Coal Pile Runoff Containment Basin covers an area of approximately 9,000 m² and is approximately 2 m deep, with capacity of 9,800 m³.

**Site Conditions/Monitoring** - The P-Area CPRB is located at an elevation of approximately 98 m (32 ft). Surface drainage is to the southeast toward a swamp at the headwaters of Meyers Branch.

Four groundwater monitoring wells were installed in 1980. Because the wells were originally cased with steel, four replacement monitoring wells with PVC casings were installed in late 1983 and 1984. Groundwater flow is believed to be to the south. However, water-table elevations from the monitoring wells do not show a clear gradient in any one direction. It is likely that there is mounding of the water table beneath the basin. The depth to the water table is approximately 6 to 9 m.

Groundwater monitoring well PCB-3A at the P-Area Coal Pile Runoff Basin had a single occurrence of an elevated level (Primary DWS) of gross alpha in 1985. The same groundwater monitoring well had an elevated level of total Radium in 1985, and preliminary review of recent data suggest a recurrence. Preliminary review of recent data indicates tritium values in excess of Primary DWS in groundwater monitoring well PCB-4A.

Groundwater at this site also contains elevated TDS levels, well above drinking water standards in some wells. Some trace metals (cadmium chromium, copper, iron, manganese, nickel, and selenium) are present at elevated levels in the groundwater. Elements present in concentrations above the drinking water standards are copper, nickel, selenium, and sulfate. Surface water samples from the basin suggest elevated levels of chromium and cadmium.
C-Area Coal Pile Runoff Basin

Location - The C-Area Coal Pile Runoff Basin (Building No. 189-C) is located south of Building No. 100-C. The nearest plant boundary is approximately 9 km to the west. The basin is 1,500 m$^2$ and 2.3 m deep, with a capacity of 3,200 m$^3$.

Site Conditioning/Monitoring - The C-Area CPRB is an elevation of approximately 85 m (280 ft). Surface drainage is to the southeast toward a small tributary of Four Mile Creek.

Four groundwater monitoring wells with PVC casings were installed in 1981. Groundwater flow is southwest toward Four Mile Creek. Data from 1986 indicate that the depth to the water table is 17 m.

Groundwater data at this site show no evidence of a contaminant plume. TDS levels at all wells range from 18 to 28 mg/L, which is typical of uncontaminated groundwater in this area. Levels of metals are all well below the drinking water standards.

F-Area Coal Pile Runoff Basin

Location - The F-Area Coal Pile Runoff Basin (Building No. 289-F) is located east of Building 200-F and north of the railroad track into the area. The nearest Plant boundary is approximately 10 km to the west. The basin is 4,500 m$^2$, and the depth of the basin is 2.4 m, with a capacity of 9,700 m$^3$. 
Site Conditions/Monitoring - The F-Area CPRB is located at an elevation of approximately 98 m (320 ft). Surface drainage is to the south toward an unnamed tributary of Four Mile Creek.

Four monitoring wells with PVC casings were installed at the site in 1981. Regional groundwater data suggest that flow is to the south-southwest. The data from 1986 indicate that the depth to the water table is approximately 24 m. Groundwater data indicate that the unit has had relatively little influence on groundwater quality. In the first quarter of 1987 some groundwater wells had slightly elevated TDS levels, but levels were still far below drinking water standards. No trace metals were elevated. Groundwater monitoring data at the F-Area Coal Pile Runoff Basin show total radium levels in excess of Primary DWS. Past data show gross alpha levels above Primary DWS. However, preliminary evaluation of recent data indicate these levels are declining.

Regulatory Status

The seven coal pile runoff basins are currently being investigated under the RCRA 3004(u) (RFI) Program. SRS anticipates submittal of a RFI Work Plan to the EPA by September 1990.

References


4.16 D-Area Ash Basin (488-D)

The D-Area Ash Basin (Building No. 488-D) receives ash sluice water and reject coal from the powerhouse in D area. This basin has been in service since plant startup in 1951.

**Location**

The D-Area Ash Basin is located southwest of the D-Area perimeter fence across the road from the D-Area Coal Pile Runoff Containment Basin. The nearest plant boundary is approximately 1.5 km to the west. The basin covers an area of approximately 140,000 to 160,000 m². The basin depth is approximately 3.7 m. The basin received approximately 38,000 m³ of ash sluice water per year from 1951 until 1983. This unit is presently being used for disposal of reject coal.

**Site Conditions and Monitoring**

The basin is located on a west-trending slope at an elevation of approximately 39 m (128 ft). Surface drainage is to the southwest toward a small tributary that flows into the Savannah River swamp, which occurs at an elevation of 27 m in this area.
The SREL has recently installed seven monitoring wells in the vicinity of the D-Area Ash Basins and the D-Area Coal Pile Runoff Containment Basin. Two of these wells are located very close to the ash basin. No water-level data are yet available from these two groundwater monitoring wells. Groundwater hydrology can be extrapolated from that known at the D-Area Coal Pile Runoff Basin (CPRB). Data from 1986 for the D-Area CPRB indicate that flow is probably to the west-southwest, and depth to the water table is probably less than 2 m. The area represents a site of groundwater discharge, with a vertical gradient upward. Hence, there is little likelihood for downward migration of containments below the water-table aquifer.

Sludge from the D-Area Ash Basin was analyzed in 1978 for EP toxicity tests. Extractable metal concentrations in the sludge were less than RCRA criteria (40 CFR 261.24).

Regulatory Status

The D-Area Ash Basin is currently being investigated under the RCRA 3004(u) (RFI) Program. SRS anticipates submittal of a RFI Work Plan to the EPA by May 1991.

References


5. Seepage Basin Facilities Regulated Under CERCLA (Only)

5.1 P-Area Seepage Basins (904-61G,-62G,-63G)

Location

The P-Area Seepage Basins (Building Nos. 904-61G, -62G, and -63G) are located approximately 600 m south of SRS Road F, approximately 4 km west of the intersection of SRS Roads F and 8. The nearest plant boundary is approximately 13 km south of the basins. Steel Creek is the nearest surface water, located approximately 1,000 m southwest of the units. The location of these units is shown in Appendix A.

Background

The P-Area Seepage Basins are excavated earthen basins. The dimensions and capacity of each basin are:

<table>
<thead>
<tr>
<th>Basin No.</th>
<th>Bldg. No.</th>
<th>Dimensions (m)</th>
<th>Volume (m³)</th>
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<td>904-61G</td>
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<td>100 x 20 x 4</td>
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The basins were constructed and operated beginning in 1957 to receive low-level radioactive wastewater from the disassembly basin purges in P-Area. During the period between 1970 and 1978, the disassembly purge water was released to on-site streams. Liquid purges from the P-Area Reactor disassembly basin have been released to the basins since 1978. The P-Area Reactor is shut
down for maintenance and safety upgrades, but the seepage basins are still active and will receive disassembly basin purge water once the reactor is restarted. Purge of the disassembly basins to the reactor seepage basins may be required to lower basin levels to meet technical standards.

Site Conditions/Monitoring

Results from a paddlewheel sampler installed on Steel Creek, above L-Lake, indicated 130 Ci of tritium migrating from the P-Area Seepage Basins during 1987. All wells monitoring the basins contained elevated tritium and lead concentrations. The 1987 concentrations are similar to those recorded in past years. Groundwater monitoring wells are sampled quarterly.

Regulatory Status

When the P-Area Reactor Seepage basins become inactive, they will be investigated under the CERCLA in accordance with the CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators.

References


5.2 L-Area Seepage Basin (904-64G)

Location

The L-Area Seepage Basin (Building No. 904-64G) is located south of L-Area Reactor approximately 1,000 m northwest of the intersections of SRS Roads B and C. The nearest plant boundary is approximately 12 km south of L-Area. L-Area Seepage Basins are approximately 750 m north of L-Lake. The location of this unit is presented in Appendix A.

Background

The L-Area Seepage Basin is an excavated earthen basin. The dimensions are 120 m x 11 m x 2 m and has a capacity of $2.0 \times 10^3$ m$^3$. The basin was constructed and operated beginning in 1958 to receive low-level radioactive wastewater from disassembly basin purges in L-Area. The basin was inactive from 1969 to 1985.

Liquid purges from the L-Reactor disassembly basin have been released to the basin since 1985 until L-Reactor was shut down for maintenance and safety upgrades. The seepage basin is active and will continue to receive disassembly basin purge water once reactor restart is accomplished. Purge of disassembly basins to the reactor seepage basins may be required to lower basin levels to meet technical standards.

Site Conditions/Monitoring

Two wells at the L-Area Seepage Basin had elevated tritium concentrations up to 1,290 pCi/mL. These 1987 concentrations represent an increase from the
1986 maximum concentration of 207 pCi/mL. The elevated levels are probably related to the reactivation of L-Reactor in 1985. Groundwater monitoring wells are sampled quarterly.

**Regulatory Status**

When the L-Area Seepage Basins becomes inactive it will be investigated under the CERCLA in accordance with the CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators.

**References**


5.3 C-Area Seepage Basins (904-66G, -67G, and -68G)

**Location**

The C-Area Seepage Basins (Building Nos. 904-66G, -67G, and -68G) are located in the central area of SRS approximately 2,000 m northeast of the intersection of SRS Roads 3 and 5. The nearest plant boundary is approximately 13 km southwest of the basins. Twin Lakes and Castor Creek are the nearest surface waters. They are approximately 2,000 m southwest of the basins. The location of these units is shown in Appendix A.
Background

The C-Area Seepage Basins are excavated earthen basins. The dimensions and capacity of each basin are:

<table>
<thead>
<tr>
<th>Basin No</th>
<th>Bidg. No</th>
<th>Dimensions (m)</th>
<th>Volume (m³)</th>
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<tr>
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<td>(L x W x D)</td>
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<tr>
<td>2</td>
<td>904-67G</td>
<td>96 x 13 x 3</td>
<td>2,800</td>
</tr>
<tr>
<td>3</td>
<td>904-68G</td>
<td>45 x 27 x 4</td>
<td>3,700</td>
</tr>
</tbody>
</table>

The basins were constructed and operated beginning in 1957 to receive low-level radioactive wastewater from disassembly basin purges in C-Area. During the period from 1970 to 1978, the disassembly purge water was released to on-site streams. Liquid purges from the C-Area Reactor disassembly basin have been released to the basins since 1978. The C-Area Reactor is on temporary stand-by, but the seepage basins are still active.

