SRL-TT

TECHNICAL DIVISION
SAVANNAH RIVER LABORATORY

DPST-85-820

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GROUNDWATER PROTECTION EIS: EXISTING ENVIRONMENT: SAVANNAH RIVER

OVERVIEW

Per Groundwater Protection EIS commitments, a baseline of surface water hydrology and chemistry of each onsite stream is needed to define the existing environment of each watershed so that environmental impacts associated with the various waste site closure options can be assessed. This report (1) summarizes the existing water quality of the Savannah River; (2) lists the various waste sites encompassing this watershed; and (3) summarizes the availability of surface water and floodplain sediment monitoring data, both radiochemical and physiochemical, collected from this watershed.

A separate report, "Surface Water System and Hydrology, Quality and Use", (Lower, 1985), provides more detailed information of the geohydrology of the Savannah River and its tributaries; this report focuses upon surface water quality issues.

I. SURFACE WATER HYDROLOGY AND CHEMISTRY: SAVANNAH RIVER

The Savannah River Plant (SRP) is located in the Coastal Plain Province of the Savannah River, some 32 km downstream of Augusta, Georgia (Figure I-1). Construction of upriver reservoirs and the new Savannah River Bluff Lock and Dam has stabilized the river flow at Augusta to a yearly average of 288.8 m^3/s (DOE, 1984). Low flows in the Savannah River typically occur during the autumn months while higher flows occur in later winter and early spring. In the vicinity of the SRP, the average annual flow since upstream stabilization has been 295 m^3/s (DOE, 1984). The seven-day, ten-year low flow near SRP is 159 m^3/s (DOE, 1984).

The Savannah River Plant is a major user of water from the Savannah River; it could remove 41 m^3/s if all 26 pumps are in simultaneous use at three river pump stations (DOE, 1984). Currently, the Savannah River Plant withdraws a maximum of 26 m^3/s from the river (DOE, 1984). C and K Reactors each receive about 11 m^3/s of cooling water, Par Pond receives about 0.6 m^3/s to compensate for seepage and evaporation, and the coal-fired power plant receives about 2.8 m^3/s. After the river water is used as secondary coolant in C and K Reactors, it is discharged to Four Mile Creek and Pen Branch, respectively, which flow through an onsite swamp system to the Savannah River. An additional 11 m^3/s cooling water will be required for full-power L-Reactor operation.

Under adverse river flow conditions, the removal of the full 41 m^3/s would consume about 23% of the usual river minimum flow of about 181 m^3/s at SRP (DOE, 1984). Present operations typically remove about 9% of the average annual Savannah River flow at SRP of 295 m^3/s (DOE, 1984). Essentially all water withdrawn from the river is returned to the river (Du Pont, 1981).

When L-Reactor operation is resumed, water withdrawal from the river will be increased by about 11 m^3/s and the total withdrawal rate for the Savannah River Plant will be about 37 m^3/s. Under seven-day, ten-year low flow conditions (159 m^3/s, DOE, 1984), the SRP will withdraw about 24% of the river flow; under average river flow (295 m^3/s) conditions, the plant would withdraw about 13% for all operations.

The water quality of the Savannah River throughout its drainage basin varies considerably, ranging from healthy and productive in most reaches to heavily contaminated with industrial and domestic effluents in local areas (Gladden et al., 1985).

Historically, the Augusta, North Augusta, and Aiken County areas have provided the major sources of pollution to the Savannah River in the area around the SRP. The city of Augusta did not have a secondary sewage treatment facility until 1975. Prior to that

