WSRC-RP-93-1155

FEDERAL FACILITY AGREEMENT PROGRESS REPORT (U)

Westinghouse Savannah River Company
Savannah River Site
Aiken, South Carolina 29808

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LIST OF ACRONYMS

ACL	Alternate Concentration Limit
ASME	American Society of Mechanical Engineers
BGC	Burial Ground Complex
BGI	Beta Gamma Incinerator
bls	below land surface
BSRI	Bechtel Savannah River Incorporated
BTEX	benzene, toluene, ethylene and xylene
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CIF	Consolidated Incineration Facility
COC	constituents of concern
CSWE	Central Services Works Engineering
CTF	Chemical Transfer Facility
DETF	Dilute Effluent Treatment Facility
DOE	Department of Energy
DOE-HQ	U.S. Department of Energy Headquarters Office
DOE-SR	U.S. Department of Energy Savannah River Operations Office
DNAPL	dense nonaqueous phase liquid
DWPF	Defense Waste Processing Facility
DWS	Drinking Water Standards
EIR	Exposure Information Report
EP	Extraction Procedure
EPA	U.S. Environmental Protection Agency
ELLT	Engineered Low-Level Trench
FFA	Federal Facility Agreement
FFCA	Federal Facility Compliance Agreement
FY	Fiscal Year
GCD	Greater Confinement Disposal
GCD-ET	Greater Confinement Disposal Engineered Trenches
GPR	ground penetrating radar
GSA	General Separations Area
GWPS	Groundwater Protection Standards
HWSF	Hazardous Waste Storage Facility
HWMF	Hazardous Waste Management Facility
LDR	Land Disposal Restrictions
LETF	Liquid Effluent Treatment Facility
LLRWDF	Low Level Radioactive Waste Disposal Facility
MCL	maximum contaminant levels
MEK	methyl ethyl ketone
Met Lab	Metallurgical Laboratory
MWMF	Mixed Waste Management Facility
MWSB	Mixed Waste Storage Building
NBN	No Building Number
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NOD	Notice of Deficiency
NPDES	National Pollution Discharge Elimination System
NPL	National Priority List
OECT	Organic Evaporator Condensate Tank

LIST OF ACRONYMS (CONT'D)

ORWBG	Old Radioactive Waste Burial Ground
OWST	Organic Waste Storage Tank
ORNL	Oak Ridge National Laboratory
PCE	tetrachloroethylene
PHA	pulse heat analyzer
PWITSF	Process Waste Interim Treatment Storage Facility
RCA	Radiologically Controlled Area
RCRA	Resource Conservation and Recovery Act
RFI/RI	Remedial Feasibility Investigation/Remedial Investigation
SCDHEC	South Carolina Department of Health and Environmental Control
SCHWMR	South Carolina Hazardous Waste Management Regulations
SCS	Soil Conservation Service
SREL	Savannah River Ecology Laboratory
SRL	Savannah River Laboratory (now SRTC)
SRTC	Savannah River Technology Center
SRS	Savannah River Site
SWMU	Solid Waste Management Unit
TBP	tributyl phosphate
TCLP	Toxicity Characteristic Leaching Procedure
TCE	trichloroethylene
TPH	total petroleum hydrocarbons
TRU	Transuranic
TRU Pads	Transuranic Waste Storage Pads
USFS	U.S. Forest Service
VOC	volatile organic compound
WMO	Waste Management Operations
WSI	Wackenhut Services Incorporated
WSRC	Westinghouse Savannah River Company

LIST OF ABBREVIATIONS

Ci	curie
d/m/ml	disintegrations/minute/milliliter
ft	foot/feet
ft ³	cubic feet
gpd	gallons per day
gpm	gallons per minute
in	inch/inches
lb	pound
mR/hr	millirem per hour
mrem	millirem
msl	mean sea level
ng/g	nanograms per gram
pCi	picocurie
pCi/g	picocuries per gram
pCi/ml	picocuries per milliliter
pCi/l	picocuries liter
pb	parts per billion
Pu	plutonium
sq	square
yr	year

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1.0 EXECUTIVE SUMMARY

The Savannah River Site (SRS) Federal Facility Agreement (FFA) was established between the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency, Region IV (EPA) and the South Carolina Department of Health and Environmental Control (SCDHEC). The FFA became effective August 16, 1993, and as a result this report was prepared to meet the requirements of Section XXV, Reporting of the Agreement.

This FFA Progress Report has been developed to summarize the information for, and actions taken to date by the DOE at those SRS units identified for remediation in the Agreement. The SRS units and sites are listed in Appendices C, G, and H of the FFA.

Section 3.0, Fiscal Year (FY) 1993 Accomplishments lists the SRS accomplishments during the past year. Section 4.0, Status of the SRS Units, provides a description or discussion of the status for each of the Appendix C, G, and H units. Section 4.1, RCRA/CERCLA Units (Appendix C Units), is organized for clarity in the following subsections: Section 4.1.1 Pit and Pile Units, Section 4.1.2. Basin Units, and Section 4.1.3 Miscellaneous Units. Section 4.2, Site Evaluation List (Appendix G Areas), presents a discussion of the SRS Site Evaluation Program and table on the status of the SRS Site Evaluation Reports. Section 4.3, RCRA Regulated Units (Appendix H Units), presents additional unit descriptions. Section 5, Contractor Assignments provides a list of contractors assisting the SRS to meet its FFA requirements. Section 6, Community Involvement, presents the SRS out reach during the past fiscal year.

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2.0 INTRODUCTION

The (SRS) Federal Facility Agreement (FFA) was made effective by the U.S. Environmental Protection Agency Region IV (EPA) on August 16, 1993. To meet the reporting requirements in Section XXV of the Agreement, the FFA Progress Report was developed. The FFA Progress Report is the first of a series of quarterly progress reports to be prepared by the SRS. As such this report describes the information and action taken to September 30, 1993 on the SRS units identified for investigation and remediation in the Agreement. Future SRS Quarterly Progress Reports will only address the information and actions taken for a given reporting period. The next reporting period for the Quarterly Progress Report will be October 1 to December 31, 1993, the first quarter of fiscal year (FY) 1994.

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3.0 FISCAL YEAR 1993 ACCOMPLISHMENTS

This section describes the accomplishments made by SRS towards the implementation of the Federal Facility Agreement (FFA) during the Fiscal year (FY) of October 1992 through September 1993.

- An Emergency Removal Action for the H-Area Tank 37 Line Leak was undertaken during September and October 1992.
- The Savannah River Site Public Involvement Plan was issued to the public in October 1992.
- The RFI/RI Phase I Work Plan (Rev. 2) for the Tank 37 CTS Line Leak was submitted on October 21, 1992.
- A revised Exposure Information Report (EIR) for the Mixed Waste Hazardous Waste Management Facility (643-28E) was submitted in November 1992.
- The F- and H-Area RCRA Part B Permits became effective November 2, 1992.
- The RFI/RI Phase I Work Plan (Rev. 2) for the D-Area Burning/Rubble Pits (431-D and 431-1D) unit was submitted on November 18, 1992.
- The RFI/RI Phase I Work Plan (Rev. 2) for the F-Area Burning/Rubble Pits (231-F, 231-1F, and 231-2F) unit was submitted on November 18, 1992.
- The 1992 RCRA Part B Post Closure Permit Application (Rev. 0) for the Mixed Waste Management Facility (MWMF) was submitted on November 25, 1992.
- A No Further Action Proposed Plan for Gunsite 720 Rubble Pit (631-16G) was submitted on November 28, 1992.
- The RFI/RI Phase I Work Plan (Rev. 0) for the Ford Building Waste Site (643-11G) was submitted on December 1, 1992.
- The Screening Risk Evaluation for the New TNX Seepage Basin was submitted on December 21, 1992.
- The 1992 RCRA Part B Renewal Application (Rev. 1) for the Defense Waste Processing Facility Organic Waste Storage Tank (DWPF-OWST) was submitted on January 11, 1993.
- The Interim Action Proposed Plan (IAPP) (Rev. 1) for the TNX Groundwater (NBN) unit was submitted on January 22, 1993.
- The RFI/RI Phase I Work Plan (Rev. 2) for the L-Area Oil and Chemical Basin (904-83G) was submitted on February 4, 1993.
- The RFI/RI Phase II Work Plan (Rev. 2) for the Old F-Area Seepage Basin (904-49G) unit was submitted in February 17, 1993.
- The 1992 RCRA Part B Permit Renewal Application (Rev. 1) for the M-Area Hazardous Waste Management Facility was submitted in March 1993.
- The RFI/RI Phase II Work Plan (Rev. 2) for the Burma Road Rubble Pit (231-4F) was submitted on March 1, 1993.
- The RCRA Part B Post Closure Permit Application for the Sanitary Landfill (740-G) was submitted on March 31, 1993.
- The RFI/RI Phase I Work Plan (Rev. 2) for the Silverton Road Waste Site (731-3A) unit was submitted on March 31, 1993.
- All surface debris was removed from the Grace Road Site (631-22G) unit in April 1993.
- Geophysical and soil gas surveys were conducted at the M-Area West (631-22G) unit in April 1993.
- The 1992 RCRA Part B Post Closure Permit Application (Rev. 1) for the MWMF was submitted on April 2, 1993.
- The RFI/RI Phase I Work Plan (Rev. 2) for the D-Area Burning/Rubble Pits (431-D and 431-1D) unit was approved in May 1993.

- An addendum to the RFI/RI Phase I Work Plan (Rev. 0) for the Gunsite 720 Rubble Pit (631-16G) unit was submitted in May 1993.
- The Removal Action at Par Pond (NBN) was undertaken in May and June 1993.
- An addendum to the RFI/RI Phase I Work Plan (Rev. 0) for the Gunsite 113 Access Road (631-24G) unit was submitted in May 1993.
- The RFI/RI Phase I Work Plan (Rev. 2) for Central Shops Burning/Rubble Pit (631-6G) was submitted on May 27, 1993.
- The A/M Area Fundamental Study Area Interim Action Proposed Plan was submitted in June 1993.
- The RFI/RI Phase II Characterization for the D-Area Burning/Rubble Pits (431-D and 431-ID) began on June 7, 1993.
- The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Proposed Plans for the F- and H-Area Hazardous Waste Management Facilities Source Control Operable Units were submitted on June 10, 1993.
- The Closure Plan for the Low Level Radioactive Waste Disposal Facility (LLRWDF) (RCRA Regulated Portions) was submitted on June 18, 1993.
- The Field Characterization Report (Rev. 2) for the F-Area Burning/Rubble Pits (231-F, 231-1F, and 231-2F) was submitted on July 16, 1993.
- A response to the Notice of Deficiency on the 1992 RCRA Part B Permit Renewal Application (Rev. 0) for the Hazardous Waste Storage Facility (709-G, -2G, -4G, 710-G, and Solid Waste Storage Pads) was submitted on July 19, 1993.
- A revised Interim Action Proposed Plan (IAPP) (Rev. 2) for the TNX Groundwater (NBN) unit was submitted on July 22, 1993.
- The Unit Sampling Plan for D-Area Oil Seepage Basin (631-6) was submitted on August 10, 1993.
- The Savannah River Site Federal Facility Agreement became effective on August 16, 1993.
- An addendum to the RFI/RI Phase I Work Plan (Rev. 2) for L-Area Oil and Chemical Basin (904-83G) was submitted on August 26, 1993.
- The Site Evaluation Reports for 26 areas on the Savannah River Site were submitted.

4.0 STATUS OF THE SAVANNAH RIVER SITE UNITS

4.1 RCRA/CERCLA Units (Appendix C Units)

4.1.1 Pits and Piles Units

4.1.1.1 A-Area Burning/Rubble Pits (731-A and 731-1A) and A-Area Rubble Pit (731-2A)

Description

The A-Area Burning/Rubble Pits (731-A and 731-1A) and the Rubble Pit (731-2A) are located 1.5 miles south of M-Area and just west of Roads D and C-1.

731-A and 1A: The burning/rubble pits operated from 1951 to 1973. The 731-A and 1A pits are approximately 330 ft long by 180 ft wide by 10 ft deep and 570 ft long by 30 ft wide by 10 ft deep, respectively. During the operation of the pits, spent organic solvents, waste oils, rags, paper, plastics, wood, telephone poles, and rubber were disposed of and periodically (monthly) burned. In 1973 the burning of wastes ceased at SRS. A layer of soil was placed over the pit debris and then was filled to capacity with rubble such as concrete, brick, tile, asphalt, plastics, wallboard, rubber, and nonreturnable empty drums. When the pits were filled to capacity, a layer of soil was placed over the pit. All burning/rubble pits were closed by 1981.

731-2A: The A-Area Rubble Pit operated from approximately 1973 to 1983. The 731-2A pit is approximately 650 ft long by 40 ft wide by 20 ft deep. Rubble disposed of in the pit included dry, inert concrete; lumber, cement, fence and telephone poles, brick, tile, wallboard, paneling, metal scraps, drums, electrical conduit, and plastics. The pit was filled with soil and closed by 1983.

The constituents of concern in the soil for the 731-A, 731-1A, and 731-2A pits are trichloroethylene (TCE), tetrachloroethylene (PCE), other volatile organics and free oil or sludge, and in groundwater TCE, PCE, dichloromethane, lead, iron, mercury and total radium.

Accomplishments/Activities

Four monitoring wells surrounding the A-Area Burning/Rubble Pits, were installed in December 1983, February and June 1984. Quarterly groundwater data has been collected since the wells were installed. Results show that the above mentioned substances have exceeded the Environmental Protection Agency (EPA) maximum contaminant levels (MCL) at least once. Soil gas sampling was performed in 1988 at the A-Area Burning/Rubble Pits and in 1991 at the A-Area Burning/Rubble Pits and the A-Area Rubble Pit. In addition, ground penetrating radar (GPR) survey was performed and site screening was conducted at the A-Area Burning/Rubble Pits. Samples were collected from four soil borings to various depths within the burning rubble pits. On September 10, 1992, a GPR survey was conducted over both the burning/rubble pit and the rubble pits.

The RFI/RI Phase I Work Plan (Rev. 0) as part of the Eight Burning/Rubble Pits Work Plan received by EPA and SCDHEC on December 7, 1990. EPA comments on the A-Area Burning/Rubble pits were received on October 1, 1991. However, this unit was taken out of the Eight Burning/Rubble Pits Work Plan and incorporated with the A-Area Rubble Pit. The

RFI/RI Work Plan (Rev. 1) for the A-Area Burning/Rubble Pits and A-Area Rubble Pit was received by EPA and SCDHEC on August 31, 1992. The SRS is currently revising RFI/RI Phase I Work Plan (Rev. 1) to incorporate comments from SCDHEC that were received on June 28, 1993.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

The RFI/RI Phase I Work Plan (Rev. 2) will be submitted to EPA and SCDHEC in October 1993.

4.1.1.2 A-Area Rubble Pile (731-6A)

Description

The A-Area Rubble Pile (731-6A) is located in the northwest portion of the SRS. It is approximately 600 ft long by 50 to 200 ft wide, and covers roughly 2 acres.