Site Conditions/Monitoring

Results from paddlewheel samplers installed on Twin Lakes and Castor Creek at C-Area indicated no measurable tritium that could be attributed to migration from the C-Area seepage basins in 1987. Wells monitoring the basins contained tritium levels above the drinking water standard. The 1987 tritium concentrations in these wells were similar to those of past years. Groundwater monitoring wells are sampled quarterly.
Regulatory Status

When The C-Area Seepage Basins become inactive they will be investigated under the CERCLA in accordance with the CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators.

References


5.4 K-Area Containment Basin (904-88G)

Location

The K-Area Containment Basin (Building No. 904-88G) is located west of K-Reactor. The nearest plant boundary is approximately 12 km southwest of the basin. The location of this unit is presented in Appendix A.

Background

The K-Area Containment Basin is an excavated earthen basin 170 m x 188 m with a 189,000 m³ capacity. The basin was constructed in 1965 and operated to the present. The unit contains wastewater containing low levels of radioactive contamination. K-Reactor is shut down for maintenance and safety upgrades, but the containment basin is active and will continue to receive discharge once
the reactor is restarted. Purge of disassembly basin to reactor seepage basins may be required to lower basin levels to meet technical standards.

Site Conditions/Monitoring

Five groundwater monitoring wells are sampled quarterly. No chemical contamination has been detected.

Regulatory Status

When the K-Area Containment Basin becomes inactive, it will be investigated under the CERCLA in accordance with CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators.

References


5.5 F-Area Retention Basin (281-3F)

Location

The F-Area Retention Basin (Building No. 281-3F) is located in the Separations Area of the SRS, approximately 500 m north of SRS Road E and approximately 750 m east of the intersection of SRS Road E and SRS Road C. The plant boundary closest to this unit is approximately 8 km west of the basin. Four Mile Creek is the nearest surface water, approximately 1,200 m south of the basin. The average water-table gradient from the basin to Four Mile Creek is 0.009
m/m. The water table outcrops to Four Mile Creek. The location of this unit is shown in Appendix A.

Background

The F-Area Retention Basin was an excavated earthen basin originally constructed in 1955. This facility occupied an approximate area of 36.6 m x 61 m x 2.1 m and had a capacity of 4,700 m³. The basin received potentially low-level radioactive wastewater from segregated and recirculated cooling water from the F-Area process buildings and evaporation condensate from the F-Area. The basin received waste from 1955 to 1973. The wastestream contained low-level radioactive contamination (byproduct) from the tank farm stormwater runoff and canyon area cooling water diversions. No known hazardous constituents were disposed in this unit. The basin was excavated and backfilled in 1973.

Site Conditions/Monitoring

Soil characterization data are available from several studies. \(^{137}\text{Cs}\) and \(^{89,90}\text{Sr}\) were observed in soil cores from the F-Area Retention Basin. There are currently no groundwater monitoring wells installed around the basin.

Regulatory Status

The F-Area Retention Basin will be investigated under the CERCLA in accordance with the CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators.
5.6 H-Area Retention Basin (281-3H)

Location

The H-Area Retention Basin (Building No. 281-3H) is located in the Separations Area of SRS, approximately 700 m southeast of the intersection of SRS Roads E and 4, approximately 500 m south of SRS Road E. The plant boundary closest to the basin is 10 km west of the unit. An unnamed tributary to Four Mile Creek is the nearest surface water approximately 800 m south of the basin. The basin is located approximately 840 m north of Four Mile Creek. The average water-table gradient from the H-Area Retention Basin to the tributary of Four Mile Creek is 0.03 m/m. The water table outcrops to this tributary. The location of this unit is presented in Appendix A.

Background

The H-Area Retention Basin is an excavated earthen basin originally constructed in 1955. This unit occupies an approximate area of 36.6 m x 61 m x 2.1 m and has a capacity of 4,700 m$^3$. The basin received potentially low-level radioactive wastewater from segregated and recirculated cooling water from the H-Area process buildings and evaporation condensate from the H-Area. The basin was active from 1955 to 1973. The wastestream contained low-level
radioactive contamination (byproduct) from the tank farm stormwater runoff and canyon area cooling water diversions. No known hazardous constituents were disposed in this unit.

Soil Conditions/Monitoring

Soil characterization data are available from several studies. $^{137}\text{Cs}$, $^{89,90}\text{Sr}$, and $^{238}\text{Pu}$ were found in the soil cores from the H-Area Retention Basin. Water samples from the basin showed elevated levels of $^{134}\text{Cs}$, $^{137}\text{Cs}$, and $^{144}\text{Ce}$. There are two groundwater monitoring wells adjacent to the perimeter of the basin. Very low levels of gross alpha and nonvolatile beta (less than 1.5 pCi/L) have been observed in these wells.

Regulatory Status

The H-Area Retention Basin will be investigated under the CERCLA in accordance with the CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators.

References


Location

The six R-Area Seepage Basins (Building Nos. 904-103G, -104G, -57G, -58G, -59G, and -60G) are located approximately 1 km north of the intersection of SRS Roads 7 and G, northwest of R-Reactor. The nearest plant boundary is approximately 10 km east of the basins. The nearest surface water is Mill Creek approximately 440 m northwest of the basins. The PAR Pond system is approximately 1,140 m east of R-Area. The R-Area Seepage Basins are on a topographic divide between the headwaters of Mill Creek, (a tributary of Upper Three Runs Creek) approximately 440 m northwest, and the drainage to the PAR Pond system approximately 1,140 m east. The elevations of the basins are between approximately 94 and 97 m. The location of these units is shown in Appendix A.

Background

The six R-Area Seepage Basins were excavated earthen basins. The physical dimensions and volume of the basins are:

<table>
<thead>
<tr>
<th>Basin No.</th>
<th>Building No.</th>
<th>Dimensions (m)</th>
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<td>904-57G</td>
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<td>904-58G</td>
<td>93 x 11 x 3</td>
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<td>904-59G</td>
<td>90 x 12 x 3</td>
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<td>150 x 14 x 5</td>
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</table>
The basins were constructed and operated beginning in 1957 to receive low-level radioactive wastewater from disassembly basin purges in R-Area. Basin 1 was deactivated and backfilled in 1958 because of surface outcrop and leakage to an abandoned sewer system. In 1960, Basins 2 through 5 were deactivated and backfilled. The ground surface above the five basins was treated with herbicide and covered with asphalt. In addition, a kaolinite dike (down to the natural clay layer) was constructed around Basin 1 and the northwest end of Basin 3 to contain lateral movement of radioactive contamination. Basin 6 was last used in 1964 and was backfilled in 1977.

Site Conditions/Monitoring

Soil samples from the backfilled basins were analyzed in 1976. The maximum radiation level in each basin was found in a narrow zone near the bottom of the backfilled basin with only minimal migration below this interface. A maximum concentration of 8,000 nCi of $^{137}$Cs/g soil was found near the initial discharge of Basin 1. The greatest concentration of $^{90}$Sr (41 nCi/g) was also found in Basin 1. Based on radioassay results from a limited number of soil samples, Basin 1 contains approximately 90% of the $^{137}$Cs and 50% of the $^{90}$Sr in the six basin system. Groundwater monitoring began in 1958 when 39 wells were drilled near the R-Area Seepage Basins. Groundwater is monitored for gross alpha, gross nonvolatile beta, and tritium activity. Groundwater around the basins became contaminated shortly after the basins received purge water from the emergency section of the disassembly basin following failure of an experimental fuel element in November 1957. Rapid movement of radioactivity from the basins to the groundwater was confined to the north end of Basin 3 and the east end of Basin 5. Groundwater monitoring wells are sampled quarterly.
Regulatory Status

The six R-Area Seepage Basins will be investigated under the CERCLA in accordance with the CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators. The Waste Management EIS indicates excavation of the waste material is the appropriate remedial action.

References


5.8 K-Area Seepage Basin (904-65G)

Location

The K-Area Seepage Basin (Building No. 904-65G) is located at the end of SRS Road 6.4 approximately 1,000 m southeast of SRS Road 6. The nearest site boundary is approximately 12 km southwest of the basin. The K-Area Seepage Basin is on a gentle slope leading to Indian Grave Branch approximately 710 m west. The elevation of the basin is approximately 82 m. The location of this unit is presented in Appendix A.
Background

The K-Area Seepage Basin is an excavated earthen basin. The physical dimensions of the basin are 41 m x 21 m x 2 m with a volume capacity of 1,600 m³. The basin was constructed and operated beginning in 1957 to receive low-level radioactive wastewater from disassembly basin purges in K-Area. The basin is open but, it has been inactive since 1960.

Site Conditions/Monitoring

Analysis of radionuclides in the soils beneath the K-Area Seepage Basin was conducted in 1978. In the soil core from K-Area, most of the radioactivity was found in the top 30 cm of soil. Maximum $^{137}$Cs and $^{90}$Sr concentrations were 510 pCi/g and 140 pCi/g, respectively. Monitoring wells were established around the basin in 1984. Typically, groundwater is monitored for gross alpha, gross nonvolatile beta, and tritium activity. In addition, the wells around the K-Area Basin are monitored for nonradioactive constituents. Except for tritium, no contamination by either radioactive or nonradioactive constituents has been observed. The levels of tritium activity observed in these wells are relatively low, and the activity distribution indicates that the tritium arises from an upgradient source rather than the basin.