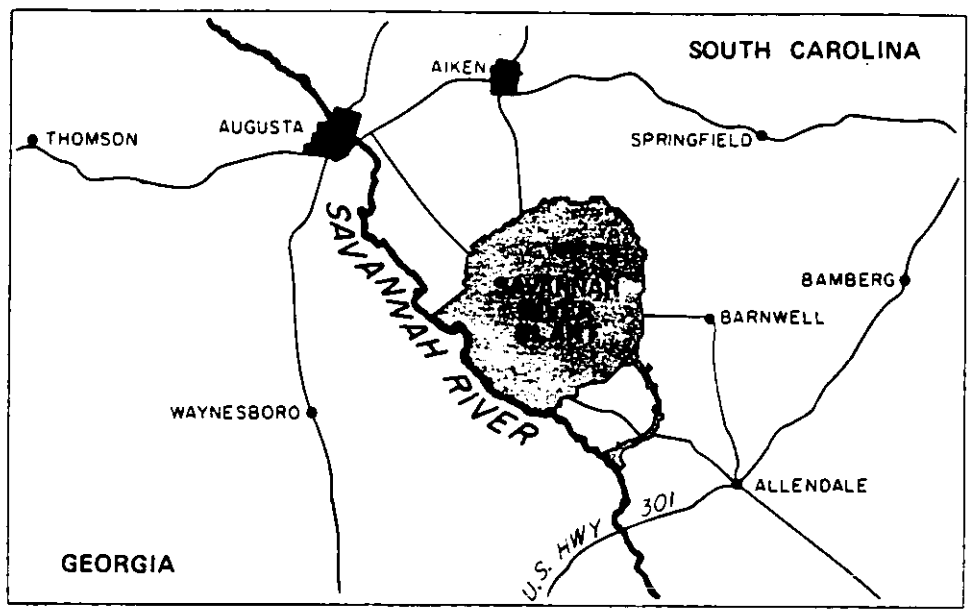

FIGURE I.1 The Savannah River in the Vicinity of SRP

time most domestic and industrial wastes were discharged untreated or inadequately treated into the Savannah River, or into Hawks Gully, Butler Creek, and Spirit Creek, which flow into the Savannah River (Matthews, 1982). In the North Augusta and Aiken County area, domestic and industrial effluents entered the Savannah River directly and via Horse Creek and Little Horse Creek (Matthews, 1982). Treatment facilities for the North Augusta and Aiken County area were not in operation until 1979. The SRP also discharges waste water into the Savannah River. These discharges are primarily thermal effluents, but also include domestic and industrial wastes.

Additional historic have affected the water quality of the Savannah River. Completion of the Clark Hill Dam resulted in reduced silt loading and turbidity. From 1951 until 1956, downstream reaches of the Savannah River were extensively dredged in order to improve channel alignment and navigability. This dredging temporarily increased suspended solids, turbidity and dissolved materials. Improved waste water treatment by municipalities since the mid-1960s has reduced the nutrient loading and biochemical oxygen demand; however, industrialization of the river basin in the metropolitian Augusta, Georgia area has increased the total waste loading (DOE, 1982).

Two major programs have investigated the water chemistry of the Savannah River at locations upriver, adjacent to and downriver of SRP. The first of these programs is the routine (Du Pont) water quality program conducted monthly; the second is a two-year (1983-1985) intensive water quality study conducted under the Comprehensive Cooling Water Study. Results of water chemistry analyses generated under these programs are summarized below and in previous reports (Lower, 1984; Gladden et al., 1985).

Under the routine monthly water quality program conducted by Du Pont, collection and physiochemical analysis of water samples from the Savannah River upstream and downstream of SRP began in 1959. The program was initiated to ensure that SRP operation were not adversely affecting the water quality of the Savannah River. In the vicinity of the SRP, the Savannah River is classified as a Class B stream, broadly described as a fresh water body suitable for secondary contact recreation and as source of drinking water supply after conventional treatment in accordance with approved regulatory regimes.

Variability of water chemistry results of Savannah River samples (Figure I-2) has diminished over the past twenty years, primarily due to improved waste treatment and flow stabilization provided by upstream dams (DOE, 1984). The pH of the river has remained slightly acid. The river water is relatively soft, well oxygenated and low in chemical and biochemical oxygen demand