The A-Area Rubble Pile was used for bulk solid waste disposal during the SRS plant construction. Although there is no record of the dates of operation of the rubble pile, it may have received waste from the time of plant construction, 1952 to the early 1970s. The waste in the area is suspected to consist of construction rubble. Visual surveys have noted the presence of concrete, wood, asphalt, vegetation, tree stumps, scrap metal, and old metal containers. The constituents of concern based on a soil gas survey are methane, propane, ethane, pentane, octane, propylene, and ethylene.

Accomplishments/Activities

Soil gas sampling was performed in May 1991. Neither groundwater sampling nor soil sampling has been performed. The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on August 6, 1991.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.1.3 Bingham Pump Outage Pits (643-1G, -2G, -3G, -4G, -8G, -9G, and -10G)

Description

The Bingham Pump Outage Pits unit is a series of unlined earthen pits located outside the fences of reactor areas: K (1 pit), L (2 pits), P (1 pit), and R (3 pits). The pits are considered

as a single Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) operable unit.

Repairs to primary and secondary reactor cooling systems were performed between 1957 and 1958. The outages of the cooling water systems that occurred as a result of the modifications became known as the Bingham Pump Outages. The pits received low-level (less than 25 millirem per hour [mR/hr]) debris generated by the repairs such as pipes, cables, ladders, drums, and boxes of miscellaneous hardware. No pumps are buried at the pits. The pits were excavated to a depth of 13 ft, filled with approximately 9 ft of debris, and backfilled with approximately 4 ft of cover soil. It is conservatively estimated that at the time of burial, the total amount of activity buried in each reactor area was 1 curie (Ci). Roughly 70% of this activity is estimated to have been eliminated through radioactive decay since 1958.

Accomplishments/Activities

A GPR survey was performed to delineate pit boundaries. Surface radiation levels recently measured by Health Protection revealed no detectable surface radiation. A soil gas survey also indicated very low levels of volatile organic compounds (VOCs).

The CERCLA Remedial Investigation Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on July 1, 1992. Additional GPR surveys will be conducted to confirm pit boundaries during September 1993.

Concerns

None.

Scheduled Activities for Next Quarter

None.

4.1.1.4 Burma Road Rubble Pit (231-4F)

Description

The Burma Road Rubble Pit (231-4F) is just south of old Burma Road, approximately 0.1 miles west of the intersection of Road C and the entrance road to F-Area.

Waste disposal at the Burma Road Rubble Pit began in 1973. The site consists of two elongated, irregular-shaped trenches, approximately 400 ft long by 50 ft wide by 10 ft deep. Dry, inert rubble was deposited, metal, concrete, lumber, poles, fluorescent light fixtures, and glass. The total volume of these products at this pit is unknown. No hazardous substances are documented to have been buried at this unit. The pit was backfilled and seeded after its last use in 1983. The constituents of concern are light hydrocarbons, aromatic hydrocarbons (BTEX), TCE, (PCE), and mercury.

Accomplishments/Activities

Soil: A GPR survey conducted in September 1988 revealed three areas of disturbed soil. A small area of disturbed soil was discovered in the southeast corner of the unit from the survey data. The disturbed soil area most likely contains only soil used to backfill the two pits.

An additional GPR survey was performed to better delineate trench boundaries, locate buried hazards (drums, etc.), and better define the extent and content of the disturbed soil area. A magnetometer survey was also performed to detect buried hazards.

Soil Gas: A soil gas survey was conducted at this unit in October 1990. Results of the survey indicated the above-mentioned constituents registered above background levels. A second soil gas survey was conducted around the trench perimeter to better delineate the boundaries of the VOC contamination found during the initial surveys.

Groundwater: Five monitoring wells were installed in the immediate vicinity of the pit to detect any possible release. Results of the groundwater chemical analyses indicated no volatile compounds, organic compounds, pesticides, PCBs, or semi-volatile or compounds at the site. Tritium concentrations exceeded MCLs in three wells. Chromium, lead, manganese, iron, TOX, total radium, and alpha radium were also detected.

EPA and SCDHEC received the RFI/RI Phase II Work Plan (Rev. 0) on October 11, 1990. EPA comments were received by SRS on June 5, 1991. The RFI/RI Phase II Work Plan (Rev. 1) was received by EPA and SCDHEC on September 10, 1991. SCDHEC comments were received by SRS on December 1, 1992. The RFI/RI Phase II Work Plan (Rev. 2) was received by EPA and SCDHEC on March 3, 1993, after incorporation of the (Rev. 1) comments. SCDHEC comments were received on the RFI/RI Phase II Workplan (Rev. 2) on June 22, 1993. SCDHEC granted conditional workplan approval provided the three comments were addressed. The comment responses were sent to SCDHEC and EPA in August 1993.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

An electromagnetic survey is to be performed to better define the pits boundaries and detect buried hazards. A magnetometer survey is ongoing to further assess the existence of buried hazards.

Soil: A series of boreholes and surface soil and sediment samples will be taken. The boreholes will be used to determine geotechnical and contaminant parameters. In addition, there are nine cone penetrometer locations with five hydrocone samples to be taken.

Groundwater: Three new well clusters of three wells each will be installed: one up-gradient, one lateral, and one down-gradient. Two wells which were installed for F-Area Inactive Process Sewer Line Groundwater Assessment will be used to provide up-gradient and lateral groundwater quality information.

4.1.1.5 C-Area Burning/Rubble Pit (131-C)

Description

The C-Area Burning/Rubble Pit (131-C) is located west of C-Area and north of Road A-7 on a ridge between two tributaries of Four Mile Creek.

The C-Area Burning/Rubble Pit was a shallow, unlined excavation dug in 1951 with dimensions of 350 ft long by 25 ft wide by 10 ft deep. Beginning in 1951 combustible wastes were accumulated in the unlined pit and periodically burned. During operation, the C-Area Burning/Rubble Pit received spent organic solvents, waste oils, paper, plastics, and rubber materials. The burning of waste was halted in 1973. Afterwards, the pit typically received nonsalvageable rubble materials such as concrete, brick, tile, asphalt, wallboard, lumber, rubber, and nonreturnable empty drums. When the pit became full it was backfilled with soil and sediments to grade level.

Although the C-Area Burning/Rubble Pit appears to have received hazardous waste, there is no record of it receiving radioactive waste. The constituents of concern include chlorinated solvents and metals including antimony, lead, arsenic, radium, chromium, cadmium, nickel, barium, copper, tin, and zinc. Also of concern are cyanide xylene and phenolic constituents. Further evaluation of the extent soil and groundwater contamination will be conducted for this unit.

Accomplishments/Activities

Soil: A soil gas survey was conducted at the C-Area Burning/Rubble Pit in 1985 and 1986. The results indicated a presence of chlorinated solvents. In 1989 a unit screening program was completed at the C-Area Burning/Rubble Pit. The results showed at least one sample had at least one of the substances listed above. During this unit screening, a GPR survey was conducted to locate the boundaries of the pit and to locate buried objects.

Groundwater: The (SRS) Groundwater Monitoring Program data from 1984 through 1990 indicated groundwater beneath the C-Area Burning/Rubble Pit exceeded EPA MCLs at least one time for the substances listed above.

The RFI/RI Phase I Work Plan (Rev. 0) was submitted as part of the Eight Burning/Rubble Pits Work Plan received by EPA and SCDHEC on December 7, 1990. EPA comments on the C-Area Burning/Rubble Pit were received by SRS on October 1, 1991. This unit was taken out of the Eight Burning/Rubble Pits Work Plan according to EPA direction. The RFI/RI RFI/RI Phase I Work Plan (Rev. 1) for the C-Area Burning/Rubble Pit was received by EPA and SCDHEC on December 31, 1991.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Sampling of four monitoring wells will be conducted at the unit.

4.1.1.6 Central Shops Burning/Rubble Pits (631-1G and 631-3G)

Description

The Central Shops-Area Burning/Rubble Pits (631-1G and 631-3G) are located approximately 1,000 ft north of the Central Shops-Area in the central part of the SRS.

The units are two separate disposal areas which have been grouped together due to their close proximity and similarity of function. Between 1951 and 1973 both pits were used for the disposal of various waste materials including hazardous substances like organic solvents. The 631-1G and 631-3G pits are approximately 200 ft long by 30 ft wide by 10 ft deep and 400 ft long by 50 ft wide by 40 ft deep, respectively. Pit 631-1G, from 1973 until 1978, was used solely for the disposal of inert solid wastes. Disposal activities ceased in 1978, and the area was covered with soil. Pit 631-3G, from 1973 to 1983, was used for the disposal of dry inert rubble. The disposal area was covered in 1983 with soil to form a linear mound. The constituents of concern identified by preliminary soil sampling in both pits are benzene, toluene, components of gasoline and paints, and chlorinated and organic solvents. The nature and extent of soil contamination within each of the listed limits will be determined during additional soil sampling and geophysical surveying.

Accomplishments/Activities

Soil: A preliminary soil gas survey, conducted at the units, indicates the presence of the above-mentioned materials in the disposal area.

Groundwater: Four monitoring wells exist at this unit, but only one is downgradient from the unit. It does not indicate any contaminated groundwater is present at the unit. However, groundwater samples from monitoring wells at similar burning/rubble pits elsewhere at SRS have shown concentrations of certain metals and organic compounds above background. This information may indicate groundwater conditions at the units, because available information suggests all burning/rubble pits may have received similar wastes.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on March 8, 1991.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Sampling of four monitoring wells will be conducted at the unit.

4.1.1.7 Central Shops Burning/Rubble Pit (631-5G)

Description

The Central Shops-Area Burning Rubble Pit unit (Building No. 631-5G) is located approximately 1,000 ft north of the Central Shops-Area in the central part of the SRS, it was constructed for the disposal of various waste materials.

The pit was originally reported to exist adjacent to, and be a part of, Burning/Rubble Piles 631-1G and 631-3G. Recent land clearings indicate that the unit was a separate disposal facility, located west and southwest of the original designated location. Approximate dimensions of the pit are 385 ft long by 35 ft wide by 10 ft deep. This pit was used from 1951 until 1973 for the burning of wastes, including hazardous substances such as organic solvents. From 1973 to 1978 it was used to dispose of inert solid wastes. In 1978 disposal activities ceased, at which time the pit was covered with soil. The constituents of concern are organic chemical compounds and mercury.

Accomplishments/Activities

Soil: A preliminary soil gas survey, conducted at the unit, indicates the presence of organic compounds and mercury in the disposal area.

Groundwater: No groundwater monitoring wells exist at the unit to indicate the quality of groundwater at this unit. Groundwater samples from monitoring wells at similar Burning Rubble Pits elsewhere at SRS have shown concentrations of certain metals and organic compounds above background. This information may indicate groundwater conditions at the unit, since available information suggests all burning/rubble pits may have received similar wastes.

Geophysical: A GPR survey was completed to delineate trench survey and debris locations.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on March 8, 1991.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.1.8 Central Shops Burning/Rubble Pit (631-6G)

Description

The Central Shops-Area Burning/Rubble Pit unit (631-6G) is located at the extreme southeastern tip of the Central Shops-Area, adjacent to the northern side of the railroad track in the central part of the SRS. It was constructed for the disposal of various waste materials.

This pit was used from 1951 until 1973 for the burning of wastes, including hazardous substances like organic solvents. From 1973 to 1978 it was used to dispose of inert solid wastes. In 1978 disposal activities ceased, at which time the pit was covered with soil. Based on historical accounts, the disposal area of the unit was initially considered to be within a rectangular area approximately 275 ft long and 30 to 45 ft wide.

Data from a recent GPR survey indicated that the soil in most of the rectangular is undisturbed. Therefore, it is unlikely that the surveyed rectangular area encloses the pit. However, the GPR

survey did detect two areas of disturbed soil which may represent the disposal site. The largest area is southwest of the original rectangular area. This area forms a rectangle 20 ft wide and 180 ft long. The second area is around the southwestern portion of the originally surveyed rectangular area. It has an elliptical shape, and by comparison with other similar areas at other burning/rubble pits, the smaller zone may represent a borrow area for waste cover. The constituents of concern in the soil are organic compounds, mercury, cadmium, and chromium metals.

Accomplishments/Activities

Unit Screening: A unit screening was begun in October 1990 at the site to confirm or deny the presence of hazardous substances in the soil, and to identify areas of hazardous substance release. The portions of the unit screening performed thus far include a geophysical and soil gas surveys.

Soil Gas: A preliminary soil gas survey, conducted at the unit, indicated the presence of organic compounds in the disposal area. A subsequent soil gas survey was performed during the period October 1990 to November 1991 to confirm the presence of hazardous substances detected in the preliminary soil gas survey, and detect any additional, or increasing concentrations of volatile organic substances in the surrounding soil.

Soil: In addition a geophysical survey was performed to determine the aerial extent of disturbed soil indicative of excavation, and to locate any drums or other solid debris buried at the site in August 1992.

Groundwater: Three monitoring wells were installed in January and February 1990 at the unit to provide sampling sites for shallow groundwater. Results from the samples showed a detection of nonvolatile beta, total activity, and tritium in some of the wells.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on October 23, 1990. EPA comments were received by SRS on June 5, 1991. The RFI/RI Phase I Work Plan (Rev. 1) was received by EPA and SCDHEC on September 10, 1991. SCDHEC comments were received by SRS on February 25, 1993. The RFI/RI Phase I Work Plan (Rev. 2) was received by EPA and SCDHEC on May 27, 1993. The RFI/RI Phase I Work Plan (Rev. 2) was approved on August 12, 1993.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Awaiting work plan schedule approval from EPA and SCDHEC.

4.1.1.9 CMP Pits (080-17G, -18G, -19G, -17.1G, -18.1G, -18.2G, and -18.3G)

Description

The Chemicals, Metals, and Pesticide Pits (CMP Pits) are located approximately 1 mile north of L-Area and 1 mile northeast of the 131-3L Rubble Disposal Area.

This unit originally consisted of seven unlined pits which were designed to receive nonradioactive wastes such as spent solvents, pesticides, and toxic metals. Each pit was roughly 45 to 70 ft long, 10 to 15 ft wide, and 10 to 15 ft deep. The pits were in use from August 1971 until February 1979. In December 1979 the pits were taken out of operation permanently. In 1984 the pits were excavated, and the waste materials were removed. Then the area was backfilled, and capped with a geosynthetic material.

Accomplishments/Activities

During 1984 a series of well clusters were installed to monitor groundwater. Groundwater monitoring data at the unit indicated the presence of VOCs and metals in the groundwater in various wells. A soil gas survey was performed in the vicinity of the CMP Pits in 1991. Preliminary results of this survey indicated the soils near or beneath the CMP Pits contained VOCs. The soil gas survey also suggested that additional monitoring wells were required to characterize groundwater contamination.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on March 2, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.1.10 D-Area Burning/Rubble Pits (431-D and 431-1D)

Description

The D-Area Burning/Rubble Pits (431-D and 431-1D) are located on the western portion of D-Area.