Regulatory Status

The K-Area Seepage Basin will be investigated under the CERCLA in accordance with the CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators.
References


6. Funding for Projected Activities

Funding for continued environmental restoration activities at the Savannah River Site will be as proposed in the Environmental Restoration and Waste Management Five-Year Plan (DOE/S-0070, 1989), which is to be updated annually. The purpose of this Five-Year Plan is to establish an agenda for compliance and cleanup against which progress will be measured. For FY 1991-1995, this Plan encompasses total program activities and costs for DOE Corrective Activities, Environmental Restoration, Waste Management Operations, and Applied R & D. The Plan addresses hazardous wastes, radioactive wastes, mixed wastes (radioactive and hazardous), and sanitary wastes. It also addresses facilities and sites contaminated with or used in the management of those wastes. Table 6 summarizes funding requirements for seepage basin units as identified in the Environmental Restoration and Waste Management Five-Year Plan.

Under the Federal Facility Agreement, SRS anticipates integration of RCRA and CERCLA processes. This integration could result in additional requirements for all basins in this report. Fulfilling these requirements may necessitate expenditures in excess of those previously committed and budgeted. Schedules and costs will be revised upon completion of the FFA.
# TABLE 6. ENVIRONMENTAL RESTORATION FUNDING SUMMARY

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APPENDICES
## INDEX TO APPENDIX A

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<tr>
<th>Unit Name</th>
<th>Building Number</th>
<th>Map Page</th>
<th>Discussion Section (This Report)</th>
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FIGURE A-31

APPENDIX B

Discussion of Consent Orders and Decrees

Background

One Consent Order (ACO 85-70-SW) and one Consent Decree (Civil Action No. 1:85-2583-6) have significantly affected the management of SRS seepage basins. In the Administrative Consent Order (ACO) 85-70-SW, DOE agreed to additional groundwater assessment activities at the M-Area Settling Basin and vicinity and the F-and H-Area Seepage Basins, under the terms signed on November 7, 1985 and amended in 1988.

A Consent Decree regarding Civil Action No. 1:85-2583-6 was issued on June 1, 1988. The decree pertains specifically to the seepage basins discussed below.

Applicability to SRS Units

SRL Seepage Basins

The decree states that the SRS shall prepare and submit to the SCDHEC, a written Technical Data Summary (TDS), a Site Assessment (SA), and a closure plan. The decree then states that within 90 days of receiving final SCDHEC approval of the closure plan, closure shall be initiated. A groundwater quality assessment/corrective action feasibility plan will also be required if a statistically significant increase in any SCDHEC-specified parameters is determined. The Site Assessment was submitted to the SCDHEC on September 5, 1989. These basins are also identified as RCRA 3004(u) units and are discussed in detail in Section 4.
New TNX Seepage Basin

The decree states that remediation of this basin shall be procedurally the same as the process mandated for the four SRL Seepage Basins. The Site Assessment is required by October 5, 1989. This basin is also identified as a RCRA 3004(u) unit and is discussed in more detail in Section 4.

Metallurgical Laboratory Basin

The decree states that the Metallurgical Laboratory Basin shall be closed "in accordance with RCRA, the South Carolina Hazardous Waste Management Act, and associated regulations." Section 3 discusses the status of this basin.

Four Acid/Caustic Basins (Bldg. Nos. 904-74G, -75G, -78G, and -80G)

The decree states that the four acid/caustic basins shall be closed "in accordance with the RCRA, the South Carolina Hazardous Waste Management Act, and associated regulations." A closure plan was submitted in June 1989. Section 3 discusses these basins in more detail.

Status

The closure timetable for the four SRL Seepage Basins and the New TNX Seepage Basin is dependent on the review and response schedule of SCDHEC.
4.2 Miscellaneous Chemical Basin (731-5A)

Location

The Miscellaneous Chemical Basin (Building No. 731-5A) is located approximately 150 m east of Road C-1, between the A/M Area and Road C. The unit is approximately 3.4 km east of the nearest SRS boundary. The location and general layout of this basin is shown in Appendix A. The nearest surface water body is an unnamed tributary of Tims Branch, located 900 m to the southeast. The ground surface is approximately 104 m above MSL. Groundwater monitoring wells installed in 1987 show that the depth to the water table ranges from 30 to 40 m below the land surface.

Background

The Miscellaneous Chemical Basin was located in an old borrow pit. Its origin and history is unknown. Basin dimensions were approximately 6m x 6m x 0.3 m. A 1974 photograph of the unit shows a small, discolored (possibly from the disposal of waste oil) sandy area inside a shallow berm. Exact composition of waste substances in the pit are unknown. Waste disposal ceased and the site was regraded in approximately 1974.

Site Conditions/Monitoring

Numerous surface soil gas samples at the Miscellaneous Chemical Basin were collected and analyzed in 1986 for volatile organic compounds (VOC). This study confirmed the presence of chlorinated organics (tetrachloroethylene and trichloroethylene) in concentrations up to 6,000 ug/kg at a depth of 0.4 to 0.6 m, decreasing to a maximum level of 22 ug/kg at 69 m. Chlorinated organics
exceeding the EPA Drinking Water Standards in surrounding groundwater wells have been detected. This site will require additional to characterize impact and to define the extent of impact. There is no evidence of inorganic or radioactive substances in the groundwater in exceedance of DWS.

Regulatory Status

The Miscellaneous Chemical Basin will be investigated under the RCRA 3004(u) (RFI) Program. The SRS anticipates submittal of the Metals Burning Pit/Miscellaneous Chemical Basin RFI Work Plan will be submitted to the EPA by November 1989.

References


4.3 G-Area Oil Seepage Basin (761-13G)

Location

The G-Area Oil Seepage Basin (Building No. 761-13G) is located approximately 150 m south of the Ford Building Seepage Basin. This location is approximately
8.9 km from the nearest SRS boundary. The location of this basin is depicted in Appendix A. Based on data from groundwater monitoring wells at the Ford Building Seepage Basin, the water table should be approximately 15 m below grade, which is at an elevation of 85 m above MSL.

Background

This unit is an excavated earthen basin constructed in the 1950s. This unit occupies an area of approximately one-quarter acre. The basin is suspected to have been used for the disposal of waste oil in the 1950s and early 1960s.

Site Conditions/Monitoring

The results from analyses performed on surface water and soil samples taken from the G-Area Oil Seepage Basin in February 1989 indicate barium, chromium, lead, silver, chlordane, bromoform, 1,2-dichlorobenzene and 1,3-dichlorobenzene above background levels. No groundwater monitoring data is available for this unit. Some additional assessment of soils and/or groundwater is needed to determine if impact has occurred and, if so, to assess the severity.

Regulatory Status

The G-Area Oil Seepage Basin will be investigated under the RCRA 3004(u) (RFI) Program. The SRS anticipates submittal of a RFI Work Plan to the EPA by May 1991.
References


4.4 716-A Motor Shop Seepage Basin (904-101G)

Location

The 716-A Motor Shop Seepage Basin (Building No. 904-101G) is located in A-Area, south of the railroad tracks and adjacent to Building 715-A. This unit is approximately 2.5 km from the nearest SRS boundary. The location and general layout of this basin is shown in Appendix A. The nearest surface water body is Tims Branch, approximately 1,220 m to the east. The unit is situated at an elevation of 107 m above MSL. Based on measurements from nearby groundwater monitoring wells, the water table is approximately 9 m below land surface.

Background

The 716-A Motor Shop Seepage Basin is an excavated and bermed earthen basin constructed in 1977. Unit dimensions are 11 m x 63 m x 2 m (1,200 m³ capacity). This basin received Motor Shop effluent from 1977 until 1983. This discharge first passed through an oil skimmer before being released to the basin. Based on SRS records, this basin received wastewater with trace amounts of engine oil, grease, kerosene, ethylene glycol, and soapy water.
Site Conditions/Monitoring

A liquid sample collected from the Motor Shop Seepage Basin showed trace quantities of ethylene glycol, kerosene and oil. Sediments and soils underlying the basin will be characterized during the RFI Program. Groundwater data from surrounding monitoring wells have identified levels of trichloroethylene, endrin, and chromium above drinking water standards. This site will require additional monitoring to characterize impact and to define the extent of impact.

Regulatory Status

The 716-A Motor Shop Seepage Basin is being investigated under the RCRA 3004(u) (RFI) Program. The SRS anticipates submittal of a RFI Work Plan to the EPA by June 1990.

References


4.5 New TNX Seepage Basin (904-102G)

**Location**

The New TNX Seepage Basin (Building No. 904-102G) is located in the southeastern section of the TNX facility, across River Road from the TNX process area. The nearest SRS boundary and the nearest surface water body is the Savannah River, located approximately 620 m to the west. The location and general layout of the basin appears in Appendix A. The ground surface at the unit is approximately 44 m above MSL. Based on data from surrounding groundwater monitoring wells, the water table is approximately 12 m below land surface.

**Background**

This unit is an excavated earthen basin constructed in 1980 to replace the Old TNX Seepage Basin. The unit was constructed in two adjoining sections with a total surface area of approximately 1,620 m². Basin depth was approximately 3 m. The basin received non-radioactive neutralized process wastewater from the TNX facility pilot-scale testing until 1988. The basin was taken out of operation in 1988.

**Site Conditions/Monitoring**

In 1985, sediments and soils underlying and outside of the basin were chemically characterized. No elevated levels of organics were detected, except for phenol in one sediment core layer outside the basin. Metals concentrations in the top 15 cm of sediments were above background levels for barium, nickel, chromium, and lead. Nitrate, phosphate and sodium levels were also elevated.
All EP-toxicity metals values were less than 1% of the EPA guidelines. Groundwater monitoring data show elevated concentration of conductivity, iron, and sodium in downgradient wells. A gross alpha concentration of 17.0 pCi/L was detected in one isolated groundwater sample.