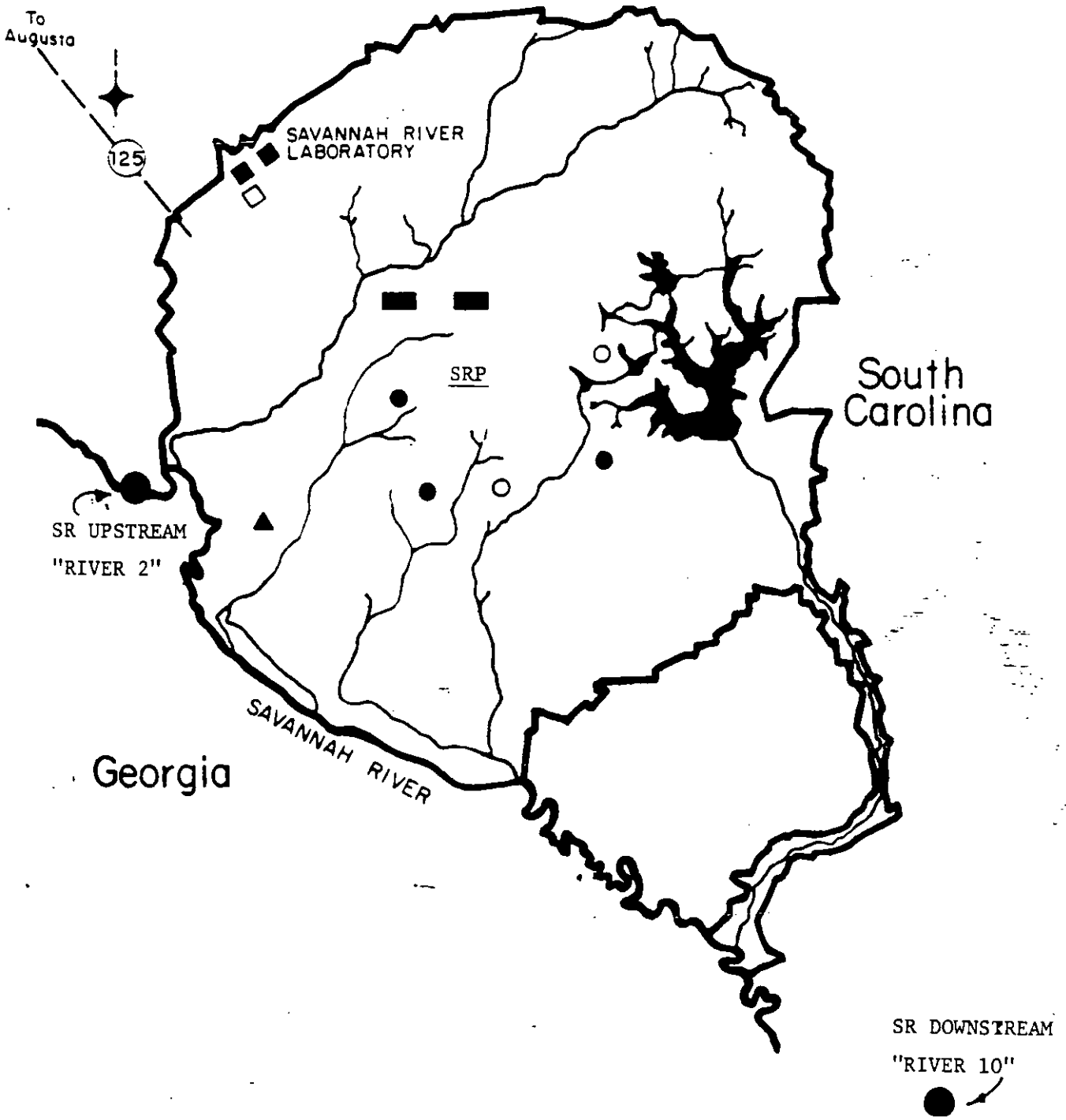

FIGURE I-2. Historic River Water Quality Monitoring Sites

(Lower, 1984). Water temperature ranges from an average winter low of 8°C to more than 24°C during summer months. The net increase in water temperature of the Savannah River attributable to SRP thermal effluent discharges as measured between upriver and downriver stations is about 1.2°C.

In the vicinity of the SRP, South Carolina Class B stream water classification standards are met in the Savannah River (Lower, 1984).

In July 1983, the Department of Energy - Savannah River initiated at two-year study of the effects of cooling water intake and discharge to onsite streams and, ultimately, to the Savannah River. Under the Water Quality Program element of this Comprehensive Cooling Water Study (CCWS), river water samples are collected from stations upriver of SRP, at the pumphouse 3G intake canal, and downriver of Steel Creek Landing (Figure I-3) and analyzed for standard parameters, nutrients, major ions, and trace elements. Data results from each of these monitoring sites are given in Tables I-1 through I-3.

The following trends were evidenced from the mean water chemistry data collected from the Savannah River (Tables I-1 through I-3) first, between the river stations and second, between upriver values as compared (Table I-1) to those of Upper Three Runs Creek (previous report, DPST-85-814):

SAVANNAH RIVER: COMPARISON BETWEEN MEAN VALUES GENERATED AT STATIONS UPRIVER AND DOWNRIVER OF SRP

- The mean temperature increase between river stations was 1.3°C. This value compares favorably to those found in previous studies (Jacobsen et al., 1972). South Carolina Class B standards for temperature were met at both sites.

- Relatively no change (<0.1 pH units) was found in pH values between upriver and downriver waters; waters at both sites were within Class B standards for pH.

- Mean dissolved oxygen was reduced by about 0.4 mg/L at the downriver site, likely the result of slightly elevated temperature. The waters at both sites meet South Carolina Class B stream standards.

- No change was indicated for mean values of conductivity, turbidity, total suspended solids, alkalinity, chlorides and sulfates between upriver and downriver waters, i.e., no SRP impact.