The 431-D Pit is approximately 258 ft long by 46 ft wide by 10 ft deep and 431-1D Pit is approximately 229 ft long by 37 ft wide by 10 ft deep. The burning/rubble pits operated from 1951 to 1973. During the operation of the pits, spent organic solvents, waste oils, rags, paper, plastics, wood, telephone poles, and rubber were disposed of and periodically (monthly) burned. In 1973 the burning of wastes ceased at SRS. A layer of soil was placed over the pit debris and then was filled to capacity with rubble such as concrete, brick, tile, asphalt, plastics, wallboard, rubber, and nonreturnable empty drums. When the pits were filled to capacity, a layer of soil was placed over the pit. All burning/rubble pits were closed by 1981. The constituents of concern are low concentrations of metals (arsenic, barium, chromium, copper,

lead, mercury, nickel, selenium) and semivolatile organics in soil; also metals (iron, lead, manganese) in groundwater.

Accomplishments/Activities

Four monitoring wells surrounding the D-Area Burning/Rubble Pits were installed in September 1983 and June 1984. Quarterly groundwater data has been collected since the wells were installed. Results show that the above-mentioned substances have exceeded EPA MCL at least once. GPR was run in 1988. Soil gas sampling was performed in 1991, and site screening was conducted in November 1989. A backhoe was used to trench across the pits for sampling and to identify the pit boundaries.

Samples were collected from four soil borings to various depths (two inside and two outside the pits).

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on August 6, 1990. EPA comments were received by SRS on February 7, 1991. The RFI/RI Phase I Work Plan (Rev. 1) was received by EPA and SCDHEC on May 9, 1991. Comments from SCDHEC were received by SRS on August 19, 1992.

The RFI/RI Phase I Work Plan (Rev. 2) was received by EPA and SCDHEC on November 18, 1992. The RFI/RI Phase I Work Plan (Rev. 2) was approved by EPA and SCDHEC in May 1993. The RFI/RI Phase II field characterization began on June 7, 1993. Sampling involved: eight soil borings within the pits, four soil borings outside the pits, three hydropunch groundwater samples outside the pits, one permanent monitoring well installed outside the pits, and nine surface waste/sediment samples collected from a nearby creek and wetland.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Groundwater sampling at the four existing monitoring wells and the installation of the new well. Receipt of analytical data from the lab for soil and groundwater samples, and begin preparation of the Baseline Risk Assessment and the RFI/RI Summary Report.

4.1.1.11 F-Area Burning/Rubble Pits (231-F and 231-1F) and F-Area Rubble Pit (231-2F)

Description

The F-Area Burning/Rubble Pits (231-F and 231-1F) and the F-Area Rubble Pit (231-2F) are located off of Road C, near the F-Area facility.

Burning/Rubble Pits: The 231-F Pit is approximately 275 ft long by 50 ft wide by 10 ft deep, and the 231-1F Pit is approximately 325 ft long by 50 ft wide by 10 ft deep. The burning/rubble pits operated from 1951 to 1973. During the operation of the pits, spent organic solvents, waste oils, rags, paper, plastics, wood, telephone poles, and rubber were disposed of and periodically (monthly) burned. In 1973, the burning of wastes ceased at SRS.

A layer of soil was placed over the pit debris and then was filled to capacity with rubble such as concrete, brick, tile, asphalt, plastics, wallboard, rubber, and nonreturnable empty drums. When the pits were filled to capacity, a layer of soil was placed over the pit. All burning/rubble pits were closed by 1981.

Rubble Pit: The 231-2F is approximately 200 ft long by 40 ft wide by 10 ft deep. The F-Area Rubble Pit operated from approximately 1951 to 1970. Rubble disposed of in the pit includes dry inert concrete, lumber, cement, fence and telephone poles, brick, tile, wallboard, paneling, metal scraps, drums, electrical conduit, and plastics. The pit was filled with soil and closed by 1983.

The constituents of concern for the unit are low concentrations of metals (arsenic, barium, chromium, lead, mercury, and nickel), semi-volatile organics in soil, and metals (radium, lead, and iron), nitrates, and semi-volatiles in groundwater.

Accomplishments/Activities

Burning/Rubble Pit: Four monitoring wells surrounding the F-Area Burning/Rubble Pits (231-F and 231-1F) were installed in September 1983 and July 1984. Quarterly groundwater data has been collected since the wells were installed. Results show that the above-mentioned substances have exceeded EPA at least once. GPR was run in 1988; soil gas sampling was performed in 1986 and 1991; unit screening was conducted in November 1989. A backhoe was used to trench across the pits for sampling and to identify the pit boundaries. Samples were collected from five soil borings to various depths.

The RFI/RI Phase I Work Plan (Rev. 0) was submitted as part of the Eight Burning/Rubble Pits Work Plan received by EPA and SCDHEC on December 7, 1990. EPA comments on the F-Area Burning/Rubble Pit were received on October 1, 1991. This unit was taken out of the Eight Burning/Rubble Pits Work Plan according to EPA direction. The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on August 6, 1990. EPA comments were received on January 29, 1991.

The RFI/RI Phase I Work Plan (Rev. 1) on the F-Area Burning/Rubble Pit was received by EPA and SCDHEC on April 30, 1991. Comments from SCDHEC were received on July 27, 1992. The RFI/RI Phase I Work Plan (Rev. 2) was received by EPA and SCDHEC on November 18, 1992. SCDHEC approved the Work Plan (Rev. 2) on April 6, 1993.

As part of the Work Plan (Rev. 2) a characterization of the unit was performed from May 4 to August 6, 1993. 12 soil borings were taken within the pits (4 in each pit) and 4 deep soil borings for geohydrologic data were completed. Seven temporary monitoring wells and six permanent monitoring wells were installed. Approximately 228 soil and water samples were sent to contract laboratories for analyses.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Validated analytical data will be received from the characterization field work and evaluated for characterization report.

4.1.1.12 K-Area Burning/Rubble Pit (131-K)

Description

The K-Area Burning/Rubble Pit (131-K) is located east of the K-Reactor.

The 131-K Pit is approximately 240 ft long by 30 ft wide by 10 ft deep. The burning/rubble pits operated from 1951 to 1973. During the operation of the pits, spent organic solvents, waste oils, rags, paper, plastics, wood, telephone poles, and rubber were disposed of and periodically (monthly) burned. In 1973, the burning of wastes ceased at SRS. A layer of soil was placed over the pit debris and then was filled to capacity with rubble such as concrete, brick, tile, asphalt, plastics, wallboard, rubber, and nonreturnable empty drums. When the pits were filled to capacity, a layer of soil was placed over the pit. All burning/rubble pits were closed by 1981.

Preliminary soil, soil gas, and groundwater screening of the area showed solvents in groundwater and low concentrations of arsenic, chromium, lead, and components of waste oils or insecticides in area soil.

Accomplishments/Activities

Four monitoring wells surrounding the K-Area Burning/Rubble Pit were installed in October 1983 and August 1984. Quarterly groundwater data has been collected since the wells were installed. Results show that the above-mentioned substances have exceeded EPA MCLs at least once. GPR was run in 1988; soil gas sampling was performed in 1988 and 1991; site screening was conducted in October 1988. Samples were collected from four soil borings, three inside the pit and one outside, to various depths.

The RFI/RI Phase I Work Plan (Rev. 0) was submitted as part of the Eight Burning/Rubble Pits Work Plan received by EPA and SCDHEC on December 7, 1990. EPA comments on the K-Area Burning/Rubble Pit were received on October 1, 1991. This unit was taken out of the Eight Burning/Rubble Pits Work Plan according to EPA direction. The RFI/RI Phase I Work Plan (Rev. 1) for the K-Area Burning/Rubble Pit was received by EPA and SCDHEC on December 31, 1991.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.1.13 K-Area Rubble Pile (631-20G)

Description

The K-Area Rubble Pile (631-20G) is located east of the K-Reactor.

The 631-20G Pile is approximately 300 ft long, 50 to 125 ft wide, and 4 to 6 ft high. The K-Area Rubble Pile was used for bulk solid waste disposal during the SRS plant construction and may have received waste from the time of plant construction to the early 1970s. The waste in the area is suspected to consist of construction rubble which was not disposed of in the adjacent K-Area Burning/Rubble Pit. Visual surveys have noted the presence of concrete, wood, asphalt, vegetation and tree stumps, scrap metal, and old metal containers.

Accomplishments/Activities

Soil gas sampling was performed in 1991. The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on November 6, 1991.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.1.14 L-Area Burning/Rubble Pit (131-L)

Description

The L-Area Burning/Rubble Pit (131-L) is located in a grassy, fenced in, level area approximately 1/4 mile northwest of L-Area off Road 7.

The L-Area Burning/Rubble Pit was constructed in 1951. Dimensions of the pit were approximately 230 ft long by 29 ft wide by and 10 ft deep. Actual contents of the L-Area Burning Rubble Pit are not fully known, but it is assumed, from information from other Burning Rubble Pits at SRS, that wastes such as waste oils, paper, plastics, rubber materials, rags, wood, cardboard, degreasers, and solvents were disposed of (burned) on a monthly basis. The burning of waste at the SRS was discontinued in October 1973. A layer of soil was placed over the burned remains and the pit was filled with nonsalvageable rubble materials such as concrete, brick, tile, asphalt, wood, wallboard, lumber, rubber, and nonreturnable empty drums and cans. In 1978 the pit became full and was backfilled with soil and sediments to grade level.

Accomplishments/Activities

Soil: A soil gas survey was conducted at the L-Area Burning/Rubble Pit in 1991. The results indicated a presence of chlorinated solvents. In 1989 a unit screening program was completed at the L-Area Burning/Rubble Pit. The results showed laboratory chemicals and chemical components of waste oil in soil samples obtained with the Burning/Rubble Pit confines. Other

chemical findings included trace amounts of trichloroethane, (PCE), trichloropropane, toluene, and DDT. Among the metals discovered were arsenic, barium, cadmium, chromium, lead, and silver. During this unit screening a GPR survey was conducted to locate the boundaries of the pit.

Groundwater: The SRS Groundwater Monitoring Program data, from 1984 through second quarter 1991, indicated that the substances above have exceeded the EPA MCLs.

The RFI/RI Phase I Work Plan (Rev. 0) was submitted as part of the Eight Burning/Rubble Pits Work Plan received by EPA and SCDHEC on December 7, 1990. EPA comments on the L-Area Burning/Rubble Pit were received on October 1, 1991. This unit was taken out of the Eight Burning/Rubble Pits Work Plan according to EPA direction. The RFI/RI Phase II Work Plan (Rev. 1) for the L-Area Burning/Rubble Pit was received by EPA and SCDHEC on February 1, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Continued monitoring well sampling and analysis for the constituents of concern.

4.1.1.15 L-Area Rubble Pit (131-1L)

Description

The L-Area Rubble Pit (131-1L) is located 150 ft east of the inactive L-Area Reactor in the central region of the SRS.

The L-Area Rubble Pit is approximately 150 ft long by 40 ft wide. The depth of the pit is unknown, although historically the SRS practice was to use 10-ft deep disposal trenches. Exact dates of operation and specific materials disposed here are unknown, although it is suspected to be some type of construction debris such as metal, lumber, poles, and concrete. It is unknown whether hazardous wastes are present at the site. The constituents of concern based on preliminary soil gas survey data are VOCs.

Accomplishments/Activities

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on November 6, 1991.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.1.16 L-Area Rubble Pit (131-3L)

Description

The L-Area Rubble Pit (131-3L) is located on the north side of a dirt road, northwest of L-Area.

Dimensions of the unit are 500 ft long by 120 ft wide. It is unknown when disposal activities at the unit occurred, nor the types and volumes of wastes that were disposed there because waste disposal activities at the site were not recorded. The unit consists of several rubble pits, randomly scattered throughout the area. Based on the sizes and shapes of the rubble pits, disposal at 131-3L apparently consisted of dumping truckloads of waste on the land surface. Wastes are not believed to be buried at the unit because there is no visible evidence of excavation. However, rubble pits may have been leveled or reworked with heavy machinery. Assorted cans, bottles, construction timbers, and scrap metal is visible on the surface of the rubble pits. The unit is overgrown with brush and trees, suggesting that it has been inactive for many years. The constituents of concern based on soil gas surveys are chloroform, TCE, PCE, carbon tetrachloride, and o-xylene.

Accomplishments/Activities

Soil: A reconnaissance soil gas survey, completed February 1991, indicated that 131-3L may contain the VOCs.

Groundwater: Four monitoring wells were installed 200 to 400 ft south (adjacent to 131-L) of the unit in 1984 to check for metals, organic compounds, and radioactivity in the water. But because they are located upgradient or lateral with respect to hydraulic gradient from 131-3L, they are not suitable for analyzing groundwater at 131-3L.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on June 7, 1991. The SRS received EPA comments on the RFI/RI Phase I Work Plan (Rev. 0) on December 9, 1991 and the RFI/RI Phase I Work Plan (Rev. 1) was received by EPA and SCDHEC on March 7, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.1.17 Miscellaneous Chemicals Basin/Metals Burning Pit (731-4A and 731-5A)

Description

The Miscellaneous Chemicals Basin/Metals Burning Pit (731-4A and 731-5A) are located 1.5 miles south of A/M Area operations (northwest portion of the SRS) 1/4 mile from road D, on either side of dirt Road C-1, 3 miles east of the SRS boundary.

This unit is actually composed of two separate areas in close proximity. The Miscellaneous Chemicals Basin is a 20 ft long by 20 ft wide by 1 ft deep borrow pit on the east side of Road C-1 and the Metals Burning Pit is approximately a 400 ft long by 400 ft wide irregularly shaped cleared area on the west side of Road C-1. Records indicate no excavation, despite the designation pit. Groundwater flow is multidirectional in this region.

Miscellaneous Chemicals Basin (731-4A): Photographs indicate that the basin was used to receive liquid chemical waste from approximately 1956 to 1974. The basin was regraded in 1974 and allowed to revegetate. No records exist as to the creation or original purpose of the borrow pit. No records of specific materials disposed were kept, but its presumed use was for disposal of waste solvent and used oil. It is believed that partially full drums were emptied here and then discarded at the Metals Burning Pit. Exact basin boundaries have not been determined.

Metals Burning Pit (731-5A): The Pit was in service from 1960 to 1974 and used as a burning area for lithium-aluminum alloys, scrap, and cuttings from the A/M Area operations. Wastes were primarily contained in two discrete areas, in one large pile and a series of small piles oriented in a semicircular arc. In 1974 waste piles were regraded with onsite soil and the area was allowed to revegetate.

The constituents of concern for the basin are VOCs, cleaning and degreasing solvents, aluminum, and trace amounts of lithium and lead. For the pit the constituents are solvents, lithium, and aluminum metals.