**Regulatory Status**

The New TNX Seepage Basin is identified as a RCRA 3004(u) Waste Unit. In addition, the June 1988 Consent Decree stipulated that the basin be closed in a "RCRA-like" manner. A Technical Data Summary (TDS) has been submitted to and commented on by the SCDHEC. The Site Assessment was submitted to SCDHEC in October 1989. Closure is projected for completion in 1992.

**References**


4.6 Road A Chemical Basin (904-111G)

**Location**

The Road A Chemical Basin (Building No. 904-111G) is located approximately 0.8 km west of the intersection of Road A (SC 125) and Road 6. The unit is approximately 6.5 km from the nearest SRS boundary. The location and general layout of this unit is shown in Appendix A. The nearest surface water body is a swamp which is 0.4 km to the southwest. The elevation of the unit is approximately 64 m above MSL. Based on 1986 data from the four surrounding monitoring wells, the water table ranges from 8 to 14 m below the land surface.

**Background**

Date of construction of the Road A Chemical Basin is not known, but photographs taken in 1973 just prior to abandonment and backfilling show a surface depression containing water. The original basin was irregular-shaped, with total area of approximately 1,590 m² and capacity of 4,500 m³. After backfilling in 1973, an area significantly larger than the basin was graded and revegetated. A 1983 report lists the basin contents as having received miscellaneous radioactive and chemical aqueous waste.

**Site Conditions/Monitoring**

Sediments and soils underlying the backfilled Road A Chemical Basin will be characterized during the RFI Program. Groundwater monitoring well data for 1986 show an average downgradient lead concentration of 0.042 mg/L as compared to a 0.016 mg/L average lead concentration in background wells. Gross alpha concentrations in groundwater were below 15 pCi/L in 1986 and
1987. Additional groundwater monitoring wells were installed in 1989 to complete the monitoring network and define the extent of contamination.

**Regulatory Status**

The Road A Chemical Basin will be investigated under the RCRA 3004(u) (RFI) Program. The SRS submitted a RFI Work Plan to the EPA in October 1989. Under the CERCLA FFA, SRS anticipates integration of RCRA and CERCLA processes. As a result of this integration, SRS anticipates additional requirements for both the RCRA and the CERCLA only sites. Fulfilling these requirements will necessitate personnel and capital expenditures in excess of those previously committed and budgeted.

**References**


4.7 Old H-Area Seepage Basin (904-46G)

Location

The Old H-Area Seepage Basin, also called Basin 3, (Building No. 904-46G) is located in the center of the SRS, south of Road E and west of Road 4. This basin is approximately 10 km from the nearest site boundary. The location of the Old H-Area Seepage Basin is shown in Appendix A. This basin has an approximate elevation of 80 meters, and is located about 150 m north of Four Mile Creek and 2,700 m south of Upper Three Runs Creek. The depth to the water table ranges from 5 to 8 meters below grade.

Background

There are four H-Area Seepage Basins (Building Nos. 904-44G, -45G,-46G and 56G). Basin 3 (Bldg. No. 904-46G), the only one of the H-Area Seepage Basins in the RCRA 3004(u) program, was deactivated in 1962 because of clogged bottom sediments and has not been operated since. The other basins are discussed in Section 3.3 of this report.

The H-Area Seepage Basins 1,2,3, and 4 have all received wastewater containing low-level radioactivity and chemicals from the H-Area separations facilities. The purpose of these basins was to use the soil column and groundwater flow system in order to delay the release of tritium to surface streams and effectively retain other radionuclides. Basin 3 has been inactive since 1962. The other three basins stopped receiving effluent in November 1988, when the discharge was directed to the F/H ETF.
The wastestream directed to these basins has contained nitric acid, mercury, sodium hydroxide, phosphoric acid, and dichromic acid-disodium salt (Na$_2$Cr$_2$O$_7$). Radioactive releases to these units has been primarily in the form of tritium, with greater than 99% of their radioactivity in that form.

Site Conditions/Monitoring

Soil cores have been taken from the H-Area Seepage Basins over the operating history, and an extensive characterization program was conducted in 1984. Both radioactive and nonradioactive constituents were found in the basin sediments. Approximately 90% of the chemical constituents analyzed for were contained within the top 0.30 m of the soil column. EP toxicity tests (metals only) performed on selected samples were within RCRA criteria.

A review of groundwater data from the RCRA monitoring wells indicates that the H-Area Seepage Basins have significantly affected groundwater quality within the underlying water-table and McBean aquifers. Chemical constituents that have been observed to routinely exceed DWS are lead, manganese, mercury, nitrate, gross alpha, gross beta, total mercury, nitrate, gross alpha, non-volatile, beta, total radium, and tritium.

Regulatory Status

No waste materials have been deposited in Basin 3 since 1962, well before the effective date of the RCRA regulations. Even though this basin is a RCRA 3004(u) unit, SCDHEC officials have agreed to the SRS proposal to close the basin in accordance with RCRA standards at the same time as Basins 1, 2, and 4 are being closed under RCRA. The schedule for closure is the same as for
the other three basins discussed in Section 3.3, with a target completion date of August 28, 1991.

References


4.8 Old F-Area Seepage Basin (904-49G)

Location

The Old F-Area Seepage Basin (Building No. 904-49G) is located just northwest of the F-Area perimeter fence, approximately 10 km east of the nearest SRS boundary. The location and general layout of the basin is depicted in Appendix A. The nearest surface water body is Upper Three Runs Creek, approximately 900 m to the west. Based on 1988 data from four surrounding groundwater monitoring wells, the water table is approximately 24 m below the land surface.

Background

The Old F-Area Seepage Basin is an unlined excavated and bermed earthen basin, constructed in 1954. The basin has an area of approximately 5,300 m² and is divided into two compartments. From November 1954 until May 1955, this unit received 35 to 52 thousand m³ of wastewater from the F-Area separations processes. Between October 1969 and January 1970, 14 to 21
m³ of spent nitric acid etching solution (HNO₃) were discharged to the basin under a test authorization. The basin was also used intermittently to divert rainfall runoff and process effluents from an NPDES outfall.

**Site Conditions/Monitoring**

Sediments and soils beneath the basin were characterized in 1986. The study confirmed elevated concentrations of mercury, sulfate, uranium, tritium, iodine, and plutonium to a 4.2 m depth. Additional sediment and soil sampling is currently being conducted under the RFI Program. A review of groundwater monitoring data indicates elevated levels of conductivity, barium, manganese, nitrate, sodium, TOH, lead, gross alpha, gross beta, tritium and total radium in groundwater downgradient from the unit.

**Regulatory Status**

The Old F-Area Seepage Basin is currently being investigated under the RCRA 3004(u) (RFI) Program. SRS anticipates submittal of a RFI Work Plan to the EPA by May 1990.

**References**


4.9 Four SRL Seepage Basins (904-53G1, -53G2, -54G, and -55G)

Location

The four Savannah River Laboratory (SRL) Seepage Basins (SRS Building Nos. 904-53G1, -53G2, -54G, and -55G) are located south of Road A-1 and west of Road D-1, approximately 1 km south of the nearest SRS boundary. The location and general layout of the four basins is shown in Appendix A. The nearest surface water bodies are Tims Branch and an unnamed tributary, the confluence of which is located approximately 60 m northeast of Basin 4. Ground surface is at approximately 110 m above MSL and slopes to the southeast. Based on data from the surrounding groundwater monitoring wells, the water table is approximately 34 m below the land surface.

Background

The four Savannah River Laboratory Seepage Basins are excavated, filled, and bermed earthen basins. Basins 1 and 2 (904-53G1 and -53G2) were constructed in 1954. Basins 3 (904-54G) and 4 (904-55G) were added in 1958 and 1960, respectively.

The SRL Seepage Basins were used to dispose of low-level radioactive waste. These four basins are connected sequentially in a cascade configuration by
overflow channels; the final basin has no overflow. Total capacity of the four basins was 25,500 m$^3$. From start-up in 1954 until shutdown in 1982, the basins received approximately 129,000 m$^3$ of laboratory wastewater, including low levels of radionuclides, organic and inorganic compounds. Before discharge, the wastewater was stored in four tanks, each with a capacity of 22 m$^3$. If the water did not exceed 100 dpm/ml alpha, or 50 dpm/ml beta-gamma, it was discharged to the basin. No chlorinated solvents are known to have been disposed in the basins, according to waste disposal records.

Site Conditions/Monitoring

Sediments and soils beneath the basin were chemically characterized in 1983. Elevated concentrations of radionuclides, metals, and other inorganics were detected in the first 30 centimeters and, with the exception of tritium, declined to background at 62 cm. No volatile or semivolatile organic constituents were detected. Groundwater data reveal that inorganic substances have generally been below DWS, although sodium, chloride, and manganese have exceeded background values. Chlorinated organics levels are significantly above background in both the upgradient and downgradient wells, indicating that these constituents may be from sources other than the SRL basins. As required by the SRS Hazardous Waste Permit, these constituents will be addressed as part of the comprehensive A/M Area assessment and remediation activities.

Regulatory Status

The four SRL Seepage Basins are listed as RCRA 3004(u) Waste Units. In addition, the June 1988 Consent Decree stipulated that the basin be closed in a "RCRA-like" manner. A Technical Data Summary has been submitted to and commented on by SCDHEC. A Site Assessment report was submitted to
SCDHEC on September 19, 1989. The closure is anticipated to be completed in 1992.