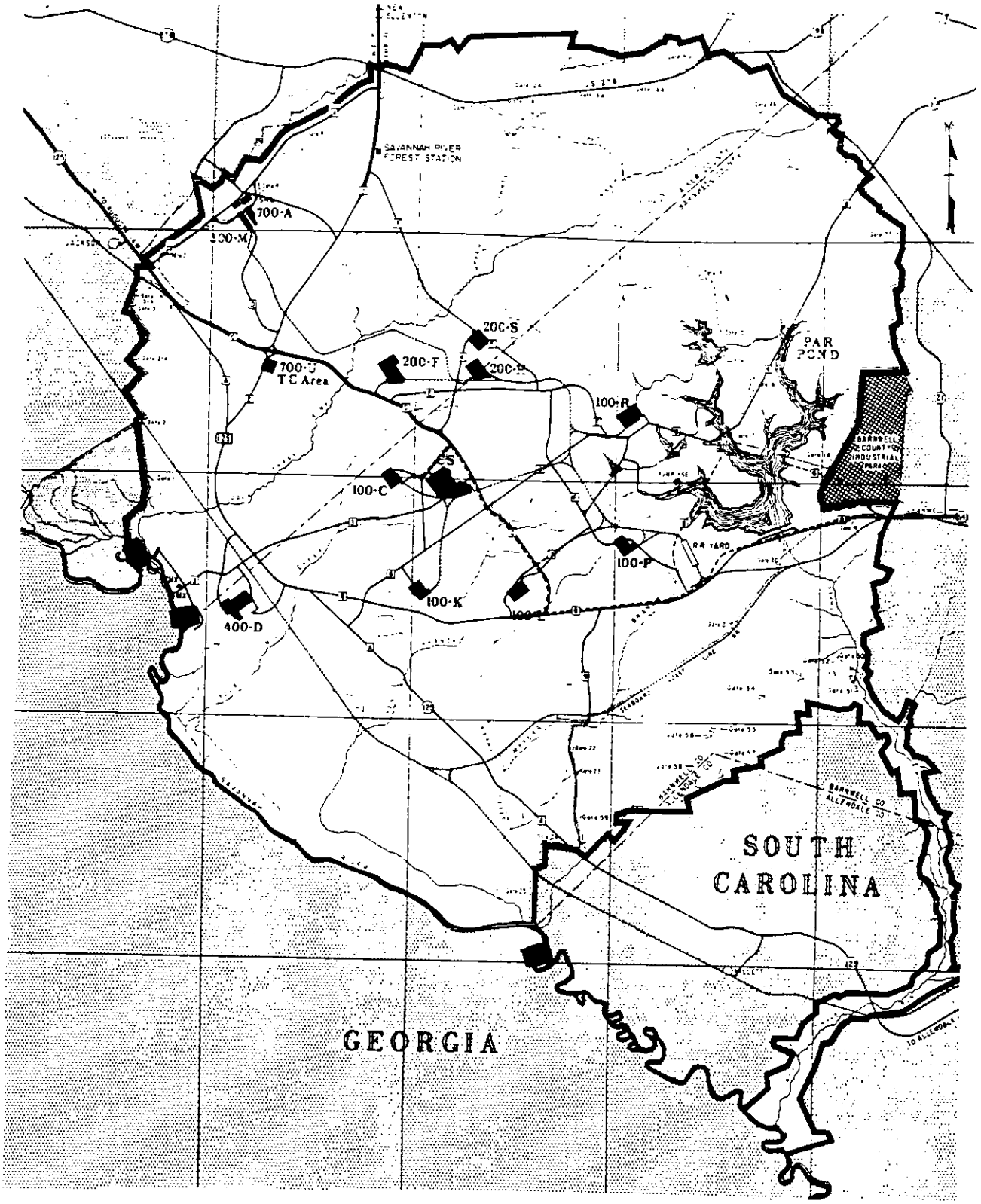

FIGURE I-3. Water Quality Monitoring of The Savannah River Under The Comprehensive Cooling Water Study, 1983-1985

- River waters remained nutrient-rich relative to nonthermal streams at SRP as indicated by the downriver data (Table I-3). No change was evidenced for all phosphorous species, nitrite-nitrogen and nitrate-nitrogen in water samples collected at upriver, pumphouse and downriver stations, i.e., no SRP impact. Mean ammonia-nitrogen and total kjeldahl nitrogen were reduced at the downriver site by 0.05 mg/L and 0.04 mg/L, respectively, relative to upriver values.

- Six elemental determinations, all recorded in ppm ranges, indicated no change between upriver and downriver mean concentrations: Al, Ca, Fe, Mg, K and Na, i.e., no SRP impact.

- Elemental concentrations of trace metals, recorded in ppb ranges, were generally comparable between upriver and downriver mean concentrations: As, Cd, Cu, Pb, Hg, Ni and U, i.e., no SRP impact.

