. The settling basin was one of three primary surface sources. The maximum concentration of such solvents occurs at the water table under the settling basin. At a greater depth (about 23 meters below the water table), the maximum concentration is only 61 parts per million but the plume occupies a larger area than it does at the water table. Near the base of the Tertiary sediments (37 meters below the water table), both the maximum concentration and the area of the plume are much smaller, being restricted to the general area beneath the surface sources. Plumes of elevated concentrations of total dissolved solids and nitrate also occur in the vicinity of the settling basin and the M-Area process area.

Waste Characterization

The waste effluents discharged to the basin during M-Area operation generally can be characterized as electroplating rinse water from aluminum forming and metal finishing processes. The waste effluents contained hydroxide precipitates of aluminum, uranium, nickel, and lead, as well as nitrates and organic solvents. Depending on the operating schedule, they might also have contained acids (nitric, phosphoric, sulfuric) or caustics (sodium hydroxide).

Estimates of total uranium discharge to the settling basin were not available until after 1975, when flow instruments were installed. From 1974 through 1983, a total of 975 millicuries (approximately 2940 kilograms) of uranium-235 and uranium-238 were released to the basin. A total of approximately 1.6×10^6 kilograms of volatile organic solvents was discharged to M-Area process sewers, with about 0.9×10^6 kilograms of the total being released to the settling basin. The remainder was discharged to Tims Branch.

The results of 1985 analyses confirm that dissolved-metal and nutrient concentrations are usually higher in the lower 3 meters of liquid in the basin. A sludge layer also exists at the bottom of the basin. The thickness of the sludge ranges from 0.15 to 0.9 meter. The sludge is composed primarily of metal hydroxide and phosphate precipitates, as well as biogenic organic sediments. It also contains the major inventories of iron (1280 kilograms), nickel (3585 kilograms), chromium (240 kilograms), and uranium (3900 kilograms) in the basin.

A number of organic compounds are also present in significant amounts in the sludge, but they were not detected at any other sampling location. The total inventory of chlorinated hydrocarbons in the sludge is approximately 1 kilogram; the inventory is approximately 20 kilograms in the basin liquid.

A closure plan for the M-Area seepage basin was submitted in September 1984. Revisions to the plan were submitted in March and July 1985, and public hearings were held in July 1986. A revised Part B plan was submitted in April 1987. A postclosure care permit application for this basin was submitted with the SRP Part B permit application. Interim status is in effect until final administrative disposition of the Part B permit application. TE

B.2.2.4 Lost Lake (904-112G) TE

Lost Lake, which is located in M-Area (Figure B-2), is a natural Carolina bay of about 10 to 25 acres, depending on water level. Wastewater overflowed from the M-Area settling basin and entered Lost Lake from the north via an overflow ditch and natural seepage area. The ditch is presently dry. The following sections discuss the history of waste disposal, evidence of contamination, and waste characteristics at Lost Lake (Pickett, Colven, and Bledsoe, 1987). TC

History of Waste Disposal

Before construction of the settling basin, Lost Lake was dry except during periods of heavy precipitation. Water has accumulated in the Lake since the diversion of process effluents from Building 313-M to the basin in 1960. The water levels varied widely as a result of process discharges and rainfall. Lost Lake has no outlet; therefore, all wastewater that entered the area either seeped into the ground or evaporated. Section B.2.2.5 presents a more detailed discussion of previous waste disposal practices.

Discharges of waste effluents to the settling basin were discontinued on July 16, 1985. Lost Lake is expected to alternate between dry and wet, depending on precipitation.

Evidence of Contamination

The 1985 analytical results indicate that higher metal concentrations in the soils beneath Lost Lake generally correlate with the average depth of the water. Consequently, the area of the lake that has an elevation less than 102 meters, which is almost always wet, shows the highest levels of inorganic contamination. Concentrations of lead, barium, copper, nickel, manganese, and zinc exceed the M-Area background levels at both the 0.0- to 0.15-meter and the 0.15- to 0.45-meter depths. Concentrations of these metals at the 0.15- to 0.45-meter level are less than the SRP and Southeastern United States background concentrations. Magnesium concentrations are above all reference background levels at the 0.15- to 0.45-meter level. Uranium concentrations within the 102-meter contour are below the detection limit of 10 parts per TC billion (Pickett, Colven, and Bledsoe, 1987).