References


4.10 Old TNX Seepage Basin (904-76G)

Location

The Old TNX Seepage Basin (Building No. 904-76G) is located in the southwestern section of the TNX facility. The nearest SRS boundary and the nearest surface water body is the Savannah River, approximately 305 m to the west. The location and general layout of the basin appears in Appendix A. The ground surface elevation is approximately 45 m above MSL on a bluff above the Savannah River Swamp.
Background

This unit was an excavated and diked earthen basin, constructed in 1958. The unit consisted of a rectangular settling section and a rectangular main section, with a 13 cm weir to allow flow from the first to the second section. A similar-sized weir across the west wall of the main section directed the basin’s overflow down into the nearby TNX Swamp. Total surface area of the two sections was approximately 950 m², with sloping walls to a basin depth of 3 m. From 1958 until 1980, this basin received wastewater from pilot scale tests conducted at the TNX facility. A variety of process chemicals including mercuric nitrate and depleted uranium were sent to the basin during its 22 year loading history. In 1980, discharge was diverted to the new TNX Seepage Basin. The basin was closed in 1981 by backfilling and clay capping.

Site Conditions/Monitoring

A program to define the extent of chemical and radionuclide contamination was initiated in 1984. Radionuclides, silver, chromium, copper, mercury, nickel, and cyanide above background were detected in the top 61 cm of basin sediment. Radionuclides, chromium, and mercury were detected above background in the top 61 cm of adjacent swamp sediment. Mercury was also found in roots of adjacent swamp vegetation, and elevated levels of radionuclide indicators, metals, and cyanide were detected in a surface water grab sample. Groundwater monitoring data indicate levels of gross alpha, total radium, mercury, nitrate, trichloroethylene and carbon tetrachloride in excess of drinking water standards. This site will require additional monitoring to characterize impact and to define the extent of impact.
Regulatory Status

The backfilled and capped Old TNX Seepage Basin will be further investigated under the RCRA 3004(u) (RFI) Program. SRS anticipates submittal of a RFI Work Plan to the EPA by August 1991.

References


4.11 R-Area Acid/Caustic Basin (904-77G) and L-Area Acid/Caustic Basin (904-79G)

Location

The R-Area Acid/Caustic Basin (Building No. 904-77G) is located approximately 0.2 km southeast of the R-Area process buildings, approximately 7 km from the nearest SRS boundary. The L-Area Acid/Caustic Basin (SRS Building Number 904-79G) is located approximately 0.4 km east of the L-Area Buildings. The location and general layout of the two basins is shown in Appendix A. The R-Area basin is situated at an elevation of approximately 85 m above MSL. The L-Area basin is located at an elevation of approximately 72 m above MSL.

4-20
Based on data from the surrounding monitoring wells, the water table is approximately 7 m below the L-Area land surface.

Background

The R-Area and L-Area Acid/Caustic Basins are unlined earthen depressions with inward sloping berms. Constructed between 1952 and 1954, the basins dimensions were approximately 15 m x 15 m x 2 m, with a nominal capacity of 238 m³ each. The basins were equipped with an effluent weir set to maintain a nominal working water level of 0.9 m. Spent dilute acid and caustic solutions from ion exchange regeneration processes, along with miscellaneous rinse water and condensates, were discharged to the basins. Major constituents of the wastestream included calcium, magnesium, sulfate, chloride, carbonic acid, and silica acid. This effluent overflow was discharged directly to nearby surface streams. Plant records show that the R-Area and L-Area basins were taken out of service in 1964 and 1968, respectively.

Site Conditions/Monitoring

A program to define the extent of hazardous chemical release to all six acid/caustic basins was conducted in 1985. Analytical results from soil and sediment samples beneath these basins indicate slightly elevated levels of chromium, mercury, lead, phosphate, copper, sodium, sulfate, barium, and selenium in the sediment samples from one or more of the six basins. EP toxicity tests performed on the sediment samples from each of the basins indicate that the concentrations of each of the metals analyzed were below 1% of the guideline concentrations. Groundwater monitoring data from the R-Area unit show slightly elevated levels of lead, sodium, and sulfate. The groundwater monitoring data from the L-Area Acid/Caustic Basin indicate that the groundwater quality has not been significantly affected by the operation and the drinking water standards have not been exceeded.
Regulatory Status

The R-Area and L-Area Acid/Caustic Basins are being investigated as one "grouping" under the RCRA 3004(u) (RFI) Program. SRS anticipates submittal of a RFI Work Plan to the EPA for approval by August 1990.

References


4.12 L-Area Oil and Chemical Basin (904-83G)

Location

The L-Area Oil and Chemical Basin (Building No. 904-83G) is an unlined earthen basin located approximately 9.8 km to the northwest of the nearest plant boundary (Appendix A). The basin was constructed by excavating below grade and backfilling around the sides to form earthen dike walls. Surface elevation of the basin is 72 m. Basin dimensions are 36 m long by 24 m wide by 3.4 m deep, with a volume capacity of approximately 2,937 m$^3$. The facility has a surface area of approximately 864 m$^2$. Depth to the water table at the basin site
is approximately 7 m below grade. Groundwater flow and surface drainage in the area of the basin is to the south toward Steel Creek (L Lake), 600 m to the south.

**Background**

The L-Area Oil and Chemical Basin was used for the disposal of low-level radioactive oil and chemical liquid wastes from 1961 to 1979. These wastes came from production and research areas throughout the plant and contained tritium, activation products, mixed fission products, decontamination wastewater, and spent degreasing solvents. Chemical analyses were not made, but all wastes were radiochemically analyzed before disposal in the basin. This facility received a total volume of waste of approximately 4,730 m³ through 1979.

**Site Conditions/Monitoring**

In April 1984, analysis of a composite surface water sample indicated that no parameters exceeded applicable drinking water standards with the exception of iron. The basin's bottom sediments have been analyzed, and elevated levels of arsenic, cadmium, chromium, lead, mercury, magnesium, manganese, nickel, sodium, selenium, uranium, zinc, cobalt, cesium, gross alpha, and gross beta were detected. Maximum concentrations for all chemicals occurred within the top 76 cm of the core. No samples exceeded EP toxicity test criteria. No significant levels of petroleum hydrocarbons were detected.

A review of groundwater monitoring data indicates that the L-Area Oil and Chemical Basin has had an effect on groundwater quality. Chemical constituents that have exceeded DWS were lead, manganese, mercury, nitrate, sulfate, nonvolatile beta, total radium, and tritium. Elevated levels of TOC and
TOH were also noted, but may have originated at either of the two basins adjacent to this one. This site will require additional monitoring of existing groundwater wells and soil cores to characterize impact and to define the extent of impact.

**Regulatory Status**

The L-Area Oil and Chemical Basin has been inactive since 1979. As part of the RFI (RCRA 3004(u)) program, further assessment and remedial actions may be proposed. According to the RFI Program Plan, a work plan for this basin will be submitted to the EPA for approval by October 1990.

**References**


**4.13 Ford Building Seepage Basin (904-91G)**

**Location**

The Ford Building Seepage Basin (Building No. 904-91G) is located in the Central Shops Area in the central part of SRS as shown in Appendix A. The basin is approximately 30 m from the Ford Building and 8.9 km east of the nearest plant boundary. The basin was constructed by excavating below grade a nominal 3 m and then backfilling around the basin sides at grade level to form
earthen dike walls. Originally, the basin had bottom dimensions of 8 m by 6 m and ground-level dimensions of 24 m by 12 m, giving an approximate volume capacity of 600 m$^3$. This unit is located at an elevation of 91 m, and the depth to the groundwater table is 15 m.

**Background**

The Ford Building Seepage Basin was built in 1965, and received wastewater from the repair of slightly contaminated process equipment received from throughout the plant. Wastewater generated during repair work was drained to a 23 m$^3$ retention tank located adjacent to the Ford Building, analyzed for radionuclides, and then released to the seepage basin or sent to Waste Management Operations (WMO) for concentration and disposal. The use of the retention tank and basin was halted in January 1984. The Ford Building is now inactive.

In addition to radionuclides, trace amounts of surfactants, oils, grease, and other chemicals may have been in the wastewater. Through the end of 1984, the basin received a total of 1,440 m$^3$ of wastewater. The basin was retired in 1984 and is now dry except for occasionally impounded rainwater.

**Site Conditions/Monitoring**

In 1985, a comprehensive program of soil sampling and analysis was performed to characterize sediment from the basin floor and walls and from beneath the underground pipeline leading from the retention tank to the basin.

In the basin soils, concentrations of radioactive isotopes of cesium, cobalt, strontium, and europium were found to be above background. The concentration profiles for cesium and cobalt peak in the top layers of basin sediment, implying less mobility for these radionuclides than for strontium, and
europium for which no clear profile could be discerned. Beneath the pipeline, only strontium shows elevated concentration levels. In the basin walls, none of the radionuclides show elevated concentration levels.

The concentration profiles in the basin floor for the majority of other metals drop rapidly to background within the first 0.6 m of soil depth. In the soil beneath the pipeline, similar concentration gradients for the metals were also found. In the basin floor, the concentration profiles for the majority of the inorganic ions are similar to those observed for the metals. The inorganic ions with elevated concentration levels in the top 8 cm of basin soil are ammonia, nitrogen, fluoride, sulfate, and total phosphate. Under the pipeline, only total phosphate levels are elevated. Along the basin walls, none of the inorganic ions show elevated levels. No significant concentration of organics were detected in the basin floor, basin walls, or beneath the pipeline.

The groundwater monitoring data from the Ford Building Seepage Basin indicate that the groundwater quality has not been significantly affected by the operation of the basin. Inorganic, organic, and radioactive chemical constituent levels found in the groundwater over the monitoring period were less than half of their respective drinking water standards.

Regulatory Status

The Ford Building Seepage Basin is currently inactive, and is dry except for occasionally impounded rainwater. Quarterly monitoring of groundwater continues, using the wells in existence. A RFI Work Plan for this basin will be submitted to the EPA for approval by September 1991.
References


4.14 Four Acid/Caustic Basins (904-74G, -75G, -78G, and -80G)

The four acid/caustic basins identified as Building Nos. 904-74G, -75G, -78G, and -80G were in operation until 1982. They have been mandated by SCDHEC and EPA Region IV to be included on the RFI (RCRA-3004(u)) list of waste sites and are also RCRA facilities. A closure plan was submitted to the regulatory agencies for their review and approval in June 1989. The more detailed description of these sites is found in Section 3.5 of this report.