WATER CHEMISTRY OF SAVANNAH RIVER AS COMPARED TO UPPER THREE RUNS CREEK

The water chemistry of the Savannah River upriver of SRP (Table I-1) was found to differ from that of Upper Three Runs Creek (DPST-85-814) for a number of parameters. Comparison of mean data from both water bodies indicated the following trends:

- The mean water temperature of Upper Three Runs Creek was 0.3°C cooler than that of upriver waters. This finding was not surprising given the closed, shaded canopy of Upper Three Runs Creek relative to that of the Savannah River.

- Upper Three Runs Creek is substantively more acid that river water, with a mean pH of 6.2 as compared to 6.9 for the river.

- Levels of dissolved oxygen (7.7-7.9 mg/L) and turbidity (20-26 NTU) were comparable between Upper Three Runs Creek and Savannah River waters.

- Upper Three Runs Creek waters are very soft, i.e., low in alkalinity (2.6 mg $CaCO_3$/L) as compared to upriver waters (19 mg $CaCO_3$/L).

- Concentrations of chlorides, sulfates and conductivity in upriver waters ranged from 4 to 10 times greater than those of Upper Three Runs Creek.

- Upper Three Runs Creek is nutrient-deficient relative to the Savannah River for all phosphorous and nitrogen species. The mean difference in nutrient concentrations between the two water bodies is generally an order of magnitude.

- Concentrations of Al, Ca, Fe, Mg, K and Na were slightly higher in upriver waters relative to Upper Three Runs Creek waters. The typical differential ranged from 0.3 to about 1.5 mg/L. Neither water body contained harmful concentrations of these elements.

The sources of available water chemistry and sediment monitoring data collected throughout the Savannah River watershed are given in Section III of this report.

TABLE I-1

Water Chemistry of the Savannah River, 1983-1985*

Station: Savannah River 200 Meters Upstream of the Confluence With Upper Three Runs Creek**

Parameter/Units	Mean***		Maximum	Minimum
Temperature (°C)	15.3	(43)	23.5	4.30
pH (-)	6.88	(43)	7.80	5.90
Dissolved oxygen (mg/L)	7.71	(43)	11.4	5.20
% saturation (%)	75.2	(43)	93.4	55.4
Conductivity (μmhos/cm)	78.4	(33)	98.3	47.3
Turbidity (NTU)	21.1	(40)	89.2	5.10
Total suspended solids (mg/L)	10.3	(41)	54.0	0.25
Alkalinity (mg/L)	19.4	(43)	28.5	12.3
Chlorides (mg/L)	6.30	(43)	8.90	2.90
Sulfates (mg/L)	5.80	(24)	9.20	2.90
Total organic carbon (mg C/L)	7.90	(28)	20.8	1.72
Dissolved organic carbon (mg C/L)	5.20	(12)	8.30	3.71
Particulate organic carbon (mg C/L)	2.30	(11)	4.60	0.670
Total phosphorus (mg P/L)	0.1010	(41)	0.1920	0.0150
Total orthophosphates (mg P/L)	0.0802	(41)	0.1670	0.0350
Dissolved orthophosphates (mg P/L)	0.0600	(42)	0.1470	0.0180
Nitrites (mg N/L)	0.0137	(42)	0.0460	0.0010
Nitrates (mg N/L)	0.2851	(41)	0.4240	0.1290
Ammonia-nitrogen (mg N/L)	0.1838	(41)	0.4000	0.0150
Total Kjeldahl nitrogen (mg N/L)	0.2998	(41)	0.6000	0.1100
BOD-5 (mg O_2/L)	1.34	(4)	1.80	1.00
BOD-20 (mg O_2/L)	2.62	(4)	2.86	1.99
BOD-20-inhibited (mg O_2/L)	2.23	(4)	2.42	2.00
Aluminum, total (mg Al/L)	1.09	(29)	2.92	0.208
Arsenic, total (μg As/L)	2.09	(10)	7.90	0.200
Cadmium, total (μg Cd/L)	0.261	(10)	0.700	0.020
Calcium, total (mg Ca/L)	3.26	(29)	4.10	2.61
Chromium, total (μg Cr/L)	11.7	(10)	52.0	1.20
Copper, total (μg Cu/L)	3.35	(10)	5.70	0.200
Iron, total (mg Fe/L)	1.06	(29)	3.27	0.274
Lead, total (μg Pb/L)	2.51	(10)	9.00	0.200
Magnesium, total (mg Mg/L)	1.33	(29)	1.73	1.03
Manganese, total (μg Mn/L)	123.3	(10)	356.0	39.0
Mercury, total (μg Hg/L)	0.058	(18)	0.200	0.050
Nickel, total (μg Ni/L)	5.25	(10)	13.6	0.500
Potassium, total (mg K/L)	1.07	(29)	1.76	0.512
Sodium, total (mg Na/L)	7.05	(29)	10.5	3.77
Uranium, total (μg U/L)	5.00	(12)	5.00	5.00
Zinc, total (μg Zn/L)	13.6	(10)	78.9	0.80

* Data collected under the Comprehensive Cooling Water Study by SREL. Data used by permission.