Accomplishments/Activities

Two soil gas surveys were performed in 1986 on the unit. In 1987, groundwater monitoring wells were placed around the units for quarterly monitoring. Three wells and two piezometers were installed at the Miscellaneous Chemical Basin, and four wells were installed at the Metals Burning Pit. Both units were evaluated as part of the 1990 Preliminary Characterization Summary/Preliminary Risk Assessment Report. A soil gas survey for a proposed vegetation study was performed in 1992. The data from this survey was used in the preparation of the RFI/RI Work Plan (Rev. 0).

The RFI/RI Phase II Work Plan (Rev. 0) was received by the EPA and SCDHEC on June 30, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Scheduled groundwater monitoring will be conducted at the unit.

4.1.1.18 P-Area Burning/Rubble Pit (131-P)

Description

The P-Area Burning/Rubble Pit (131-P) is located 1/2 mile west of P-Area and just south of Road F.

The 131-P Pit is approximately 210 ft long by 60 ft wide by 14 ft deep. The burning/rubble pits operated from 1951 to 1973. During the operation of the pit, spent organic solvents, waste oils, rags, paper, plastics, wood, telephone poles, cardboard, oil, and rubber were disposed of and periodically (monthly) burned. In 1973, the burning of wastes ceased at SRS. A layer of soil was placed over the pit debris and then was filled to capacity with rubble such as concrete, paper, tile, asphalt, wood, wallboard, rubber, and nonreturnable empty drums. The pit reached capacity in 1978, was closed and covered with soil to grade level.

Preliminary ground water monitoring near the pit shows that low levels of chlorinated and organic solvents, radium, iron, manganese, and tritium contaminate the groundwater. Concurrently, a soil gas survey showed chlorinated solvents in the area soil. Other soil constituents of concern include silver, lead, chromium, and toluene.

Accomplishments/Activities

Four monitoring wells surrounding the P-Area Burning/Rubble Pit have been providing quarterly groundwater data since the wells were installed. Results show that the above mentioned substances have exceeded EPA MCL at least once. GPR was run to delineate pit boundaries. A soil gas survey was conducted in 1986 and 1991; the results of the survey indicated the presence of chlorinated solvents.

The RFI/RI Phase I Work Plan (Rev. 0) was submitted as part of the Eight Burning/Rubble Pits Work Plan received by EPA and SCDHEC on December 7, 1990. EPA comments on the P-Area Burning/Rubble Pit was received on October 1, 1991. This unit was taken out of the Eight Burning/Rubble Pits Work Plan according to EPA direction. The RFI/FI Phase I Work Plan (Rev. 1) for the P-Area Burning/Rubble Pit was received by EPA and SCDHEC on December 31, 1991.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Sampling of four groundwater monitoring wells will be performed.

4.1.1.19 R-Area Burning/Rubble Pits (131-R and 131-1R)

Description

The R-Area Burning/Rubble Pits (131-R and 131-1R) are located southeast of R-Area, south of the junction of Roads G and G-1 in a small ridge above Pond 4.

The 131-R pit is roughly 238 ft long by 21 ft wide by 10 ft deep. While the 131-1R pit is 236 ft long by 33 ft wide by 10 ft deep. The burning/rubble pits operated from 1951 to 1973. During the operation of the pit, spent organic solvents, waste oils, rags, paper, plastics, wood, telephone poles, cardboard, oil, and rubber were disposed of and periodically (monthly) burned. In 1973, the burning of wastes ceased on site. A layer of soil was placed over the pit debris and then was filled to capacity with rubble such as concrete, paper, tile, asphalt, wood, wallboard, rubber, and non-returnable empty drums. The 131-R pit reached capacity in 1978 and was closed and covered with soil to grade level. The other, 131-1R, remains unlined and open.

The constituents of concern in the soil are laboratory chemicals, trace amounts of chlorinated solvents such as TCE, (PCE), and metals including: barium, chromium, copper, lead, vanadium, and zinc. Groundwater constituents in nearby wells included iron, and manganese.

Accomplishments/Activities

Four monitoring wells surrounding the R-Area Burning/Rubble Pits have been collecting quarterly groundwater data since the wells were installed. Results show that the above-mentioned substances have exceeded EPA MCLs at least once.

A unit screening program, completed in 1989, indicated that trace levels of the above-mentioned substances were present in soil samples obtained within the burning/rubble pit confines. A soil gas survey was conducted in 1991. The results of the survey indicated the presence of several organics. GPR was used to delineate the pit boundaries.

The RFI/RI Phase I Work Plan (Rev. 0) was submitted as part of the Eight Burning/Rubble Pits Work Plan received by EPA and SCDHEC December 7, 1990. EPA comments on the R-Area Burning/Rubble pits were received October 1, 1991. This unit was taken out of the Eight Burning/Rubble Pits Work Plan according to EPA direction. The RFI/RI Phase I Work Plan (Rev. 1) for the R-Area Burning/Rubble pits was received by EPA and SCDHEC on March 2, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Sampling of four monitoring wells will be conducted at the unit.

4.1.2 RFI/RI Basins Units

4.1.2.1 Overflow Basin (108-4R)

Description

The Overflow Basin (108-4R) is located approximately 250 ft southwest of the R Area 105R-Reactor Building inside R Area.

The basin dimensions are approximately 60 ft long by 60 ft wide by 13 ft deep. The basin was used between 1953 and 1964 for collecting diesel fuel from the incidental overflow of adjacent storage tanks. Based on its previous use, the basin was identified for unit screening to determine if constituents were present in the basin and if further investigations were warranted. Organic constituents of concern found during the unit screening program included typical components of gasoline, such as benzene, toluene, ethyl benzene, and xylene.

Accomplishments/Activities

A unit screening program was completed at the overflow basin in 1990. Screening data indicated that soil concentrations exceeded analytical method detection limits in at least one sample for the above mentioned substances. In addition, total petroleum hydrocarbons (TPH), an indicator parameter used to detect the presence of petroleum hydrocarbons, was detected in several samples. A soil gas study was also conducted in July 1991.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on February 7, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.2.2 Ash Basin (488-D)

Description

The Ash Basin (488-D) is located in the southwestern part of D Area. D Area itself is situated in the west-southwest portion of the SRS.

The basin began operation in 1951. The basin is approximately 10 acres in size and 13 ft deep. The purpose of this unit was to intercept, stabilize, and provide passive treatment of ash sluice water prior to discharge to local surface streams. The basin ceased receiving sluice water when the construction of the 488-1D and 488-2D Ash Basins were completed. The 488-D Ash Basin was subsequently used for the placement of dry ash and coal-crusher reject material. There is no record of hazardous waste or hazardous constituents being disposed of in the basin. Analysis of basin soils indicates the constituents of concern are TCE and elevated levels of several heavy metals typically found in coal ash; including iron, manganese, barium, sodium.

Base-line groundwater sampling near the basin shows high total dissolved solids, high sulfate, and silica. Metals found in the groundwater include calcium, chromium, iron, potassium, magnesium, manganese, and sodium. Some monitoring wells contain low pH (highly acid) water.

Accomplishments/Activities

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on May 7, 1991.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.2.3 716-A Motor Shop Seepage Basin (904-101G)

Description

The 716-A Motor Shop Seepage Basin (904-101G) is located in the southern part of A-Area.

The basin dimensions are 210 ft long by 35 ft wide by 7 ft deep. The basin was constructed and placed in service in 1977 to receive liquid waste from the 716-A Motor Shop oil/water separator. Effluent discharges from the motor shop include waste water with trace amounts of oil, grease, kerosene, antifreeze (ethylene glycol), and soapy water. In August 1983 all discharges to the basin were terminated. Constituents of concern detected during groundwater sampling analysis include (PCE), TCE, carbon tetrachloride, and chloroform.

Accomplishments/Activities

Three monitoring wells were installed around the basin, two in May 1983 and one in April 1989. Quarterly groundwater data has been collected since the wells were installed. The above mentioned substances were detected, but none have exceeded EPA MCL at any time. Soil gas sampling was performed in 1991 and site screening was conducted in November 1988. Samples were collected from four soil borings and one surface sample. Constituents of concern detected during a 1991 soil gas survey include trace concentrations of arsenic, cadmium, mercury, thallium, and vanadium. Low to moderate concentrations of antimony, barium, copper, lead, nickel, and zinc were also found, along with some VOCs.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on September 7, 1990.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.2.4 A-Area Coal Pile Runoff Basin (788-3A)

Description

The A-Area Coal Pile Runoff Basin (788-3A) is located approximately 550 ft southeast of the A-Area coal storage site.

Steam and electricity for the SRS activities were produced by seven coal-fired power plants located in the A, C, D, F, H, K, and P Areas. Coal was stored at each of the seven power plant locations. Surface runoff from the coal storage piles used to be discharged to surface streams until the National Pollutant Discharge Elimination System (NPDES) took effect in 1977. To meet NPDES discharge requirements and in response to SCDHEC requests, seven unlined, earthen containment basins were constructed near each coal storage location to intercept, stabilize, and treat surface runoff from the coal piles. All seven coal pile runoff basins were constructed between 1978 and 1981. The C- and F-Area basins have been inactive since late 1985 when the coal piles at these areas were removed.

Constituents of concern within the basins include: low pH, sulfate, iron, manganese, magnesium, aluminum, cadmium, chromium, and arsenic.

Accomplishments/Activities

Soil borings were drilled at each of the basins during June and July 1988. Monitoring data at each unit indicate the presence of the above mentioned compounds and metals in the groundwater and soils.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on October 23, 1990. The RFI/RI Phase I Work Plan (Rev. 0) included all seven of the SRS Coal Pile Runoff Basin Units. After receiving EPA's comments for Rev. 0 on October 30, 1991, the RFI/RI Phase I Work Plan (Rev. 1) was received by EPA and SCDHEC on January 29, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Four ground water samples will be taken from the existing monitoring wells at the A-Area basin.

4.1.2.5 C-Area Coal Pile Runoff Basin (189-C)

Description

The C-Area Coal Pile Runoff Basin (189-C) is located approximately 600 ft southeast of the former C-Area coal storage site.

Steam and electricity for the SRS activities were produced by seven coal-fired power plants located in the A, C, D, F, H, K, and P Areas. Coal was stored at each of the seven power plant locations. Surface runoff from the coal storage piles used to be discharged to surface streams until the National Pollution Discharge Elimination System (NPDES) took effect in 1977. To meet NPDES discharge requirements and in response to SCDHEC requests, seven unlined earthen containment basins were constructed near each coal storage location to intercept, stabilize, and treat surface runoff from the coal piles. All seven coal pile runoff basins were constructed between 1978 and 1981. The C- and F-Area basins have been inactive since late 1985 when the coal piles at these areas were removed.

Constituents of concern within the basins include: low pH, sulfate, iron, manganese, magnesium, aluminum, cadmium, chromium, and arsenic.

Accomplishments/Activities

Soil borings were drilled at each of the basins during June and July 1988. Monitoring data at each unit indicate the presence of the above mentioned compounds and metals in the groundwater and soils.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on October 23, 1990. The RFI/RI Phase I Work Plan (Rev. 0) included all seven of the SRS Coal Pile Runoff Basin Units. After receiving EPA's comments for Rev. 0 on October 30, 1991, the RFI/RI Phase I Work Plan (Rev. 1) received by to EPA and SCDHEC on January 29, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.2.6 D-Area Coal Pile Runoff Basin (489-D)

Description

The D-Area Coal Pile Runoff Basin (489-D) is located approximately 100 ft south of the D-Area coal storage site.

Steam and electricity for the SRS activities were produced by seven coal-fired power plants located in the A, C, D, F, H, K, and P Areas. Coal was stored at each of the seven power plant locations. Surface runoff from the coal storage piles used to be discharged to surface streams until NPDES took effect in 1977. To meet NPDES discharge requirements and in response to SCDHEC requests, seven unlined earthen containment basins were constructed near each coal storage location to intercept, stabilize, and treat surface runoff from the coal piles. All seven coal pile runoff basins were constructed between 1978 and 1981. The C- and F-Area basins have been inactive since late 1985 when the coal piles at these areas were removed.

Constituents of concern within the basins include: low pH, sulfate, iron, manganese, magnesium, aluminum, cadmium, chromium, and arsenic.

Accomplishments/Activities

Soil borings were drilled at each of the basins during June and July 1988. Monitoring data at each unit indicate the presence of the above mentioned compounds and metals in the groundwater and soils.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on October 23, 1990. The RFI/RI Phase I Work Plan (Rev. 0) included all seven of the SRS Coal Pile Runoff Basin Units. After receiving EPA's comments for Rev. 0 on October 30, 1991, the RFI/RI Phase I Work Plan (Rev. 1) received by to EPA and SCDHEC on January 29, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.2.7 F-Area Coal Pile Runoff Basin (289-F)

Description

The F-Area Coal Pile Runoff Basin (289-F) is located approximately 550 ft southeast of the former F-Area coal storage site.

Steam and electricity for the SRS activities were produced by seven coal-fired power plants located in the A, C, D, F, H, K, and P Areas. Coal was stored at each of the seven power plant locations. Surface runoff from the coal storage piles used to be discharged to surface streams until the NPDES took effect in 1977. To meet NPDES the discharge requirements and in response to SCDHEC requests, seven unlined earthen containment basins were constructed near each coal storage location to intercept, stabilize, and treat surface runoff from the coal piles. All seven coal pile runoff basins were constructed between 1978 and 1981. The C- and F-Area basins have been inactive since late 1985 when the coal piles at these areas were removed.

Constituents of concern within the basins include: low pH, sulfate, iron, manganese, magnesium, aluminum, cadmium, chromium, and arsenic.

Accomplishments/Activities

Soil borings were drilled at each of the basins during June and July 1988. Monitoring data at each unit indicate the presence of the above mentioned compounds and metals in the groundwater and soils.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on October 23, 1990. The RFI/RI Phase I Work Plan (Rev. 0) included all seven of the SRS Coal Pile Runoff

Basin Units. After receiving EPA's comments for Rev. 0 on October 30, 1991, the RFI/RI Phase I Work Plan (Rev. 1) received by to EPA and SCDHEC on January 29, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.2.8 H-Area Coal Pile Runoff Basin (289-H)

Description

The H-Area Coal Pile Runoff Basin (289-H) is located approximately 1,000 ft east of the H-Area coal storage site.

Steam and electricity for the SRS activities were produced by seven coal-fired power plants located in the A, C, D, F, H, K, and P Areas. Coal was stored at each of the seven power plant locations. Surface runoff from the coal storage piles used to be discharged to surface streams, until the NPDES took effect in 1977. To meet NPDES discharge requirements and in response to SCDHEC requests, seven unlined earthen containment basins were constructed near each coal storage location to intercept, stabilize, and treat surface runoff from the coal piles. All seven coal pile runoff basins were constructed between 1978 and 1981. The C- and F-Area basins have been inactive since late 1985 when the coal piles at these areas were removed.

Constituents of concern within the basins include: low pH, sulfate, iron, manganese, magnesium, aluminum, cadmium, chromium, and arsenic.