4.15 Coal Pile Runoff Basins: A-Area (708-3A), D-Area (489-D), H-Area (289-H), K-Area (189-K), P-Area (189-P), C-Area (189-C), F-Area (289-F)

Background

Steam and electricity at the SRS are generated by burning coal. The coal is stored in open piles at seven locations at the SRS. The rainfall runoff from the coal piles was allowed to flow to surface streams until 1977. At that time SRS obtained an NPDES permit that required all discharges to fall between pH 6 and 9. Because the runoff from the coal piles did not meet this requirement, coal pile runoff basins (CPRBs) were constructed at the sites of the coal piles. The
CPRBs were constructed between 1978 and 1981. All of the basins are currently in use except for those in C and F areas. The C- and F-Area coal piles were removed in late 1985, and their CPRBs have been inactive since that time.

A-Area Coal Pile Runoff

Location - The A-Area Coal Pile Runoff Basin (Building No. 708-3A) is located east-southeast of Building 716-A. The nearest plant boundary is about 1.5 km to the northwest.

Site Conditions/Monitoring - The elevation of this unit is approximately 110 m (360 ft.). Surface drainage is to the east toward Tims Branch.

Four groundwater monitoring wells were installed in 1980 and 1981. Because the original wells were cased with steel, they were replaced with PVC-cased wells in 1984. The water in the area has an extremely low gradient. Hence, groundwater flow direction can be quite variable. Recent data suggest a groundwater flow direction to the north. However, the regional gradient is to the east-southeast. Data from 1986 indicate that the water table is located at a depth of approximately 30 m.

Groundwater at this site contains slightly elevated levels of total dissolved solids, which are predominantly sodium, sulfate, and chloride. All of these groundwater components are present in concentrations below the drinking water standards. Groundwater monitoring data at the A-Area Coal Pile Runoff Basin show total radium levels in excess of Primary DWS. Preliminary evaluation of recent data suggests gross alpha levels in excess of Primary DWS.
D-Area Coal Pile Runoff Basin

Location - The D-Area Coal Pile Runoff Basin (Building No. 489-D) is located outside the perimeter fence at the southwest corner of Building 400-D. The nearest plant boundary is the Savannah River, about 1.8 km to the west. The area covered by this basin is approximately 50,600 m². The basin is approximately 1.4 m deep, with a capacity of 23,000 m³.

Site Conditions/Monitoring - The D-Area Coal Pile Runoff Basin is located on a Savannah River terrace at an elevation of about 40 m (130 ft.). The unconsolidated terrace material consists of sand, silt, and clay. Surface drainage is to the southwest toward a small tributary that flows into the Savannah River swamp, which occurs at an elevation of 27 m in this area.

Five groundwater monitoring wells were installed in 1981. Because the original wells were cased with steel, they were replaced with five PVC-cased wells in 1984. Seven additional monitoring wells have recently been installed by the Savannah River Ecology Laboratory (SREL) near this basin and the nearby D-Area Ash Basin. Five of these wells are located close to the D-Area CPRB. Water-table elevation data show that the flow direction ranges from southwest to west.

Groundwater monitoring data at the D-Area Coal Pile Runoff Basin show total radium, gross alpha, and tritium levels in excess of Primary DWS. Groundwater data also reflect levels of organic halogens, metals, radioactivity, fluoride, and sulfate above the drinking water standards. Elevated concentrations of iron and manganese are also present. Surface water samples from the basin have also indicated the presence of elevated concentrations of cadmium, chromium and...
arsenic. The pH of the groundwater is very low, less than 3 in some wells. Levels of TDS are elevated in all of the site wells.

**H-Area Coal Pile Runoff Basin**

**Location** - The H-Area Coal Pile Runoff Basin (Building No. 289-H) is located east of Building 200-H and north of Road E. The nearest Plant boundary is approximately 12 km to the west. The area covered by the basin is approximately 4,600 m² and the depth of the basin is approximately 2 m, with a capacity of 6,000 m³.

**Site Conditions/Monitoring** - The H-Area CPRB is at an elevation of approximately 84 m (275 ft). Surface drainage is to the northeast toward an unnamed tributary of Upper Three Runs Creek.

Four groundwater monitoring wells were installed in 1981 using PVC casings. Groundwater flow is to the north-northeast. Data from 1986 indicate that the depth to the water table is approximately 4.5 m.

Groundwater monitoring data at the H-Area Coal Pile Runoff Basin show total radium, gross alpha, and tritium levels in excess of Primary DWS. Groundwater data also show elevated TDS levels in groundwater from some downgradient and upgradient wells. It appears that these elevated levels may be directly attributed to the coal storage pile. Groundwater in the other wells at this site contains background levels of all constituents. Surface water samples from the basin have indicated elevated concentrations of cadmium, selenium, arsenic and chromium.
K-Area Coal Pile Runoff Basin

**Location** - The K-Area Coal Pile Runoff Basin (Building No. 189-K) is located between Road B-3 and the west side of Building 100-K. The nearest plant boundary is over 9 km to the west. The area of the basin is 6,000 m², and the depth of the basin is approximately 2 m, with a capacity of 10, m³.

**Site Conditions/Monitoring** - The K-Area CPRB is located at an elevation of approximately 80 m (260 ft). Surface drainage is to the south-southwest toward a small tributary of Indian Grave Branch.

Four groundwater monitoring wells with PVC casings were installed in 1981. Direction of groundwater flow is toward the west. Two wells are located downgradient of the basin. Data from 1986 indicate that the water table is at a depth of approximately 15 m.

Groundwater data from this site show elevated TDS levels, although the values are still below drinking water standards. The high TDS waters contain elevated concentrations of the major cations (calcium, magnesium, potassium, and sodium), sulfate, lead, and manganese. Groundwater monitoring data at the K-Area Coal Pile Runoff Basin show total radium, gross alpha, and tritium levels in excess of Primary DWS. Surface water samples from the basin indicate elevated levels of chromium and cadmium.

P-Area Coal Pile Runoff Basin

**Location** - The P-Area Coal Pile Runoff Basin (Building No. 189-P) is located opposite Building 185-P, outside the south end of the 100-P perimeter fence. The nearest plant boundary is approximately 8.3 km to the east. The P-Area
Coal Pile Runoff Containment Basin covers an area of approximately 9,000 m² and is approximately 2 m deep, with capacity of 9,800 m³.

**Site Conditions/Monitoring** - The P-Area CPRB is located at an elevation of approximately 98 m (32 ft). Surface drainage is to the southeast toward a swamp at the headwaters of Meyers Branch.

Four groundwater monitoring wells were installed in 1980. Because the wells were originally cased with steel, four replacement monitoring wells with PVC casings were installed in late 1983 and 1984. Groundwater flow is believed to be to the south. However, water-table elevations from the monitoring wells do not show a clear gradient in any one direction. It is likely that there is mounding of the water table beneath the basin. The depth to the water table is approximately 6 to 9 m.

Groundwater monitoring well PCB-3A at the P-Area Coal Pile Runoff Basin had a single occurrence of an elevated level (Primary DWS) of gross alpha in 1985. The same groundwater monitoring well had an elevated level of total Radium in 1985, and preliminary review of recent data suggest a recurrence. Preliminary review of recent data indicates tritium values in excess of Primary DWS in groundwater monitoring well PCB-4A.

Groundwater at this site also contains elevated TDS levels, well above drinking water standards in some wells. Some trace metals (cadmium chromium, copper, iron, manganese, nickel, and selenium) are present at elevated levels in the groundwater. Elements present in concentrations above the drinking water standards are copper, nickel, selenium, and sulfate. Surface water samples from the basin suggest elevated levels of chromium and cadmium.
C-Area Coal Pile Runoff Basin

Location - The C-Area Coal Pile Runoff Basin (Building No. 189-C) is located south of Building No. 100-C. The nearest plant boundary is approximately 9 km to the west. The basin is 1,500 m² and 2.3 m deep, with a capacity of 3,200 m³.

Site Conditioning/Monitoring - The C-Area CPRB is an elevation of approximately 85 m (280 ft). Surface drainage is to the southeast toward a small tributary of Four Mile Creek.

Four groundwater monitoring wells with PVC casings were installed in 1981. Groundwater flow is southwest toward Four Mile Creek. Data from 1986 indicate that the depth to the water table is 17 m.

Groundwater data at this site show no evidence of a contaminant plume. TDS levels at all wells range from 18 to 28 mg/L, which is typical of uncontaminated groundwater in this area. Levels of metals are all well below the drinking water standards.

F-Area Coal Pile Runoff Basin

Location - The F-Area Coal Pile Runoff Basin (Building No. 289-F) is located east of Building 200-F and north of the railroad track into the area. The nearest Plant boundary is approximately 10 km to the west. The basin is 4,500 m², and the depth of the basin is 2.4 m, with a capacity of 9,700 m³.
Site Conditions/Monitoring - The F-Area CPRB is located at an elevation of approximately 98 m (320 ft). Surface drainage is to the south toward an unnamed tributary of Four Mile Creek.

Four monitoring wells with PVC casings were installed at the site in 1981. Regional groundwater data suggest that flow is to the south-southwest. The data from 1986 indicate that the depth to the water table is approximately 24 m. Groundwater data indicate that the unit has had relatively little influence on groundwater quality. In the first quarter of 1987 some groundwater wells had slightly elevated TDS levels, but levels were still far below drinking water standards. No trace metals were elevated. Groundwater monitoring data at the F-Area Coal Pile Runoff Basin show total radium levels in excess of Primary DWS. Past data show gross alpha levels above Primary DWS. However, preliminary evaluation of recent data indicate these levels are declining.

Regulatory Status

The seven coal pile runoff basins are currently being investigated under the RCRA 3004(u) (RFI) Program. SRS anticipates submittal of a RFI Work Plan to the EPA by September 1990.