** Station Serial Number SAV RV 100.

*** Number of analyses in parentheses.

TABLE I-2

Water Chemistry of the Savannah River, 1983-1985*

Station: Savannah River at Pumphouse 3G Intake Canal at SRP**

Parameter/Units	Mean***		Maximum	Minimum
Temperature (°C)	15.3	(43)	23.5	3.80
pH (-)	6.99	(43)	8.05	5.90
Dissolved oxygen (mg/L)	7.47	(43)	11.3	3.80
% saturation (%)	72.7	(43)	90.2	41.9
Conductivity (μmhos/cm)	68.4	(33)	90.3	36.7
Turbidity (NTU)	19.0	(40)	81.0	4.90
Total suspended solids (mg/L)	9.90	(41)	43.9	0.25
Alkalinity (mg/L)	16.2	(43)	24.0	5.63
Chlorides (mg/L)	5.50	(43)	8.40	2.60
Sulfates (mg/L)	5.10	(24)	8.00	2.13
Total organic carbon (mg C/L)	7.50	(28)	15.6	0.42
Dissolved organic carbon (mg C/L)	5.10	(11)	6.90	3.90
Particulate organic carbon (mg C/L)	2.20	(11)	5.40	0.69
Total phosphorus (mg P/L)	0.1001	(41)	0.2000	0.0110
Total orthophosphates (mg P/L)	0.0672	(41)	0.1540	0.0210
Dissolved orthophosphates (mg P/L)	0.0495	(42)	0.1360	0.0025
Nitrites (mg N/L)	0.0115	(42)	0.0410	0.0010
Nitrates (mg N/L)	0.2639	(40)	0.5100	0.0670
Ammonia-nitrogen (mg N/L)	0.1570	(41)	0.2900	0.0190
Total Kjeldahl nitrogen (mg N/L)	0.2735	(41)	0.9000	0.0730
BOD-5 (mg O_2/L)	1.35	(3)	1.99	1.02
BOD-20 (mg O_2/L)	3.02	(3)	4.20	2.23
BOD-20-inhibited (mg O_2/L)	2.01	(3)	3.31	1.06
Aluminum, total (mg Al/L)	1.09	(29)	5.41	0.290
Arsenic, total (μg As/L)	1.53	(10)	6.10	0.200
Cadmium, total (μg Cd/L)	0.250	(10)	0.460	0.020
Calcium, total (mg Ca/L)	3.00	(29)	3.60	1.75
Chromium, total (μg Cr/L)	15.2	(10)	57.0	1.60
Copper, total (μg Cu/L)	3.73	(10)	6.80	0.200
Iron, total (mg Fe/L)	0.989	(29)	3.27	0.140
Lead, total (μg Pb/L)	2.10	(10)	5.30	0.200
Magnesium, total (mg Mg/L)	1.20	(29)	1.49	0.488
Manganese, total (μg Mn/L)	114.4	(10)	349.0	31.0
Mercury, total (μg Hg/L)	0.053	(18)	0.110	0.050
Nickel, total (μg Ni/L)	4.47	(10)	12.0	0.200
Potassium, total (mg K/L)	0.922	(29)	2.12	0.184
Sodium, total (mg Na/L)	6.12	(29)	9.64	1.35
Uranium, total (μg U/L)	5.00	(12)	5.00	5.00
Zinc, total (μg Zn/L)	9.42	(10)	32.8	1.70

* Data collected under the Comprehensive Cooling Water Study by SREL. Data used by permission.