Accomplishments/Activities

Soil borings were drilled at each of the basins during June and July 1988. Monitoring data at each unit indicate the presence of the above mentioned compounds and metals in the groundwater and soils.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on October 23, 1990. The RFI/RI Phase I Work Plan (Rev. 0) included all seven of the SRS Coal Pile Runoff Basin Units. After receiving EPA's comments for Rev. 0 on October 30, 1991, the RFI/RI Phase I Work Plan (Rev. 1) received by to EPA and SCDHEC on January 29, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.2.9 K-Area Coal Pile Runoff Basin (189-K)

Description

The K-Area Coal Pile Runoff Basin (189-K) is located approximately 230 ft west of the K-Area coal storage site.

Steam and electricity for the SRS activities were produced by seven coal-fired power plants located in the A, C, D, F, H, K, and P Areas. Coal was stored at each of the seven power plant locations. Surface runoff from the coal storage piles used to be discharged to surface streams until the NPDES took effect in 1977. To meet NPDES discharge requirements and in response to SCDHEC requests, seven unlined earthen containment basins were constructed near each coal storage location to intercept, stabilize, and treat surface runoff from the coal piles. All seven coal pile runoff basins were constructed between 1978 and 1981. The C- and F-Area basins have been inactive since late 1985 when the coal piles at these areas were removed.

Constituents of concern within the basins include: low pH, sulfate, iron, manganese, magnesium, aluminum, cadmium, chromium, and arsenic.

Accomplishments/Activities

Soil borings were drilled at each of the basins during June and July 1988. Monitoring data at each unit indicate the presence of the above mentioned compounds and metals in the groundwater and soils.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on October 23, 1990. The RFI/RI Phase I Work Plan (Rev. 0) included all seven of the SRS Coal Pile Runoff Basin Units. After receiving EPA's comments for Rev. 0 on October 30, 1991, the RFI/RI Phase I Work Plan (Rev. 1) received by EPA and SCDHEC on January 29, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.2.10 P-Area Coal Pile Runoff Basin (189-P)

Description

The P-Area Coal Pile Runoff Basin (189-P) is located approximately 350 ft south of the P-Area coal storage site.

Steam and electricity for the SRS activities were produced by seven coal-fired power plants located in the A, C, D, F, H, K, and P Areas. Coal was stored at each of the seven power plant locations. Surface runoff from the coal storage piles used to be discharged to surface streams until the National Pollutant Discharge Elimination System (NPDES) took effect in

1977. To meet NPDES discharge requirements and in response to SCDHEC requests, seven unlined, earthen containment basins were constructed near each coal storage location to intercept, stabilize, and treat surface runoff from the coal piles. All seven basins were constructed between 1978 and 1981. The C- and F-Area coal pile runoff basins have been inactive since late 1985 when the coal piles at these areas were removed.

Constituents of concern within the basins include: low pH, sulfate, iron, manganese, magnesium, aluminum, cadmium, chromium, and arsenic.

Accomplishments/Activities

Soil borings were drilled at each of the basins during June and July 1988. Monitoring data at each unit indicate the presence of the above mentioned compounds and metals in the groundwater and soils.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on October 23, 1990. The RFI/RI Phase I Work Plan (Rev. 0) included all seven of the SRS Coal Pile Runoff Basin Units. After receiving EPA's comments for Rev. 0 on October 30, 1991, the RFI/RI Phase I Work Plan (Rev. 1) received by to EPA and SCDHEC on January 29, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.2.11 D-Area Oil Seepage Basin, (631-G)

Description

The D-Area Oil Seepage Basin (631-G) is located approximately 0.6 miles north of D-Area between unpaved roads A-4.4 and A-4.5.

There are two basins which are approximately 383 ft long by 54 ft wide by 7 ft deep, with a maximum volume of approximately 2 million gallons. The basins were constructed in 1952 and began receiving waste oil products from D-Area and possibly other areas on site. In 1973, after the open burning of waste ceased plant wide, the D-Area Oil Seepage Basin Unit continued to receive drummed waste oils. Based upon the SRS personnel interviews, numerous 55-gallon drums containing waste oils are believed to be disposed of in the basins. In 1975 the basins were removed from service and backfilled with soil. Approximately 1 ft of standing oil, plus drums containing waste oil, remained in the basins when they were backfilled.

Detected constituents of concern that have exceeded EPA limits between 1984 and 1989 include TCE, vinyl chloride, iron, and manganese. In late 1988, the SRS conducted a thorough environmental analysis of the basins and surrounding groundwater and soil. The metals found above detection limits included antimony, arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and vanadium and zinc. Also found were volatile and semi-

volatile substances (capable of evaporating at low temperatures) typically contained in waste oils and laboratory chemicals. A site-specific background range for soil constituents has not been established for this unit.

Accomplishments/Activities

In late 1988, the SRS conducted a thorough environmental analysis of the basin and surrounding groundwater and soil. There are four monitoring wells existing at the basin.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on September 7, 1990. The unit sampling plan was received by EPA and SCDHEC on August 10, 1993. A limited scope sampling plan was authorized by EPA and SCDHEC on September 10, 1993. The limited scope sampling plan is being implemented because of concerns about the generation of dioxins and furans within basins.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

The Interim Action Proposed Plan IAPP (Rev. 1) will be submitted to EPA and SCDHEC.

4.1.2.12 F- and H-Area Retention Basins (281-3F and 281-3H)

Description

The F-Area Retention Basin (381-3F) is located just outside the southern fence in F-Area Separations. H-Area Retention Basin (381-3H) is located just south of Road E near the intersection of E Road and Road 4.

Each basin is approximately 150 ft long by 100 ft wide by 10 ft deep. These two retention basins were used from 1955 to 1973. The open, unlined basins provided temporary emergency storage for potentially contaminated cooling water from the chemical separation process. When radioactivity was encountered in the cooling water, immediate action was taken to divert the water from surface drainage streams to the retention basins. If the radioactivity was above stream release limits, the waste water was processed by deionization to reduce contamination and permit release. The F-Area basin has been excavated, backfilled with clean soil, and now covered with vegetation. The H-Area basin is fenced in, open to atmospheric conditions, and presently contains water.

The SRS records do not show the exact quantities of radioactive water discharged to the basins. Preliminary environmental investigations have detected radioactive substances in and around the basins. The SRS believes only trace quantities of hazardous substances were discharged to the basins.

Accomplishments/Activities

The RFI/RI Phase I Work Plan (Rev. 0) is under development.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

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

Description

The G-Area Oil Seepage Basin (761-13G) is located southeast of Central Shops Area.

The basin was used for liquid waste disposal during the SRS plant construction. The basin is 150 ft long by 100 ft wide by 4 ft deep. Environmental investigations suggest that "oil" seepage basin is a misnomer. While the dark color of the basin once suggested that it contained oil, an investigation of the units' disposal history shows no receipt of hydrocarbons. The basin may have received waste from the time of plant construction until the early 1960s. The exact nature of the liquids disposed of in the basin is unknown. There is no record of any disposal of radioactive or hazardous substances at the unit.

In February 1989, two surface water samples and one basin sediment sample were collected from the basin. In addition, soil gas samples were analyzed from around the basin in 1991 and the area was probed with GPR in 1992. The GPR was performed in an attempt to locate an underground pipe which is carrying the effluent water from the Central Shops waste water treatment facility to the basin. The basin sediment metals of concern include barium, chromium, lead, and silver. Also of concern are trace amounts of chlordane. Surface water constituents of concern include volatile organics.

The basin is presently receiving clean water (NPDES-permitted outfall) from the Central Shops waste water treatment plant through an underground pipe. In July 1993, an effort to redirect the flow away from the basin began with the installation of a new underground pipe. The construction was completed on September 24, 1993.

Accomplishments/Activities

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on May 7, 1991.

The reroute of the effluent from the Central Shops Waste Water Treatment Plant away from the basin began in July 1993. Soil samples were taken near the new pipe's tie-in location to the existing pipe. EPA and SCDHEC approval was secured for the construction activities. All analytical results were below the detection limit of laboratory equipment or below SCDHEC levels for soil contamination.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.2.14 K-Area Reactor Seepage Basin (904-65G)

Description

The K-Area Reactor Seepage Basin (904-65G) is located west of the K-Area Reactor.

The basin was constructed in 1957 to receive low-level radioactive wastewater from disassembly basin purges at the K-Area Reactor. The original dimensions of the basin were 135 ft long by 70 ft wide by 7 ft deep. Radionuclides entered the disassembly basin water from irradiated components during transfer from reactor tank to disassembly basin. Although many different radionuclides have been discharged into the basin, almost all of the radioactivity is due to tritium, strontium-90, cesium-137, and cobalt-60. The purge water may also contain amounts of non-radioactive detergents and organic and inorganic substances. Disposal ceased at the basin in 1960. The basin remains open and is currently designated a Radiologically Controlled Area (RCA).

Accomplishments/Activities

Sediment and soil samples were collected from a test boring in the basin in 1978. The test boring was 20 ft deep, and three samples were collected: one sample between 0 to 2 ft, another between 8.5 to 10 ft, and a third between 18.5 to 20 ft. Cobalt-60, strontium-90, and cesium-137 were detected at activity levels above basin background in sediment samples collected from the upper 2 ft of the basin floor. Below the 2-ft depth, radioactivity levels are reported at 2.0 pCi/g or less for all tested radionuclides.

Four groundwater monitoring wells were installed surrounding the basin in 1984. Since 1985 tritium has consistently been reported above the Drinking Water Standards (DWS) (20 pCi/ml) in all four wells. Data from the third quarter of 1990 showed TCE exceeding DWS in wells 1, 3, and 4, while (PCE) exceeded DWS in wells 1 and 4. All other organic halogens remained below DWS. (PCE) and TCE concentrations diminished to below DWS by the second quarter of 1991. Available evidence indicates that the organics detected may be attributable to sources upgradient of the basin. This groundwater source is not used for the site drinking water supplies.

The RI Work Plan Phase II (Rev. 0) was received by EPA and SCDHEC on March 31, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Groundwater Assessment: Potential impact to groundwater will be evaluated by including additional constituents for analysis for samples from the four existing groundwater monitoring wells. No additional monitoring wells will be added. An existing well 6,500 ft northeast of K-Area will be used as a background well for the basin.

4.1.2.15 L-Area Oil and Chemical Basin (904-83G) and L Area Acid/Caustic Basin (904-79G)

Description

904-83G: The L-Area Oil and Chemical Basin (904-83G) is located in the southeastern portion of L-Area, just outside the L-Area perimeter fence.

The basin measures 118 ft long by 79 ft wide. It was designed and constructed as an unlined seepage basin for the purpose of disposing of small volumes of wastes that were not appropriate for discharge to local streams, regular seepage basins, or the 200-Area waste management system. The basin was put in operation in 1961 and continued to receive waste liquids until 1979, even though the L-Area was placed on standby status in 1967. Wastewater flowed into the basin from both a bermed concrete drainage pad that was located outside the basin perimeter fence, and from an underground pipeline originating from Building 717-G (maintenance hot shop). Most of the waste liquids came from the reactor areas, and possibly M Area and Separations areas. The waste liquids consisted of small volumes of oil on top of wastewater. Undocumented amounts of radioactivity were released to the basin through infrequent repair work at the basin or in Building 717-G, and via drums and tanker trucks.

904-79G: The L-Area Acid/Caustic Basin has been integrated into the L-Area Oil and Chemical Basin, as an operable unit. The L-Area Acid/Caustic Basin (904-79G) is located in an open area about 900 ft southeast of L-Reactor. The L-Area Acid/Caustic Basin is an unlined earthen basin 50 ft long by 50 ft wide by 7 ft deep. It was operated between 1955 and 1968 and received wastes from the L-Area Water Treatment Plant.

Accomplishments/Activities

904-83G: The SRS Groundwater Monitoring Program data indicated elevated levels of halogenated hydrocarbons, radionuclides, and tritium. Based on a literature review, it was found that extraction procedure (EP) toxicity tests for metals were performed on soil and sediment samples within the basin. Analyses confirmed the presence of the above radionuclides and metals. A GPR study, conducted in April 1990 and August 1992, found two underground pipes suspected of extending from the 717-G Building to the L-Area Oil and Chemical Basin.

904-79G: There are no historical records on the quantities or characteristics of water purification waste water discharged to the basin. SRS performed preliminary environmental studies of the basins in 1985. Data associated with the 1985 investigations is not consistent with present sampling techniques and data quality requirements. However, these studies do suggest that the sediments in the basins may contain metals in concentrations slightly above typical SRS soils. In addition, this preliminary data indicates that metal concentrations in the sediments are not likely to be a threat to human health or the environment.

The groundwater near the basin in L-Area contains degreasing solvents and metals. These hydrocarbons occur in concentrations slightly above DWS and are thought to come from a nearby process sewer associated with another waste unit.

The RFI/RI Phase I Work Plan (Rev. 0) was submitted to EPA and SCDHEC on October 11, 1990. The EPA comment to the RFI/RI Phase I Work Plan (Rev. 0) were received on

April 19, 1991. The RFI/RI Phase I Work Plan (Rev. 1) was submitted to EPA on July 1, 1991. Comments were received from SCDHEC on the Work Plan (Rev. 1) on October 5, 1992. The RFI/RI Phase I Work Plan (Rev. 2) was submitted to EPA on February 4, 1993. Comments were received from SCDHEC on the Work Plan (Rev. 1) on April 19, 1993.

An addendum to the RFI/RI Phase I Work Plan (Rev. 2) received by EPA and SCDHEC on August 26, 1993 to the SCDHEC and EPA. This addendum integrated the L-Area Oil and Chemical Basin, and Acid/Caustic Basin into one operable unit. (These units will be characterized and remediated together.)

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.2.16 R-Area Acid/Caustic Basin (904-77G)

Description

The R-Area Acid/Caustic Basin (904-77G) is located in an area forested with second growth pine about 600 ft south of the R-Area facility. The L-Area Acid/Caustic Basin has been integrated into the L-Area Oil and Chemical Basin, as an operable unit.

The R-Area Acid/Caustic Basin is an unlined earthen basin 50 ft long by 50 ft wide by 7 ft deep and operated between 1955 and 1964. It received wastes from R-Area Water Treatment Plant. The wastes consisted of dilute acid and caustic solutions, rinse water from ion exchange, steam condensate, overflow from sodium hydroxide storage tanks, and rain water. The basin also received metals and non-metal materials from the river water via the water ion exchange system.

Accomplishments/Activities

There are no historical records on the quantities or characteristics of water purification waste water discharged to the basin. SRS performed preliminary environmental studies of the basins in 1985. Data associated with the 1985 investigations is not consistent with present sampling techniques and data quality requirements. However, these studies do suggest that the sediments in the basins may contain metals in concentrations slightly above typical SRS soils. In addition, this preliminary data indicates that metal concentrations in the sediments are not likely to be a threat to human health or the environment. The groundwater near the basin in R-Area contains radium that is slightly higher than typical SRS background concentrations. Monitoring of four groundwater wells continues annually.