References


4.16 D-Area Ash Basin (488-D)

The D-Area Ash Basin (Building No. 488-D) receives ash sluice water and reject coal from the powerhouse in D area. This basin has been in service since plant startup in 1951.

Location

The D-Area Ash Basin is located southwest of the D-Area perimeter fence across the road from the D-Area Coal Pile Runoff Containment Basin. The nearest plant boundary is approximately 1.5 km to the west. The basin covers an area of approximately 140,000 to 160,000 m². The basin depth is approximately 3.7 m. The basin received approximately 38,000 m³ of ash sluice water per year from 1951 until 1983. This unit is presently being used for disposal of reject coal.

Site Conditions and Monitoring

The basin is located on a west-trending slope at an elevation of approximately 39 m (128 ft). Surface drainage is to the southwest toward a small tributary that flows into the Savannah River swamp, which occurs at an elevation of 27 m in this area.
The SREL has recently installed seven monitoring wells in the vicinity of the D-Area Ash Basins and the D-Area Coal Pile Runoff Containment Basin. Two of these wells are located very close to the ash basin. No water-level data are yet available from these two groundwater monitoring wells. Groundwater hydrology can be extrapolated from that known at the D-Area Coal Pile Runoff Basin (CPRB). Data from 1986 for the D-Area CPRB indicate that flow is probably to the west-southwest, and depth to the water table is probably less than 2 m. The area represents a site of groundwater discharge, with a vertical gradient upward. Hence, there is little likelihood for downward migration of containments below the water-table aquifer.

Sludge from the D-Area Ash Basin was analyzed in 1978 for EP toxicity tests. Extractable metal concentrations in the sludge were less than RCRA criteria (40 CFR 261.24).

Regulatory Status

The D-Area Ash Basin is currently being investigated under the RCRA 3004(u) (RFI) Program. SRS anticipates submittal of a RFI Work Plan to the EPA by May 1991.

References


5. Seepage Basin Facilities Regulated Under CERCLA (Only)

5.1 P-Area Seepage Basins (904-61G, -62G, -63G)

Location

The P-Area Seepage Basins (Building Nos. 904-61G, -62G, and -63G) are located approximately 600 m south of SRS Road F, approximately 4 km west of the intersection of SRS Roads F and 8. The nearest plant boundary is approximately 13 km south of the basins. Steel Creek is the nearest surface water, located approximately 1,000 m southwest of the units. The location of these units is shown in Appendix A.

Background

The P-Area Seepage Basins are excavated earthen basins. The dimensions and capacity of each basin are:

<table>
<thead>
<tr>
<th>Basin No.</th>
<th>Bldg. No.</th>
<th>Dimensions (m)</th>
<th>Volume (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(L x W x D)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>904-61G</td>
<td>120 x 11 x 2</td>
<td>2.0 x 10³</td>
</tr>
<tr>
<td>2</td>
<td>904-62G</td>
<td>63 x 21 x 2</td>
<td>2.8 x 10³</td>
</tr>
<tr>
<td>3</td>
<td>904-63G</td>
<td>100 x 20 x 4</td>
<td>5.9 x 10³</td>
</tr>
</tbody>
</table>

The basins were constructed and operated beginning in 1957 to receive low-level radioactive wastewater from the disassembly basin purges in P-Area. During the period between 1970 and 1978, the disassembly purge water was released to on-site streams. Liquid purges from the P-Area Reactor disassembly basin have been released to the basins since 1978. The P-Area Reactor is shut
down for maintenance and safety upgrades, but the seepage basins are still active and will receive disassembly basin purge water once the reactor is restarted. Purge of the disassembly basins to the reactor seepage basins may be required to lower basin levels to meet technical standards.

**Site Conditions/Monitoring**

Results from a paddlewheel sampler installed on Steel Creek, above L-Lake, indicated 130 Ci of tritium migrating from the P-Area Seepage Basins during 1987. All wells monitoring the basins contained elevated tritium and lead concentrations. The 1987 concentrations are similar to those recorded in past years. Groundwater monitoring wells are sampled quarterly.

**Regulatory Status**

When the P-Area Reactor Seepage basins become inactive, they will be investigated under the CERCLA in accordance with the CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators.

**References**


5.2 L-Area Seepage Basin (904-64G)

Location

The L-Area Seepage Basin (Building No. 904-64G) is located south of L-Area Reactor approximately 1,000 m northwest of the intersections of SRS Roads B and C. The nearest plant boundary is approximately 12 km south of L-Area. L-Area Seepage Basins are approximately 750 m north of L-Lake. The location of this unit is presented in Appendix A.

Background

The L-Area Seepage Basin is an excavated earthen basin. The dimensions are 120 m x 11 m x 2 m and has a capacity of $2.0 \times 10^3$ m$^3$. The basin was constructed and operated beginning in 1958 to receive low-level radioactive wastewater from disassembly basin purges in L-Area. The basin was inactive from 1969 to 1985.

Liquid purges from the L-Reactor disassembly basin have been released to the basin since 1985 until L-Reactor was shut down for maintenance and safety upgrades. The seepage basin is active and will continue to receive disassembly basin purge water once reactor restart is accomplished. Purge of disassembly basins to the reactor seepage basins may be required to lower basin levels to meet technical standards.

Site Conditions/Monitoring

Two wells at the L-Area Seepage Basin had elevated tritium concentrations up to 1,290 pCi/mL. These 1987 concentrations represent an increase from the
1986 maximum concentration of 207 pCi/mL. The elevated levels are probably related to the reactivation of L-Reactor in 1985. Groundwater monitoring wells are sampled quarterly.

Regulatory Status

When the L-Area Seepage Basins becomes inactive it will be investigated under the CERCLA in accordance with the CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators.

References


5.3 C-Area Seepage Basins (904-66G, -67G, and -68G)

Location

The C-Area Seepage Basins (Building Nos. 904-66G, -67G, and -68G) are located in the central area of SRS approximately 2,000 m northeast of the intersection of SRS Roads 3 and 5. The nearest plant boundary is approximately 13 km southwest of the basins. Twin Lakes and Castor Creek are the nearest surface waters. They are approximately 2,000 m southwest of the basins. The location of these units is shown in Appendix A.
Background

The C-Area Seepage Basins are excavated earthen basins. The dimensions and capacity of each basin are:

<table>
<thead>
<tr>
<th>Basin No.</th>
<th>Bldg. No.</th>
<th>Dimensions (m) (L x W x D)</th>
<th>Volume (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>904-66G</td>
<td>120 x 11 x 2</td>
<td>2,000</td>
</tr>
<tr>
<td>2</td>
<td>904-67G</td>
<td>96 x 13 x 3</td>
<td>2,800</td>
</tr>
<tr>
<td>3</td>
<td>904-68G</td>
<td>45 x 27 x 4</td>
<td>3,700</td>
</tr>
</tbody>
</table>

The basins were constructed and operated beginning in 1957 to receive low-level radioactive wastewater from disassembly basin purges in C-Area. During the period from 1970 to 1978, the disassembly purge water was released to on-site streams. Liquid purges from the C-Area Reactor disassembly basin have been released to the basins since 1978. The C-Area Reactor is on temporary stand-by, but the seepage basins are still active.

Site Conditions/Monitoring

Results from paddlewheel samplers installed on Twin Lakes and Castor Creek at C-Area indicated no measurable tritium that could be attributed to migration from the C-Area seepage basins in 1987. Wells monitoring the basins contained tritium levels above the drinking water standard. The 1987 tritium concentrations in these wells were similar to those of past years. Groundwater monitoring wells are sampled quarterly.
Regulatory Status

When The C-Area Seepage Basins become inactive they will be investigated under the CERCLA in accordance with the CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators.

References


5.4 K-Area Containment Basin (904-88G)

Location

The K-Area Containment Basin (Building No. 904-88G) is located west of K-Reactor. The nearest plant boundary is approximately 12 km southwest of the basin. The location of this unit is presented in Appendix A.

Background

The K-Area Containment Basin is an excavated earthen basin 170 m x 188 m with a 189,000 m³ capacity. The basin was constructed in 1965 and operated to the present. The unit contains wastewater containing low levels of radioactive contamination. K-Reactor is shut down for maintenance and safety upgrades, but the containment basin is active and will continue to receive discharge once
the reactor is restarted. Purge of disassembly basin to reactor seepage basins may be required to lower basin levels to meet technical standards.

**Site Conditions/Monitoring**

Five groundwater monitoring wells are sampled quarterly. No chemical contamination has been detected.

**Regulatory Status**

When the K-Area Containment Basin becomes inactive, it will be investigated under the CERCLA in accordance with CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators.

**References**


5.5 F-Area Retention Basin (281-3F)

**Location**

The F-Area Retention Basin (Building No. 281-3F) is located in the Separations Area of the SRS, approximately 500 m north of SRS Road E and approximately 750 m east of the intersection of SRS Road E and SRS Road C. The plant boundary closest to this unit is approximately 8 km west of the basin. Four Mile Creek is the nearest surface water, approximately 1,200 m south of the basin. The average water-table gradient from the basin to Four Mile Creek is 0.009
m/m. The water table outcrops to Four Mile Creek. The location of this unit is shown in Appendix A.

Background

The F-Area Retention Basin was an excavated earthen basin originally constructed in 1955. This facility occupied an approximate area of 36.6 m x 61 m x 2.1 m and had a capacity of 4,700 m³. The basin received potentially low-level radioactive wastewater from segregated and recirculated cooling water from the F-Area process buildings and evaporation condensate from the F-Area. The basin received waste from 1955 to 1973. The wastestream contained low-level radioactive contamination (byproduct) from the tank farm stormwater runoff and canyon area cooling water diversions. No known hazardous constituents were disposed in this unit. The basin was excavated and backfilled in 1973.