** Station Serial Number SAV RV 200.

*** Number of analyses in parentheses.

TABLE I-3

Water Chemistry of the Savannah River, 1983-1985*

Station: Savannah River 500 Meters Downstream of Steel Creek Loading**

Parameter/Units	Mean***		Maximum	Minimum
Temperature (°C)	16.6	(42)	26.0	4.60
pH (-)	6.95	(42)	7.90	6.30
Dissolved oxygen (mg/L)	7.30	(43)	10.9	4.70
% saturation (%)	72.3	(43)	91.6	53.1
Conductivity (μmhos/cm)	74.0	(34)	93.7	0.00
Turbidity (NTU)	21.7	(40)	90.9	1.40
Total suspended solids (mg/L)	12.9	(41)	70.0	2.00
Alkalinity (mg/L)	18.5	(43)	24.5	11.6
Chlorides (mg/L)	5.90	(43)	8.20	2.20
Sulfates (mg/L)	5.30	(24)	8.50	1.77
Total organic carbon (mg C/L)	7.90	(25)	19.9	3.93
Dissolved organic carbon (mg C/L)	4.20	(13)	6.60	0.00
Particulate organic carbon (mg C/L)	1.70	(13)	5.30	0.00
Total phosphorus (mg P/L)	0.1028	(41)	0.1840	0.0050
Total orthophosphates (mg P/L)	0.0761	(41)	0.1810	0.0230
Dissolved orthophosphates (mg P/L)	0.0577	(41)	0.1570	0.0110
Nitrites (mg N/L)	0.0117	(42)	0.0420	0.0005
Nitrates (mg N/L)	0.2811	(41)	0.4390	0.0560
Ammonia-nitrogen (mg N/L)	0.1359	(41)	0.3000	0.0110
Total Kjeldahl nitrogen (mg N/L)	0.2620	(41)	0.5250	0.0870
BOD-5 (mg O_2/L)	1.28	(4)	1.53	1.00
BOD-20 (mg O_2/L)	2.73	(4)	3.55	1.73
BOD-20-inhibited (mg O_2/L)	1.81	(4)	2.41	1.16
Aluminum, total (mg Al/L)	0.993	(28)	2.45	0.115
Arsenic, total (μg As/L)	1.86	(10)	7.40	0.200
Cadmium, total (μg Cd/L)	0.189	(10)	0.430	0.020
Calcium, total (mg Ca/L)	3.40	(28)	4.65	2.76
Chromium, total (μg Cr/L)	17.0	(10)	67.0	1.20
Copper, total (μg Cu/L)	5.44	(10)	21.8	0.200
Iron, total (mg Fe/L)	1.05	(28)	1.95	0.477
Lead, total (μg Pb/L)	2.45	(10)	6.30	0.500
Magnesium, total (mg Mg/L)	1.31	(28)	1.74	0.829
Manganese, total (μg Mn/L)	108.5	(10)	210.0	10.0
Mercury, total (μg Hg/L)	0.050	(18)	0.050	0.050
Nickel, total (μg Ni/L)	3.10	(10)	9.80	0.200
Potassium, total (mg K/L)	1.02	(28)	1.54	0.184
Sodium, total (mg Na/L)	6.73	(28)	10.4	3.01
Uranium, total (μg U/L)	5.00	(12)	5.00	5.00
Zinc, total (μg Zn/L)	17.7	(10)	62.7	1.60

* Data collected under the Comprehensive Cooling Water Study by SREL. Data used by permission.

** Station Serial Number SAV RV 300.

*** Number of analyses in parentheses.

II. WASTE SITES IN THE VICINITY OF THE SAVANNAH RIVER

Per waste sites to be scoped, ranked and ultimately addressed in the Groundwater Protection EIS, six sites have been identified as having potential chemical outcropping of groundwater to the Savannah River floodplain and surface waters (Table II-1). Four of these sites have been identified as having only a minimum level of priority for Groundwater Protection EIS efforts (Marine and Bledsoe to Gordon, 7/31/85), one as a medium level of priority and one as requiring a comprehensive and full level of assessment (Table II-1).

The three wastes sites located in the 400-D Area may have groundwater outcropping to Beaver Dam Creek rather than the Savannah River (Table II-1). Modeling efforts by ESD-Geotechnical will resolve this issue in the next several months.

III. DATA AVAILABILITY

Table III-1 summarizes the availability of known surface water and floodplain sediment monitoring data, both radiochemical and physiochemical, collected from the Savannah River watershed. Table III-1 also lists the referenceable source documents in which these data are found.

TABLE II-1

Waste Sites Encompassing the Steel Creek Watershed

Site	Potential Outcrop	EIS Level of Assessment
TNX Old Seepage Basin (904-76G)	Savannah River Floodplain	Full
TNX New Seepage Basin (904-102G)	Savannah River Floodplain	Medium
TNX Burying Ground (643-5G)	Savannah River Floodplain	Minimum
D-Area Burning/Rubble Pit (431-D)	Savannah River Floodplain*	Minimum
D-Area Burning/Rubble Pit (431-1D)	Savannah River Floodplain*	Minimum
D-Area Oil Seepage Basin (631-G)	Savannah River Floodplain**	Minimum

* or Beaver Dam Creek (DPST-85-815)