The levels of bis(2-ethylhexyl) phthalate and di-N-butyl phthalate are above detection limits in the soils beneath Lost Lake. Of the three chlorinated hydrocarbons (trichloroethylene, tetrachloroethylene, and 1,1,1-trichloroethane), only one, tetrachloroethylene, was detected in any Lost Lake soil sample.

Analyses of groundwater samples indicate that Lost Lake is not as great a source of organic or inorganic contaminants as the settling basin.

Waste Characterization

The characteristics of the wastewater discharged to Lost Lake from the settling basin overflow or effluent are similar to those described for the M-Area settling basin in Section B.2.2.5. Sampling results indicate that the contaminant levels in the settling-basin effluent are generally lower than those in its influent. Nitrate concentrations, conductivity, total dissolved solids, and concentrations of most metals (nickel, lead, copper, chromium, magnesium, iron, zinc, and manganese) are lower in the effluent.

B.2.3 MAJOR GEOHYDROLOGIC CHARACTERISTICS

The hydrostratigraphy of the A/M-Area is similar to the generalized hydrostratigraphy discussed in Appendix A with the following exceptions: (1) the "tan clay" is only about 0.9 meter thick and lies in the unsaturated zone; (2) the "calcareous zone" is not present; (3) the "green clay" is discontinuous; (4) the Congaree Formation has fewer separated lenses of clay and lenses of sand; and (5) the Ellenton Formation is mostly a gray, clayey sand or sandy clay that contains plentiful mica and deposits of marcasite or gypsum (Michael, TC Johnson, and Bledsoe, 1987; Scott, Killian, Kolb, Corbo, and Bledsoe, 1987). As a result of these different geologic features, the subsurface hydrologic characteristics also differ from those described in Appendix A. Because the green clay is less continuous, it does not impede downward water flow as much as in the central part of the Plant. Head changes are more gradual because extensive layers of clay are absent from the Tertiary sediments (Barnwell, McBean, and Congaree Formations). In addition, the potentiometric head of the Tertiary sediments is greater than that of the Middendorf/Black Creek (Tuscaloosa) Formation in the A/M-Area. Therefore, heads decline continuously with depth (Figure B-3), and there is no head reversal at the Congaree-Ellenton boundary as there is in the central part of the Plant. Recent evidence suggests that the head reversals between the Congaree and TC "Tuscaloosa" in certain parts of the Plant may not currently exist (Bledsoe, 1987). This indicates that the A- and M-Area geographic grouping is located above a potential recharge zone of the Middendorf/Black Creek Formation (Pickett, Colven, and Bledsoe, 1987).

The water table in the area is mainly within the McBean Formation, although locally it might be within the Barnwell. Natural discharge from the water table is to Tims Branch, the swamps along the Savannah River, and Hollow Creek northwest of the Plant. Figure B-4 is a water-table map for the A/M-Area, based on measurements obtained in July 1984. The water-table gradients in the area range from about 0.002 to 0.008 meter per meter, with the steeper gradients in the direction of Tims Branch. Results from a 30-day pump test in the A/M-Area indicate a transmissivity of 5.3 square meters per day and a storage coefficient of 0.20 for the Tertiary sediments. The test well was screened from a depth of 39.6 to 58 meters below the land surface. The researchers calculated an average hydraulic conductivity of 1.6 meters per day for the Tertiary sediments and a flow velocity ranging from about 5.8 to 22.8 meters per year for gradients of 0.002 to 0.008 meter per meter (Pickett, Colven, and Bledsoe, 1987). TC