Site Conditions/Monitoring

Soil characterization data are available from several studies. $^{137}$Cs and $^{89,90}$Sr were observed in soil cores from the F-Area Retention Basin. There are currently no groundwater monitoring wells installed around the basin.

Regulatory Status

The F-Area Retention Basin will be investigated under the CERCLA in accordance with the CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators.
References


5.6 H-Area Retention Basin (281-3H)

Location

The H-Area Retention Basin (Building No. 281-3H) is located in the Separations Area of SRS, approximately 700 m southeast of the intersection of SRS Roads E and 4, approximately 500 m south of SRS Road E. The plant boundary closest to the basin is 10 km west of the unit. An unnamed tributary to Four Mile Creek is the nearest surface water approximately 800 m south of the basin. The basin is located approximately 840 m north of Four Mile Creek. The average water-table gradient from the H-Area Retention Basin to the tributary of Four Mile Creek is 0.03 m/m. The water table outcrops to this tributary. The location of this unit is presented in Appendix A.

Background

The H-Area Retention Basin is an excavated earthen basin originally constructed in 1955. This unit occupies an approximate area of 36.6 m x 61 m x 2.1 m and has a capacity of 4,700 m³. The basin received potentially low-level radioactive wastewater from segregated and recirculated cooling water from the H-Area process buildings and evaporation condensate from the H-Area. The basin was active from 1955 to 1973. The wastestream contained low-level
radioactive contamination (byproduct) from the tank farm stormwater runoff and canyon area cooling water diversions. No known hazardous constituents were disposed in this unit.

**Soil Conditions/Monitoring**

Soil characterization data are available from several studies. $^{137}$Cs, $^{89,90}$Sr, and $^{238}$Pu were found in the soil cores from the H-Area Retention Basin. Water samples from the basin showed elevated levels of $^{134}$Cs, $^{137}$Cs, and $^{144}$Ce. There are two groundwater monitoring wells adjacent to the perimeter of the basin. Very low levels of gross alpha and nonvolatile beta (less than 1.5 pCi/L) have been observed in these wells.

**Regulatory Status**

The H-Area Retention Basin will be investigated under the CERCLA in accordance with the CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators.

**References**


Location

The six R-Area Seepage Basins (Building Nos. 904-103G, -104G, -57G, -58G, -59G, and -60G) are located approximately 1 km north of the intersection of SRS Roads 7 and G, northwest of R-Reacto. The nearest plant boundary is approximately 10 km east of the basins. The nearest surface water is Mill Creek approximately 440 m northwest of the basins. The PAR Pond system is approximately 1,140 m east of R-Area. The R-Area Seepage Basins are on a topographic divide between the headwaters of Mill Creek, (a tributary of Upper Three Runs Creek) approximately 440 m northwest, and the drainage to the PAR Pond system approximately 1,140 m east. The elevations of the basins are between approximately 94 and 97 m. The location of these units is shown in Appendix A.

Background

The six R-Area Seepage Basins were excavated earthen basins. The physical dimensions and volume of the basins are:

<table>
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<th>Basin No.</th>
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<th>Volume (m$^3$)</th>
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The basins were constructed and operated beginning in 1957 to receive low-level radioactive wastewater from disassembly basin purges in R-Area. Basin 1 was deactivated and backfilled in 1958 because of surface outcrop and leakage to an abandoned sewer system. In 1960, Basins 2 through 5 were deactivated and backfilled. The ground surface above the five basins was treated with herbicide and covered with asphalt. In addition, a kaolinite dike (down to the natural clay layer) was constructed around Basin 1 and the northwest end of Basin 3 to contain lateral movement of radioactive contamination. Basin 6 was last used in 1964 and was backfilled in 1977.

Site Conditions/Monitoring

Soil samples from the backfilled basins were analyzed in 1976. The maximum radiation level in each basin was found in a narrow zone near the bottom of the backfilled basin with only minimal migration below this interface. A maximum concentration of 8,000 nCi of $^{137}$Cs/g soil was found near the initial discharge of Basin 1. The greatest concentration of $^{90}$Sr (41 nCi/g) was also found in Basin 1. Based on radioassay results from a limited number of soil samples, Basin 1 contains approximately 90% of the $^{137}$Cs and 50% of the $^{90}$Sr in the six basin system. Groundwater monitoring began in 1958 when 39 wells were drilled near the R-Area Seepage Basins. Groundwater is monitored for gross alpha, gross nonvolatile beta, and tritium activity. Groundwater around the basins became contaminated shortly after the basins received purge water from the emergency section of the disassembly basin following failure of an experimental fuel element in November 1957. Rapid movement of radioactivity from the basins to the groundwater was confined to the north end of Basin 3 and the east end of Basin 5. Groundwater monitoring wells are sampled quarterly.
Regulatory Status

The six R-Area Seepage Basins will be investigated under the CERCLA in accordance with the CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators. The Waste Management EIS indicates excavation of the waste material is the appropriate remedial action.

References


5.8 K-Area Seepage Basin (904-65G)

Location

The K-Area Seepage Basin (Building No. 904-65G) is located at the end of SRS Road 6.4 approximately 1,000 m southeast of SRS Road 6. The nearest site boundary is approximately 12 km southwest of the basin. The K-Area Seepage Basin is on a gentle slope leading to Indian Grave Branch approximately 710 m west. The elevation of the basin is approximately 82 m. The location of this unit is presented in Appendix A.
Background

The K-Area Seepage Basin is an excavated earthen basin. The physical dimensions of the basin are 41 m x 21 m x 2 m with a volume capacity of 1,600 m³. The basin was constructed and operated beginning in 1957 to receive low-level radioactive wastewater from disassembly basin purges in K-Area. The basin is open but, it has been inactive since 1960.

Site Conditions/Monitoring

Analysis of radionuclides in the soils beneath the K-Area Seepage Basin was conducted in 1978. In the soil core from K-Area, most of the radioactivity was found in the top 30 cm of soil. Maximum $^{137}$Cs and $^{90}$Sr concentrations were 510 pCi/g and 140 pCi/g, respectively. Monitoring wells were established around the basin in 1984. Typically, groundwater is monitored for gross alpha, gross nonvolatile beta, and tritium activity. In addition, the wells around the K-Area Basin are monitored for nonradioactive constituents. Except for tritium, no contamination by either radioactive or nonradioactive constituents has been observed. The levels of tritium activity observed in these wells are relatively low, and the activity distribution indicates that the tritium arises from an upgradient source rather than the basin.

Regulatory Status

The K-Area Seepage Basin will be investigated under the CERCLA in accordance with the CERCLA § 120 Federal Facility Agreement currently being discussed between DOE-SR, EPA and State regulators.
References


6. Funding for Projected Activities

Funding for continued environmental restoration activities at the Savannah River Site will be as proposed in the Environmental Restoration and Waste Management Five-Year Plan (DOE/S-0070, 1989), which is to be updated annually. The purpose of this Five-Year Plan is to establish an agenda for compliance and cleanup against which progress will be measured. For FY 1991-1995, this Plan encompasses total program activities and costs for DOE Corrective Activities, Environmental Restoration, Waste Management Operations, and Applied R & D. The Plan addresses hazardous wastes, radioactive wastes, mixed wastes (radioactive and hazardous), and sanitary wastes. It also addresses facilities and sites contaminated with or used in the management of those wastes. Table 6 summarizes funding requirements for seepage basin units as identified in the Environmental Restoration and Waste Management Five-Year Plan.

Under the Federal Facility Agreement, SRS anticipates integration of RCRA and CERCLA processes. This integration could result in additional requirements for all basins in this report. Fulfilling these requirements may necessitate expenditures in excess of those previously committed and budgeted. Schedules and costs will be revised upon completion of the FFA.
### Table 6. Environmental Restoration Funding Summary

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APPENDICES
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APPENDIX B

Discussion of Consent Orders and Decrees

Background

One Consent Order (ACO 85-70-SW) and one Consent Decree (Civil Action No. 1:85-2583-6) have significantly affected the management of SRS seepage basins. In the Administrative Consent Order (ACO) 85-70-SW, DOE agreed to additional groundwater assessment activities at the M-Area Settling Basin and vicinity and the F-and H-Area Seepage Basins, under the terms signed on November 7, 1985 and amended in 1988.

A Consent Decree regarding Civil Action No. 1:85-2583-6 was issued on June 1, 1988. The decree pertains specifically to the seepage basins discussed below.

Applicability to SRS Units

SRL Seepage Basins

The decree states that the SRS shall prepare and submit to the SCDHEC, a written Technical Data Summary (TDS), a Site Assessment (SA), and a closure plan. The decree then states that within 90 days of receiving final SCDHEC approval of the closure plan, closure shall be initiated. A groundwater quality assessment/corrective action feasibility plan will also be required if a statistically significant increase in any SCDHEC-specified parameters is determined. The Site Assessment was submitted to the SCDHEC on September 5, 1989. These basins are also identified as RCRA 3004(u) units and are discussed in detail in Section 4.

B-1
New TNX Seepage Basin

The decree states that remediation of this basin shall be procedurally the same as the process mandated for the four SRL Seepage Basins. The Site Assessment is required by October 5, 1989. This basin is also identified as a RCRA 3004(u) unit and is discussed in more detail in Section 4.

Metallurgical Laboratory Basin

The decree states that the Metallurgical Laboratory Basin shall be closed "in accordance with RCRA, the South Carolina Hazardous Waste Management Act, and associated regulations." Section 3 discusses the status of this basin.

Four Acid/Caustic Basins (Bldg. Nos. 904-74G, -75G, -78G, and -80G)

The decree states that the four acid/caustic basins shall be closed "in accordance with the RCRA, the South Carolina Hazardous Waste Management Act, and associated regulations." A closure plan was submitted in June 1989. Section 3 discusses these basins in more detail.

Status

The closure timetable for the four SRL Seepage Basins and the New TNX Seepage Basin is dependent on the review and response schedule of SCDHEC.