The RFI/FI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on September 21, 1990. The EPA comments on the RFI/FI Phase I Work Plan (Rev. 0) were received by SRS on August 12, 1991. The RFI/FI Phase I Work Plan (Rev. 1) was received by EPA and SCDHEC on November 6, 1991. The SCDHEC comments on the RFI/FI Phase I Work Plan (Rev. 1) were received by SRS on May 28, 1993.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.2.17 M-Area Setting Basin Inactive Process Sewers to Manhole 1 (NBN)

Description

The M-Area Setting Basin Inactive Process Sewers to Manhole 1 (NBN) are throughout the whole of the M-Area within the perimeter fence. The line consists of three sections of process sewer about 1,600 ft in total length. It is made of vitrified clay pipe of various diameters which conveyed process wastewater from buildings 313-M, 321-M, and 320-M to the M-Area Settling Basin. In 1985, the industrial wastewaters were diverted to an effluent treatment facility in the M-Area. The sewer lines were addressed by regulators as a separate waste unit.

Accomplishments/Activities

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on March 7, 1992. A soil gas survey was completed at the unit in August of 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

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

Description

The Old F-Area Seepage Basin (904-49G) is located northwest of the F-Area perimeter fence. The basin measures 200 ft long by 300 ft wide by 13 ft deep. It is split into two compartments by a berm 10 ft high and 5 ft wide. The Old F-Area Seepage Basin was the first basin constructed in the F-Area and received effluent from the F-Area canyon building from startup in November 1954 to mid-May 1955. During its use the basin received a variety of wastewaters including evaporator overheads, laundry wastewater, and an unknown amount of chemicals. Roughly 9 to 14 million gallons of wastewater were discharged to the basin. Between October 1969 and January 1970, 3,700 to 5,550 gallons of spent etching solution (nitric acid) containing 2,400 to 7,275 lbs of total uranium (U-238) were discharged to the basin.

Groundwater constituents detected in the groundwater above DWS include iron, manganese, gross alpha, nonvolatile beta, radium, tritium, barium, chromium, lead, nitrate, uranium, strontium-89/90, and iodine. Soil constituents of concern are mercury, cesium-137, strontium-

90, plutonium-238, -239, and uranium-234, -235, -238. Mercury has been detected in the soil above detection limits, but below EP toxicity limits. Trichloroethylene has been detected in groundwater monitoring wells above DWS, but below background.

Accomplishments/Activities

Four groundwater monitoring wells have been installed around the basin and measure a variety of inorganic chemicals and radionuclides. Wells are sampled quarterly. Soil core samples were taken in 1986 and 1988 to measure chemical and radionuclide constituents.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC August 6, 1990. The SRS received EPA comments on the RFI/RI Phase I Work Plan (Rev. 0) on March 22, 1991. The RFI/RI Phase I Work Plan (Rev. 1) was received by EPA and SCDHEC June 20, 1991. The SRS received SCDHEC comments on the RFI/RI Phase II Work Plan (Rev. 1) on December 1, 1992. The RFI/RI Phase II Work Plan (Rev. 2) was received by EPA and SCDHEC February 17, 1993. The SRS received comments on the RFI/RI Phase I Work Plan (Rev. 2) on April 13, 1993.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.2.19 Old TNX Seepage Basin (904-076G)

Description

The Old TNX Seepage Basin (904-076G) was a liquid waste disposal basin associated with the TNX pilot-scale test facility situated in the southwestern portion of the SRS.

The basin was constructed in two parts: a settling section and a larger main section. The two collective sections encompass approximately a quarter acre. The sections are rectangular in shape and have surface areas of 880 and 9,375 sq ft. Each section is approximately 10 ft deep. The walls slope outward at a 56-degree angle. The basin was operated from 1958 to 1980. During the 22-year operating period, overflow from the basin resulted in the creation of an outfall delta approximately 100 ft wide inside the eastern side of the Savannah River Swamp. The Old TNX received a number of chemicals including inorganic salts, low-level radionuclides, and organic solvents. Except for mercury the exact quantities of waste involved is unknown.

In 1981 the west wall of the basin was breached to drain the impounded liquids to the nearby swamplands and the basin was backfilled with sand and clay and then capped with clay. A portion of the cap was revegetated and the remainder was covered with asphalt.

Accomplishments/Activities

In 1982, seven monitoring wells were installed at the basin. Analytical results on groundwater, soil and soil gas samples collected from the basin indicate evidence of organic, inorganic, and low-level radioactive contamination. The SRS considers the data adequate for environmental characterization purposes. However, little is known about contamination in the outfall delta area. There is evidence of inorganic and low-level radioactive contamination in the delta.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on October 31, 1991.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.2.20 R-Area Reactor Seepage Basins (904-57G, -58G, -59G, -60G, -103G, and -104G)

Description

The R-Area Reactor Seepage Basins (904-57G, -58G, -59G, -60G, -103G, and -104G) are located next to the inactive R-Reactor, located in the central part of the SRS.

Composed of 6 unlined earthen basins, it received radioactively contaminated purged water from the R-Reactor Disassembly Basin. In 1957, an experimental fuel element failed, resulting in the release of 200 Ci of strontium and 1000 Ci of cesium to basin 1. Basin 1 was deactivated and backfilled and basins 2-5 were placed in operation. In 1960, basins 2-5 were deactivated; backfilled, treated with herbicide, and covered with asphalt. In addition, a clay cap and dike were placed over basin 1 and the north section of basin 3. In 1964, basin 6 was deactivated; in 1977, was backfilled and covered with an asphalt. Preliminary investigations indicate radiological contamination along with minor cadmium and lead concentrations in and around basins and along an abandoned construction sewer line breached during the installation of basins.

Accomplishments/Activities

Groundwater monitoring wells are sampled periodically. The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on February 3, 1992.

GPR has been conducted to verify underground features and basin boundaries. Photogrammetry is being utilized for the development of a topographic map. Scheduled herbicide and pesticide treatments are conducted each quarter to control vegetation and fire ant populations in the immediate vicinity of the basins to prevent uptake of radiation.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.2.21 Road A Chemical Basin (904-111G)

Description

The Road A Chemical Basin (904-111G) is approximately one half mile southwest of the intersection of Road A (SC Hwy 125) and the SRS 6, four miles east of the SRS boundary.

The original basin dimensions were 100 ft long by 175 ft wide by 10 ft deep. The history of waste disposal in the basin, the dates of operation, and the nature and quantities of materials disposed of were not recorded. The basin was backfilled in 1973, and an area of 400 ft by 400 ft was regraded. The Environmental Information Document, written in 1987, indicates the contents of the basin were miscellaneous radioactive and chemical aqueous wastes.

Accomplishments/Activities

Groundwater: Four monitoring wells were installed in 1983 and 1984, and a fifth well was installed in 1989. Preliminary groundwater monitoring in the 1980s detected radium in concentrations that were slightly above DWS in some cases. Lead was also detected above DWS in four of the five existing monitoring wells. Manganese is another metal of concern. Concurrently, preliminary soil sampling shows the presence of chlorinated solvents, common laboratory chemicals, and radium in some samples.

Soil: Nine soil borings were drilled in 1989. Methylene chloride and acetone, common laboratory constituents, were detected in many of the soil samples, and the associated lab blanks. Chlorobenzene and total radium were detected in some of the soil samples.

All metals for which the samples were analyzed, and gross alpha and non-volatile beta, were below the maximum concentrations detected in the Looney study (1990).

The Draft Preliminary Characterization Summary/Preliminary Risk Assessment Report (Rev. 0) was received by EPA and SCDHEC on August 20, 1990. The RFI/RI Phase II Work Plan (Rev. 0) was received by EPA and SCDHEC on July 1, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

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4.1.3 Miscellaneous Units

4.1.3.1 H-Area Tank 16 (241-H)

Description

The H-Area Tank 16 is in the H-Area High Level Waste Tank Farm. The tank is one of 29 large subsurface tanks in H-Area which are used to store liquid radioactive wastes. In 1960, Tank 16 sustained a below-ground leak of radioactive liquid which overflowed subsurface containment structures. The amount of liquid wastes introduced into the soil and groundwater is estimated to have been less than 700 gallons, containing 7.4 Ci per gallon. Preliminary soil data revealed the principal radioactive contaminant of concern to be cesium-137. In addition, silver, chromium, mercury, and lead were found to be present in the soil.

Accomplishments/Activities

Soil: Soil samples obtained from beneath the construction pad in 1964 and 1965, contained non-volatile beta radioactivity levels up to 181 pCi/g.

Groundwater: Monitoring wells, installed 1 ft from the Tank 16 encasement, were sampled 5 to 7 weeks after the leak. They showed non-volatile beta activity levels between background (5 to 15 pCi/l) and 60,000 pCi/l. However, levels generally less than 50 pCi/l were observed in samples obtained from wells 15 ft beyond the edge of the construction pad. As of 1974, samples from monitoring wells between 1700 ft south and 2800 ft west of Tank 16 had yielded no radioactivity levels above background. Tank 16 has been emptied and cleaned.

Thirty five monitoring wells within the Tank 16 area currently are monitored for constituents of concern: cesium-137, silver, chromium, mercury, and lead.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on July 6, 1990. EPA comments to the Rev. 0 work plan were received by SRS on November 27, 1990. The RFI/RI Phase I Work Plan (Rev. 1) was received by EPA and SCDHEC on February 28, 1991. SCDHEC comments to the Rev. 1 work plan were received by SRS on July 22, 1992. The RFI/RI Phase I Work Plan (Rev. 2) was received by EPA and SCDHEC on October 21, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.3.2 Tank 37 CTS Line Leak (NBN)

Description

The Tank 37 CTS Line Leak (NBN) is in the H-Area High Level Waste Tank Farm. A spill of approximately 500 pounds of liquid radioactive waste released some 700 Ci of radioactivity

into the soil. The leak was first detected in April 1989 during a routine Health Protection area survey. Since the leak site was first thought to be surface contamination, the leak site underwent initial excavation. Radiation fields up to 250 R/hr were detected in boreholes placed within the excavation, which had removed the soil area above the concentrate transfer system (CTS). Upon detection of extremely high radiation fields, the excavation ceased, the CTS lines were tested, and were found to be leaking. The lines were subsequently valved off. The excavation was backfilled in July 1992 as a Time Critical Removal Action.

The soil media is radioactive and therefore too dangerous for sampling and analysis. Alpha spectroscopy and Gamma PHA are to be performed for the full spectrum of radionuclides in the groundwater. The constituents of concern for soil and groundwater include cesium-137, strontium-90 radionuclides, possibly silver and chromium.

Accomplishments/Activities

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on March 7, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.3.3 Gunsite 113 Access Road (631-24G)

Description

Gunsite 113 Access Road (631-24G) is located in the northeast corner of SRS. This RFI/RI unit is located in a mature pine forest adjacent to the Gunsite 113 Access Road, approximately 300 ft from the point where Road 8 crosses the facility boundary.

The unit covers an area approximately 80 ft long by 50 ft wide. It consists of three "mounds" of dirt and construction rubble adjacent to a grassy area containing several dead pine trees. It appears to have been used as a surface disposal area for construction debris and/or spoil dirt. There is no documentation or records of any hazardous substances being managed or disposed of at this unit. This unit was not one of the original Solid Waste Management Units placed on the RFI/RI list. It was voluntarily added in 1988 because of the presence of the dirt/construction debris piles, several dead trees, and positive soil gas results. There are no constituents of concern at this unit.

Accomplishments/Activities

A Unit Screening Program at the Gunsite 113 Access Road unit was completed in February 1990. All substances detected were less than unit-specific or regional background levels, or EPA health-based action levels. Soil gas sampling data, generated in 1988, indicated trace levels of dichloroethylene and light hydrocarbons. These compounds were not detected during the Unit Soil Screening.

In February 1993, a GPR survey was performed but gave no indication of buried objects or previous excavation activities at the unit. In addition, an extensive soil gas survey was performed and no constituents of concern were detected. Based on the results of the Unit Screening, no further sampling or other remedial action is planned for the Gunsite 113 Access Road unit.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on September 21, 1990. The RFI/RI Phase I Work Plan (Rev. 0) recommending no further action was accepted by the EPA on June 5, 1991. Subsequently, a No Further Action proposed plan was submitted to the EPA and SCDHEC in December 1991.

SRS received comments from SCDHEC to the RFI/RI Phase I Work Plan (Rev. 0) in December 28, 1992. In May 1993 the SRS submitted an addendum to the Work Plan (Rev. 0) that included the 1993 soil gas and GPR data to further support the No Further Action proposed plan. SCDHEC and EPA accepted the addendum in July 1993 pending some minor modifications.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

An addendum to the RFI/RI Work Plan will be submitted to SCDHEC and EPA.

4.1.3.4 Gunsite 218 Rubble Pile (631-23G)

Description

The Gunsite 218 Rubble Pile (631-23G) is located on a peninsula, known as Monkey Island, extending into the west side of Par Pond.

Gunsite 218 is a former anti-aircraft gun emplacement which was used to protect the SRS facility during the mid 1950s to early 1960s. The gunsite is located within a planted pine forest. Areas of interest at the Gunsite include: four bunkers constructed of sandbags and/or mounded earth, two concrete slab foundations, the former location of two above-ground fuel oil tanks (removed), one underground diesel tank (removed in February 1992), an abandoned septic tank and tile field system, an old water well, an area of stressed vegetation, and an area of oil-stained soils. The Underground Storage Tank (UST) was removed along with the contaminated soil (UST removed in February 1992, soil in November 1992). The constituents detected as a result of soil plug and soil gas surveys are metals including: arsenic, barium, mercury, tin, zinc, chromium, and vanadium. In addition, low levels of VOCs (VOCs) and TPH were present in excess of analytical detection limits. Also gross alpha and beta radionuclides were detected.

Accomplishments/Activities

A soil plug and soil gas survey was performed at Gunsite 218 in 1988. Soil gas samples were collected from 11 locations in the vicinity of bunkers where old paint and paint thinner cans were observed. Five soil samples exhibited low levels of trans 1,2-dichloroethylene (< 11

nanograms per gram [ng/g]). The soil gas samples contained low levels of light hydrocarbons (< 2,500 ppb methane) that are within levels that could be expected to occur naturally. In 1990, four soil borings and nine hand auger borings were performed to obtain soil samples.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on October 23, 1990.

Additional soil was removed in early 1993. Subsequently all petroleum contaminated soil resulting from the underground storage tank has been removed from the unit and the excavation backfilled with clean soil.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.3.5 Gunsite 720 Rubble Pit (631-16G)

Description

The Gunsite 720 Rubble Pit Unit is located on the west side of SRS. This RFI/RI unit is located approximately 300 ft west of SC Hwy. 125, 170 ft north of Road A-2, and 1.5 miles from the nearest site boundary.

A former anti-aircraft gun emplacement, the gunsite consists of an open area covered with natural shrub growth and pine trees. The unit encompasses approximately 25,000 sq ft. Two concrete slabs are located within the cleared area. Nine 30-gallon drums were found partially buried at the unit. The drums have since been removed from the unit. There is no evidence or documentation of any hazardous substances being managed or disposed of at this unit. There are no constituents of concern at this unit.