** or Upper Three Runs Creek (DPST-85-814) or Beaver Dam Creek (DPST-85-815).

TABLE III-1

AVAILABILITY OF SURFACE WATER AND FLOODPLAIN SEDIMENT MONITORING DATA: STEEL CREEK

Media	Overview	Data Availability
Water	Physiochemical, routine water quality program, 1973-1985, 3 stations along river near SRP; standard parameters, nutrients, major ions, metals	• DPSPU-year-30-1 series • DPSPU-year-302 series • DPST-70-445 • DPST-84-555 • DP-1697, Vol III, Ch. 2
Water	Physiochemical, water quality study conducted under the Comprehensive Cooling Water Study, 1983-1985, 3 stations along river; standard parameters; nutrients, major ions, low level determinations of total and dissolved metals	• DP-1697, Vol III, Ch. 3 • Newman, 1986, unpublished
Water	Radiochemical: routine program, 5 stations; total, dissolved and suspended concentrations of gross alpha and nonvolatile beta; total concentrations of tritium, Sr-90 and specific gamma-emitting radionuclides	• DPSPU-year-30-1 series • DPSPU-year-302 series • DP-1697, Vol III, Ch. 2
Water	Radiochemical: water treatment plant monitoring of Co-60 and Cs-137 at upriver and downriver facilities, 1982-1985	• DPST-83-693 • DPST-85-720 • DP-1697, Vol IV, Ch. 3
Water	Special Organic Pollutant Water Quality Study, 1984, volatile, acid and base-neutral organics, 2 stations along river monitored for entire priority pollutant regime	• DPST-85-280
Water	Pesticides, herbicides and PCBs, routine annual program, 1977-1795, 2 stations along river	• DPSPU-year-30-1 series • DPSPU-year-302 series • DP-1697, Vol III, Ch. 2
Water	Pesticides, herbicides and PCBs, Special Water Quality Survey, 1984, 2 stations along river	• DPST-85-280
Water	Biological surveys of the Savannah River in the Vicinity of SRP, 1951-1976	• DP-1531

TABLE III-1, Contd

AVAILABILITY OF SURFACE WATER AND FLOODPLAIN SEDIMENT MONITORING DATA: SAVANNAH RIVER

Media	Overview	Data Availability
Water	Mercury Analyses, Special Study 1973-1974, 2 stations along watershed, total concentrations	• DP-1697, Vol III, Ch. 2
Water	EPA Water Quality Study, 1970, standard parameters and flow rates	• DPST-72-428
Water	Thermal plume monitoring and the dissipation of reactor heat in the Savannah River	• DPSPU-year-30-1-series • DPSPU-year-302 series • DPST-72-428 • DP-1697, Vol III, Ch. 4 • DP-1274
Water	Flow rates and useful characteristics of the Savannah River, USGS data	• DPST-85-611 • DPST-85-578 • DP-1697, Vol II, III
Sediment	Radiochemical, routine annual program, 1975-1985, 6 stations along river above, adjacent to, and below SRP; analysis of dry weight Co-60, Sr-90, Cs-137, Pu-238 and Pu-239	• DPST-84-298 • DP-1697, Vol IV, Ch. 2 • DPSPU-year-30-1 series • DPSPU-year-302 series
Sediment	Radiochemical, special survey of radioactivity in river floodplain sediments, 1974, 12 stations upriver of SRP to Savannah, GA, analysis of dry weight Cs-137, Pu-238 and Pu-239	• DP-1697, Vol IV, Ch. 3
Sediment	Radiochemical, surveys of radioactivity in offsite creek plantation swamp sediments, 1974-1977, 1982; analysis of Cs-137, Pu-238, Pu-239, and SR-90	• DPSPU-year-302 series • DP-1697, Vol IV, Ch. 3
Sediment	Radiochemical, surveys of radioactivity in holding pond sediment at downriver water treatment facilities, 1982-1983	• DP-1697, Vol IV, Ch. 3

TABLE III-1, Contd.

AVAILABILITY OF SURFACE WATER AND FLOODPLAIN SEDIMENT MONITORING DATA: SAVANNAH RIVER

Media	Overview	Data Availability
Sediment	Pesticides, herbicides and PCBs, routine annual program 1976-1985, 2 stations along river	• DPSPU-year-302 series • DP-1697, Vol IV, Ch. 2
Sediment	Mercury, 1973, special study to analyze for total concentrations of mercury in Savannah River sediment	• DP-1697, Vol IV, Ch. 2
Sediment	Grain size composition, cation exchange capacity, total carbon content, analyzed under the Comprehensive Cooling Water Study, 1984-1985, 36 samples collected upriver of SRP	• Gladden et al., 1986 (unpublished)
Sediment	Metals, analyzed under the Comprehensive Cooling Water Study, 1984-1985, 18 samples collected upriver of SRP, 16 metals	• DPST-85-683

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