Laboratory permeability tests were performed on undisturbed samples from the clayey units of the Ellenton and upper Middendorf/Black Creek Formations (Marine and Bledsoe, 1985). The results of these tests indicate a vertical hydraulic conductivity ranging from 4.0×10^{-7} to 5.2×10^{-9} centimeter per second and a horizontal hydraulic conductivity ranging from 5.7×10^{-7} to 1.1×10^{-8} centimeter per second. The effective porosities determined for these samples range from 0.024 to 0.137 (dimensionless). These compare to average effective porosities of 0.20 and 0.30 generally used for the Tertiary sediments and the Middendorf/Black Creek, respectively. Researchers calculated an average vertical flow velocity of 0.4 meter per year across the Ellenton Formation using a hydraulic conductivity of 1×10^{-7} centimeter per second, an effective porosity of 0.07, a hydraulic head difference of 7.3 meters, and an average clay thickness of 12.2 meters (Michael, Johnson, and Bledsoe, 1987). TC

B.2.4 ONGOING AND PLANNED MONITORING

Groundwater monitoring is proceeding at the 13 waste management facilities in the A- and M-Area geographic grouping. Well-water samples are analyzed quarterly for RCRA and South Carolina Hazardous Waste Management Regulations (SCHWMR) parameters at hazardous and mixed waste management facilities. Typically, wells are monitored for gross alpha, gross nonvolatile beta, and tritium at low-level waste-management facilities. At least 55 wells in this geographic area are used to monitor groundwater in the vicinity of the 13 facilities. Additional wells would obtain better definitions of subsurface conditions and any potential contamination.

Waste site characterization programs have been completed at 10 of the waste management facilities and are being implemented at three others. Characterization generally includes representative sampling of the waste, sampling of the soil and sediment under the waste site, and sampling of the soil and sediment around any existing overflow ditches and process sewers.

Table B-6 lists the representative monitoring wells at each waste management facility; the site investigations that have occurred; and the results of groundwater, soil, and vegetation monitoring. TE

B.3 F- AND H-AREA WASTE SITES

This geographic grouping of waste sites is about 10 kilometers southeast of A-Area. It consists of waste sites associated with the Separations (200-F and -H) Areas and the Radioactive Waste Burial Grounds, which are just north of Road E. Figure B-5 shows the locations of the waste sites within this TC grouping. The boundaries are defined primarily by the areas of influence assigned to the F- and H-Area seepage basins, the radioactive waste burial grounds, and the mixed waste management facility. Surface drainage is to Upper Three Runs Creek on the north and to Four Mile Creek on the south.

B.3.1 POTENTIALLY HAZARDOUS WASTE SITES*

B.3.1.1 F-Area Acid/Caustic Basin (904-74G)

The F-Area acid/caustic basin is one of six basins on the SRP. These basins are unlined earthen depressions nominally 15 meters long, 15 meters wide, and 2 meters deep.

History of Waste Disposal

The acid/caustic basins were built from 1952 to 1955 to provide for mixing and neutralization of dilute sulfuric acid and sodium hydroxide solutions from water treatment facilities before their discharge to local streams.

Dilute sulfuric acid and sodium hydroxide solutions were used to regenerate ion-exchange units in water purification processes, and the spent dilute solutions were discharged to the acid/caustic basins through acid-resistant sewers. Other wastes included water rinses of the ion-exchange units (both before and after regeneration), steam condensate from the heater in the sodium hydroxide storage tanks, and rain that collected in the storage tank spill containment enclosures. The F-Area Basin remained in service until in-process neutralization facilities became operational in 1982. All of the acid/caustic basins, including that of F-Area, are now inactive.

Evidence of Contamination

Work to identify the environmental impacts of the basins is in progress. A program to sample the contents and the soils beneath the basins is under way. Review of existing data from the monitoring wells installed around the basins shows no significant impacts on groundwater quality (Ward, Johnson, and Marine, 1987). TC

Waste Characterization

Limited data are available on the extent of contamination and characteristics of the wastes involved at this site. Data have been gathered via groundwater monitoring and soil sampling. Data collected to date reveal no indication of contamination.

Analytical results of the characterization program indicate elevated levels of chromium, mercury, lead, phosphate, copper, sodium, sulfate, barium, and selenium in the sediment sampled from one or more of the basins. Results of EP toxicity tests performed on the basin sediment samples from each of the basins indicate that all concentrations of each of the metals analyzed are below 1 percent of the maximum concentrations provided by the EPA (40 CFR 261.24).

---

*See discussion of site type on page B-1.