Accomplishments/Activities

A unit screening program at the Gunsite 720 Rubble Pile was completed in February 1990. All compounds detected were either less than or near background levels, or barely exceeding detection limits. All soil substance concentrations were significantly less than available EPA health-based action levels. Soil gas sampling data, generated in 1988, indicated the soils contained no chlorinated solvents. Magnetometer and GPR surveys conducted in 1986 and 1989 respectively, indicated the possible presence of debris. Trenching at the unit revealed no buried tanks or other objects of significance.

Based on the available literature and screening data, there is no evidence that hazardous substances have been managed or are present at the Gunsite 720 Rubble Pile. As a result, no further field investigation is required and only limited confirmation sampling is anticipated. No remedial action is planned for this unit.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on October 11, 1990. The RFI/RI Phase I Work Plan (Rev. 0) recommending no further action was accepted by the EPA and SCDHEC on June 6, 1991. Subsequently, a No Further Action proposed plan was received by EPA and SCDHEC November 28, 1992. The RFI/RI Phase I Work Plan (Rev. 1) was received by EPA and SCDHEC on September 4, 1991. SCDHEC comments on the Rev. 1 work plan were received by SRS on December 28, 1992.

A GPR and electromagnetic survey were performed in early 1993. No major debris or tanks were located. The surveys were performed to confirm that the tanks had been removed. SCDHEC provided comments on the RFI/RI Phase I Work Plan (Rev. 0) in January 1993 and requested further sampling at the unit. In May 1993, SRS submitted an addendum to the RFI/RI Phase I Work Plan (Rev. 0), provided additional GPR data, and recommended soil sampling at two locations with a maximum of 8 samples to be taken. The samples are to confirm that the tanks and drums excavated from the unit did not leak and that no residuals remain.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

An addendum to the RFI/RI Work Plan will be submitted to SCDHEC and EPA.

4.1.3.6 Burial Ground Complex (S01-S22, 643-E, and 643-7E)

Description

The Burial Ground Complex (BGC) occupies approximately 194 acres in the central part of SRS between the F and H Separations Areas. The BGC, formerly G Area, has been redesignated E Area hence the change in the building number area identification.

The BGC consists of several adjacent facilities which were former or are current disposal sites for hazardous and radioactive wastes and spent solvents generated from plant processes. The BGC is divided into a northern area (size 118 acres) and a southern area (size 76 acres). The southern region is named the Old Radioactive Waste Burial Ground (ORWBG) (743-E), which began receiving wastes in 1952, and was filled in 1972. In 1972, waste disposal moved to the northern area. The northern area is called the Low Level Radioactive Waste Disposal Facility (LLRWDF) (743-7E). Disposal began here in 1970 and continues today, but part of the LLRWDF, the Mixed Waste Management Facility (MWMF) was closed in April 1991.

Other parts of the LLRWDF which receive low level radioactive wastes include Transuranic Waste Storage Pads (TRU Pads), Greater Confinement Disposal Engineered Trench and Boreholes, engineered trenches, and slit-trenches. The LLRWDF also contains underground tanks (S01-S22), which are or have been used for the storage of spent radioactive solvents. The degree of soil contamination in the complex is unknown. Based on preliminary groundwater analyses tritium, cadmium, lead, mercury, and chlorinated organic compounds are constituents of concern for the groundwater and possibly the soil.

Accomplishments/Activities

An extensive system of groundwater monitoring wells around the BGC is monitored by SRS. Data from monitoring wells within the BGC unit indicate some substances (cadmium, lead, mercury, tritium, and VOCs) have been released to groundwater beneath the BGC. This contamination has not been correlated with releases from specific hazardous waste sources, because the exact locations of specific categories of wastes (hazardous solvents, radioactive materials, etc.) placed in the buried trenches is unknown.

As part of the Unit Assessment a GPR and soil gas survey were performed. The GPR survey was conducted to identify the locations and dimensions of buried trenches, and to determine the locations of metallic objects and metals contamination sources in the trenches. A soil gas survey has been performed to identify trenches and soils in the BGC which have been affected by releases of VOCs. Results of the soil gas and GPR surveys will be used to determine the locations for soil and groundwater sample collection.

The RFI/RI Phase I Work Plan (Rev. 0) for the Old Radioactive Waste Burial Ground was received by EPA and SCDHEC on December 7, 1990. EPA comments received on May 21, 1991 by SRS resulted in the creation of the combined unit, BGC. The RFI/RI Phase I Work Plan (Rev. 1) was received by EPA and SCDHEC on March 31, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Unit Assessment: A Unit Assessment will continue at this unit to confirm or deny the presence of contamination in the soil, and to identify areas of hazardous substance release. The Unit Assessment will be complete following the performance of gamma spectroscopy logging, and soil and groundwater sampling. The Gamma Spectroscopy Logging will be performed to locate areas of radioactive contamination of shallow soils within the BGC.

Soil and Groundwater Sampling: Samples will be collected to determine the concentration and range of contamination within the BGC. Between four and six sampling locations will be selected around each group of disposal trenches and each containment facility (TRU Pads, solvent storage tanks, etc.). Locations of the sampling sites will be based on the results of the GPR and soil gas surveys. Soil samples will be collected at 5-foot depth intervals, starting at 3.5 ft and ending at the water table, estimated to be around 40 ft beneath the BGC.

4.1.3.7 Central Shops Sludge Lagoon (080-24G)

Description

The Central Shops Sludge Lagoon (080-24G) is located southwest of Central Shops Area, approximately 100 ft from C-line railroad track. The lagoon is approximately 60 ft long by 40 ft wide by 5 ft deep and began operation in early 1950's. Its purpose was to treat sanitary waste by oxidation and other degradation processes. During peak operation, the lagoon received about 100,000 gallons of sludge solution per year with a solids content of 2 to 5 percent. The lagoon ceased accepting sewage directly in the mid-1970's and was used as an

evaporation pond for treated sewage sludge until 1986. No documented evidence exists to indicate that the unit ever received hazardous waste.

The unit was closed under auspices of SCDHEC permit in 1988. The closure included removal of the sewage sludge (along with 2 ft of underlying soil) and its land application to borrow pits (one in K-Area, one at Par Pond). Berms were pushed into the lagoon and used as backfill. Manhole and pipe were also filled. The Soil Conservation Service (SCS) was required to characterize the sludge in the lagoon as part of closure requirements, but the sampled materials were removed and land applied to K-Area and Par Pond borrow pits prior to SRS receiving the sample analyses.

Samples were taken in August 1988 from three locations in the lagoon: surface, and 2 ft intervals to 8 ft in depth. Samples revealed elevated concentrations of heavy metals (silver, arsenic, lead, barium, nickel, chromium, selenium, mercury, and cadmium), the presence of volatile organics (chlorobenzene, 1,2-dichlorobenzene), and the pesticide Chlordane (a class B carcinogen). Additional sampling to confirm contamination was conducted in February 1989.

Chlordane was found to exist 14 to 19 ft below the surface in the ppb range (maximum concentration found was 13.1 ppb). These samples were not analyzed for any other constituents. A soil gas survey was conducted in August 1992. No C5-C10, BTEX, or chlorinated solvents were found. No groundwater monitoring wells exist at the unit and no groundwater analysis has been done. No sampling and analysis of surface water or sediment has been conducted.

Accomplishments/Activities

The RFI/RI Phase I Work Plan (Rev. 0) was received by the EPA and SCDHEC on July 8, 1991.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None

4.1.3.8 F- and H-Area Inactive Process Sewer Lines from Building to the Security Fence (NBN)

Description

The F- and H-Area Inactive Process Sewer Lines are throughout the whole of the F and H Area. The primary sewer lines were utilized from 1955 to 1982. The process sewers, 4.6 miles in total length, were used to transport liquid wastes from Separations, Tritium, and Waste Management Facilities to their respective seepage basins (gravity fed). There are more than 8,000 ft of various types and sizes of lines from Building FB-221 and HB-221 to the Security Fence, roughly 2,000 ft in F-Area and 6,000 ft in H-Area. The majority of the lines are made of vitrified clay. Portions of lines are slip-lined with active lines and some with inactive lines. The constituents of concern based on soil sampling include low-levels of

radionuclides, metals, nitrates, and low-pH liquids. Sample results for metals are less than TCLP regulatory limits.

Construction of a security system for Separations facilities has allowed the SRS to propose and conduct soil sampling in order that construction could continue. Sample results indicate no significant soil contamination problems.

Accomplishments/Activities

In 1988, SRS environmental engineers took preliminary soil samples near the process sewer lines outside the security fence. The samples indicated low-levels of radioactive materials and traces of metals, nitrates, and low-pH liquids indicating leaks in the sewer lines.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on March 31, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.3.9 Ford Building Seepage Basin (904-91G)

Description

The Ford Building Seepage Basin (904-91G) is located at the extreme southeastern tip of the Central Shops area, approximately 250 ft north of the railroad track. The G-Area Oil Seepage Basin lies approximately 500 ft to the south on the opposite side of the railroad tracks.

When the Ford Building Seepage Basin was originally constructed the bottom of the basin had dimensions of 60 ft by 20 ft, while the dimensions at ground level were 80 ft long by 40 ft wide by 10 ft deep. It was constructed in 1964 to receive wastewater resulting from process equipment repair work in the Ford Building. A 6,000 gallon underground retention tank is located adjacent to the Ford Building and is connected to the seepage basin by an underground sewer line pipe. Much of the repair work conducted in the Ford Building was on heat exchangers from the reactor areas, which generated wastewater contaminated with low levels of radioactivity and trace amounts of non-radioactive organic and inorganic compounds. The wastewater was sent to the retention tank, analyzed for radionuclides, and either released to the seepage basin, or transferred to Waste Management Operations (WMO) for proper disposal. The Ford Building Seepage Basin was retired in 1984 because of the purchase of new heat exchanger heads, which reduced the need for repairs. Since then, wastewater from Ford Building operations have been transported to WMO for disposal.

The constituents of concern in the soil include cobalt-60, strontium-90, cesium-137, europium-155, cadmium, mercury, and zinc. Radium and gross alpha are the constituents of concern in the groundwater.

Accomplishments/Activities

Soil: In 1985, shallow and intermediate soil samples were collected from a total of 12 different locations in and around the Ford Building seepage Basin. Analysis of the samples indicated the presence of the constituents listed above as well as a number of other substances which were above background, but below SRS soil values.

Groundwater: In 1983, three groundwater monitoring wells were installed to the south and to the east of the basin to screen the water table. Groundwater samples indicated the presence of the constituents listed above, as well as, a number of additional compounds which were detected above background, but were below DWS. In 1991, two additional groundwater monitoring wells were installed adjacent to the basin.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on September 10, 1991.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Five existing monitoring wells will be sampled.

4.1.3.10 Ford Building Waste Site (643-11G)

Description

The Ford Building Waste Site is located in the southeast portion of the Central Shops area, north of the Ford Building, south of Road 3.

The origin and history of waste disposal at the Ford Building Waste Site is unknown, although it is suspected that work on radioactive regulated equipment may have occurred here. The unit, rectangular in shape with dimensions of 22 ft by 169 ft, was originally listed as a Central Services Works Engineering (CSWE) miscellaneous rubble pile. Original waste materials included lumber, weathered shoe covers, step-off pads, coveralls, and a Load Luger pan containing soiled rubber gloves, indicating regulated work may have been performed at the unit and the protective clothing worn by the personnel was disposed of at the unit. The lugger pan, lumber, and protective equipment were removed in 1990. The method of disposal or current location of the items are unknown. Current knowledge of the unit indicates an unknown volume of oil may have been discharged at the site in the 1970s. Approximately half of the site is a RCA, and the remaining portion is open to unrestricted access.

The constituents of concern include VOCs, as well as compounds resulting in elevated radiation levels.

Accomplishments/Activities

In 1986, a soil gas investigation indicated the presence of trans-1,2-dichloroethylene and (PCE). In 1988, elevated radioactivity was detected by Health Protection during grounds

keeping work. A subsequent radiation survey conducted in January 1990 indicated slightly elevated radiation levels.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on December 1, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.3.11 Grace Road Site (631-22G)

Description

The Grace Road Site (631-22G) is located about 800 ft east of Road 2, 0.8 miles from the intersection of Road C and Road 2 and 0.8 miles south of B Area. Examination of photographic evidence associated with the Grace Road Site indicate that in January 1951, the unit was a part of a larger active agriculture site known as the Grace Family Farm. The Grace Road Site appears to be located on the southern edge of a group of cultivated fields. A rapid transition in land use occurred about this time and aerial photography of the area four months later indicates the entire southwest corner of the farm had been transformed into a storage and lay down area for equipment in support of B Area construction activity.

The Grace Road Site consists of numerous concrete slabs, brick foundations, and spoil debris. Small mounds of concrete, bricks, shingles, and large concrete blocks that appear to be pieces of a bridge were placed at the unit. The unit also has numerous drums and cans of varying sizes. There is no evidence of any recent disposal activity here or of a more widespread disposal activity. As a result of the unit evaluation and screening no constituents were identified.

Accomplishments/Activities

A unit screening program at the Grace Road was completed in March 1990. All compounds detected were either less than, near background levels, or barely exceeding detection limits. All soil substance concentrations were significantly less than available EPA health-based action levels. Soil gas sampling data, generated in March and April 1988, indicated the soils contained trace levels of chlorohydrocarbons. Also, five samples were found to have elevated levels of methane, which could be attributed to the natural decay of plant and animal material.

Based on the available literature and screening data, there is no evidence that hazardous substances have been managed or are present at the Grace Road unit. As a result, no further field investigation is required and no assessment sampling will be conducted. No remedial action is planned for this unit.

The RFI/RI Phase I Work Plan (Rev. 0) recommending No Further Action was received by EPA and SCDHEC on January 9, 1991 and accepted by EPA November 8, 1991. The Proposed Plan (Rev. 0) was received by EPA and SCDHEC on May 29, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.3.12 Hydrofluoric Acid Spill Area (631-4G)

Description

The Hydrofluoric Acid Spill Area (631-4G) is located in the southwest portion of the Central Shops area, south of Road 3. The unit measures approximately 30 ft by 30 ft. The area surrounding the unit is mostly bare or covered with gravel and is affected by human activities. Railroad tracks are located 100 ft south of the unit, a concrete slab/ laydown is located adjacent and east of the unit, and an asphalt laydown yard and storage area is located adjacent to and northwest of the unit.

The history of waste disposal at the Hydrofluoric Acid Spill Area is unknown. It is uncertain whether hydrofluoric acid was spilled or if acid-contaminated soil or acid-filled containers were buried at the site. The spill or disposal most probably occurred prior to 1970, and was documented only by a site identification sign that reads "CONTAMINATED AREA HYDROFLUORIC ACID BURIED 6 FEET DO NOT DIG 15 FEET EACH SIDE OF POST." Interviews with former and current SRS employees regarding the unit's history were inconclusive. Preliminary groundwater sampling identified constituents of concern to be cadmium, iron, manganese, and the insecticide lindane.

Accomplishments/Activities

Soil: Four groundwater monitoring wells were installed around the perimeter of the unit in 1984, and have sampled quarterly since 1985. Results from the analyses of the samples indicated the presence of the above substances. A GPR study took place at the Hydrofluoric Acid Spill Area in 1988. A buried object at some depth was noted in the vicinity of the unit. Another GPR study took place in 1992. Again, a buried object was noted near the unit. Results from this survey suggest the object is buried at a depth of 2 to 4 ft.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on September 2, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Sampling will be performed at four existing monitoring wells.

4.1.3.13 K-Area Sludge Land Application Site (761-4G)

Description

The K-Area Sludge Land Application Site (761-4G) is located west of K Area. It is south of Road B and it is surrounded by Pen Branch and Indian Grave creeks. The K-Area Sludge Land Application Site was originally a borrow pit that was used in a experimental reclamation project. The former borrow pit covers about 17 acres. In 1980, about 300,000 gallons of liquid sludge from non-SRS sewage treatment plants was injected 5 to 8 in beneath the soil surface. Afterwards, ten species of hardwood and loblolly pines were planted on the unit. In 1988, about 210 tons of sewage sludge from the Central Shops (CS) Sewage Sludge Lagoon was spread over the soil on approximately 14 of the 17 acres of the former borrow pit. Analytical results of the sludge from CS Sludge Lagoon indicated the presence of chlordane, a hazardous (class B carcinogen) pesticide used in termite control. The source of the chlordane has not been determined. Results also showed higher concentrations of certain metals in the sludge than in the underlying soil.

Accomplishments/Activities

The K-Area Sludge Land Application Site soils were sampled in February 1989, to confirm the presence of chlordane. Three samples of soil containing residual sludge and three samples of underlying soils were collected to determine the extent of the chlordane concentrations. The highest and lowest concentrations of chlordane detected in the sludge was 32,300 ppb and 3,820 ppb, respectively. The underlying soil at the same location as the sludge had concentrations of 90.2 ppb and 8 ppb, respectively. Three groundwater monitoring wells were installed in 1988. Evaluation of groundwater data showed that the Sludge Land Application Site has not impacted the quality of shallow groundwater.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on July 8, 1991.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.3.14 M-Area West (631-21G)

Description

The M-Area West unit is located west of the M-Area production facility, near a dirt access road approximately 1.1 miles north of Silverton Road. The unit consists of two small areas where drums were found. Visible materials at the unit included six empty 55-gallon drums, four 1-gallon cans and a 1-gallon glass jar and miscellaneous debris. Most of the debris was

removed in July 1992. Some miscellaneous items remain. Markings on the drums indicate they once contained chlorinated solvents and oil, and are about 30 years old. There is no evidence that any recent disposal activity has occurred or that the disposal activity was more widespread. The constituents of concern for the unit include metals, volatile and semivolatile organics, and phenolic compounds in soil. Based on the expected depth to the water table (approximately 128 ft below land surface [bls]) and the lack of data regarding the extent of the contamination at this site, unit assessment activities will focus on soil contamination only.

Accomplishments/Activities

A preliminary investigation conducted during March/April 1988 revealed low measurable concentrations of chlorinated solvents at the unit. A unit screening program, completed at the M-Area West unit in November 1989 indicated the possible presence of hazardous substances including metals, volatile organics, semivolatile organics and phenolic compounds in the soil. No monitoring wells are associated with this unit, however to the north and east (closest cluster is 1 mile away) are monitoring wells associated with the M-Area groundwater study.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on September 21, 1990. EPA comments on the RFI/RI Phase I Work Plan (Rev. 0) were received by SRS on June 18, 1991. The RFI/RI Phase I Work Plan (Rev. 1) was received by EPA and SCDHEC September 10, 1991. SCDHEC comments on the RFI/RI Phase I Work Plan (Rev. 1) were received by SRS on May 19, 1993.

Geophysical Surveys (magnetometer and GPR) and soil gas surveys (including geoprobe sampling) were conducted during June and July 1993. The geophysical surveys revealed no trenches, buried objects, or new debris. Soil gas analysis detected the presence of low levels of light hydrocarbons, but no chlorinated organics.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

The RFI/RI Phase I Work Plan (Rev. 2) is to be submitted to EPA and SCDHEC.

4.1.3.15 Par Pond Sludge Land Application Site (761-5G)

Description

The Par Pond Sludge Land Application Site is located north of Road B and southeast of the Par Pond Reservoir. The Par Pond Sludge Land Application Site was originally a 31-acre borrow pit that was reclaimed for land applications of sewage sludge. In 1980, after surficial soil preparation, about 300,000 gallons of liquid sludge from non-SRS sewage treatment plants was injected 13 to 20 in beneath the soil to fertilize and condition it. In 1981, ten species of hardwood and loblolly pines were planted on the site. In 1988, about 340 tons of sewage sludge from the Central Shops (CS) Sewage Sludge Lagoon was spread over the soil of approximately 22 of the 31 acres of the site.

Sludge and underlying soil samples were taken at the CS Sewage Sludge Lagoon, but sample results were not reported until after the sludge had been applied to the Par Pond Sludge Land Application Site. Analytical results of the sludge from CS Sludge lagoon indicated the presence of chlordane, a hazardous (class B carcinogen) pesticide used in termite control. The source of the chlordane has not been determined. Results also showed the presence of heavy metals in the sludge.

Accomplishments/Activities

Groundwater: Three groundwater monitoring wells were installed in 1988. Samples from the wells have concentrations of heavy metals above detection limits but below critical values. Groundwater sampling has not shown any impact from chlordane.

Soil: Sludge and soil samples were taken in the early part of 1989 to confirm the presence of chlordane at the Par Pond Sludge Land Application Site. Chlordane was detected in both soil and sludge samples. Metal analyses were not performed on these samples, and no additional soil sampling has been performed to determine if the in-place soils at the Par Pond Sludge Land Application Site exhibit elevated metal concentrations. The groundwater monitoring wells are sampled periodically, and monitoring is scheduled to continue.

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on July 8, 1991.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Sampling of the three existing monitoring wells will continue.

4.1.3.16 SRL Oil Test Site (080-16G)

Description

The Savannah River Laboratory (SRL) Oil Test Site (080-16G) is located approximately 2000 ft east of the intersection of Roads 3 and 5. The unit is separated from Central Shops complex by C railroad spur line. The unit is subdivided into 3 distinct areas of concern: the SRL Oil Test Site, the Rubble Disposal Site, and Petroleum-Contaminated Soil Temporary Storage Area.

SRL Oil Test Site: The SRL Oil Test Site was developed in 1975 as a location to evaluate the ability of native micro-organisms present in soil to biodegrade petroleum hydrocarbons. No initial characterization was conducted on waste oils applied to the soil. In 1975, 220 gallons of used machine cutting oil was applied to 12 test plots, each measuring 12 ft wide by 35 ft long, so that the oil concentration was 400 gallons per sq ft. In 1976, varying amounts of fertilizer were applied to each of the plots. 824 gallons of used hydraulic fluid and 1100 gallons of used paint thinner were randomly applied to 2 additional plots (10 ft wide by 230 ft long). There are no existing records of origin, history, or sampling analysis of the unknown material strip. Oil test plots were sampled immediately after application, 1 month after, every 3 months after for 2 years and at 5 years. Results indicated that after 2 years, approximately 50 percent of

applied oil was lost from the soil profile through biodegradation and volatilization. The SRL Oil Test Site has been inactive since 1977.

Rubble Disposal Site: The site was used to dispose of waste oils, rubble and construction materials, with some other spills, including oil-contaminated soil. Most of these materials were excavated and moved to the SRS Sanitary Landfill in 1982. No existing records of the origin, history, or sampling and analysis for hazardous substances was believed to have been conducted on the material prior to disposal in the landfill. Rubble Disposal Site has been inactive since November 1982.

Petroleum-Contaminated Soil Temporary Storage Area: Received approximately 10 truckloads of petroleum-contaminated soil which was stored on plastic sheeting from 1990, at which time the soil was removed from this unit. There is no record of origin or disposal of this soil. The area has been inactive since soil removal in June 1990.

Soil and soil gas surveys were conducted from 1975 to 1986. Data indicates hydrocarbons have not migrated more than 30 cm below the soil surface. Data indicates approximately 50 percent of the petroleum hydrocarbons have been biodegraded and/or volatilized. Methane, ethylene, and propylene were found at higher levels in the oil test plots than in the control plots. Phosphorus levels were above pre-application levels 1 year after oil application. All other parameters tested (pH, potassium, calcium, magnesium) had returned to pre-application levels after 1 year or were not affected by the oil application. Examination of the soil profile found a dark discoloration of the top 6 to 9 in of soil. No groundwater monitoring wells exist at this unit. No analysis for metals and radionuclides have been conducted at this unit.

Accomplishments/Activities

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC on October 23, 1990. EPA comments on January 30, 1992. The RFI/RI Phase I Work Plan (Rev. 1) was received by EPA and SCDHEC on April 30, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.3.17 Silverton Road Waste Site (731-3A)

Description

The Silverton Road Waste Site is 1.5 miles west-southwest of A/M Area. The unit is approximately 700 ft long by 300 ft wide by 7 ft deep. The unit was an open pit prior to construction of SRS. The pit is assumed to have been a disposal site for domestic and community waste. During and after the construction of SRS, the pit and surrounding area were used for the disposal of construction debris such as metal shavings, drums, and storage tanks until its closing in 1974.

Accomplishments/Activities

Approximately 30 monitoring wells have been installed at the waste site. The RFI/RI Phase I Work Plan (Rev. 0) was written and submitted to EPA and SCDHEC on November 7, 1990. EPA comments were incorporated into the RFI/RI Phase I Work Plan (Rev. 1) were received by SRS on June 3, 1991. The RFI/RI Phase I Work Plan (Rev. 0) was written and submitted to EPA and SCDHEC on September 10, 1991. SCDHEC comments were received by SRS on December 1, 1992. The RFI/RI Phase I Work Plan (Rev. 2) was received by EPA and SCDHEC on March 31, 1993. Regulatory approval was received from EPA on June 28, 1993 and SCDHEC on July 22, 1993.

Field work began July 6, 1993, and will continue until October 26, 1993. A total of 15 borings were drilled in July and August, 1993. Nine additional wells were installed on September 30, 1993 to more precisely monitor the groundwater in the vicinity.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Soil Sampling: Verified laboratory results will be received for the 15 soil borings drilled in July and August 1993.

Groundwater Sampling: All 39 wells will be sampled during November 1993 and December 1993. Additional groundwater samples will be collected at 10 locations with a Hydropunch.

4.1.3.18 TNX Burying Ground (643-5T)

Description

The TNX Burying Ground (643-5T) is located in the TNX area, within the TNX fence. In 1953, an experimental evaporator containing approximately 1300 lbs. of uranyl nitrate exploded. Contaminated material included structural steel, tin, timber, drums, rags, and other items. The contaminated material was buried in four trenches, at 6 to 8 ft bls. The waste trenches were rediscovered in 1980 during construction of buildings. Most of the contaminated material was removed in 1982 and 1983. Five areas of known contamination and one suspect area remain. These are under buildings or in locations where use of excavation equipment is restricted. An estimated 60 lbs of uranyl nitrate remains in these unexcavated areas.

Accomplishments/Activities

In November 1988, 106 samples were collected and analyzed for uranyl nitrate. The maximum concentration of U-238 found was 25.7 pCi/g. The average concentration of U-238 from all samples from the known remaining areas was 4.25 pCi/g. Eight monitoring wells (TBG Series) were installed in 1988 to 1989. The results of the analyses are reported in the SRS Annual Environmental Report.

The RFI/RI Phase I Work Plan (Rev. 0) received by EPA and SCDHEC on February 2, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.3.19 West of SREL "Georgia Fields" Site (631-19G)

Description

The West of Savannah River Ecology Lab (SREL) "Georgia Fields" is located in the southwest section of SRS, approximately 1 mile west of SC Highway 125 and 1/2 mile south of Upper Three Runs Creek. The unit is situated just west of SREL research area.

Debris located on the unit includes 2 empty steel drums, 6 five-gallon buckets, piles of burlap, wood waste, wire coils, rolls of wire, ladders, chain link fence parts, and miscellaneous kitchen pots and pans. One 55-gallon drum, located adjacent to the burlap pile, was labeled "Selig Chemicals" and "Solvent."

Formerly used for live mammal trapping and collection. No hazardous substances are known to have been disposed of at the unit. No chemicals or preservatives are reported to have been used in the collection, tagging, or tracking of biological specimens.

Unit screening consisted of two soil gas surveys and a radiation survey. Initial soil gas survey conducted in March 1988 for chlorinated solvents with a sample depth of 18 to 24 inches. Ten soil gas samples collected and analyzed. Trans 1,2-Dichloroethene detected in 3 locations with a concentration range of 3.2 to 9.4 ppb. Chloroform detected at 5 locations with a concentration range of 0.19 to 10.10 ppb. Second soil gas survey conducted in July and August, 1991 with a sample depth of 3 ft and analyzed for 27 organic compounds. Fifty seven soil gas samples taken (including 5 duplicates). Samples collected on a random grid with stations at 20 ft intervals. Chloroform detected at 18 sites with a concentration range of 5 to 310 ppb while no trans 1,2-Dichloroethene detected. Methane, ethane, propane, ethylene, propanol, and oxylene were detected. Radiation survey was conducted in September 1990, no radioactive contamination detected.

A 20 ft by 20 ft sampling grid was established over entire unit. Soil samples from 15 of the grids were collected at depths of 0 to 6 inches and 3 to 10 ft (grids selected based on previous data collected). Soil was analyzed for physical properties and contaminant concentrations. One grab soil sample from underneath each drum at depth of 6 to 18 inches and background soil samples were collected.

Accomplishments/Activities

The RFI/RI Phase I Work Plan (Rev. 0) was received by EPA and SCDHEC in October 11, 1990. SRS received EPA and SCDHEC comments in December 2, 1991. The RFI/RI Phase I Work Plan (Rev. 1) was received by EPA and SCDHEC on March 3, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.3.20 TNX Groundwater (NBN)

Description

The TNX Fundamental Study Area (NBN) occupies about 10 acres and is located approximately one-quarter mile east of the Savannah River in the southwestern part of SRS. Three surface units contribute to the source of the TNX Groundwater Operable Unit include: the New TNX Seepage Basin, the Old TNX Seepage Basin, and the TNX Burying Ground.

The New TNX Seepage Basin was constructed in 1980 and received high-nitrate wastes but no hazardous substances from Defense Waste Processing Facility (DWPF) mock-up tests until 1988. The Old TNX Basin received various chemical wastes from studies at TNX, ranging from inorganic salts to low-level radionuclides, between 1958 and 1980. The TNX Burying Ground was created in 1953 by disposal of debris from an accidental explosion of an experimental evaporator which contained uranyl nitrate. Most of the material was excavated between 1980 and 1984 and moved to the SRS Radioactive Waste Burial Grounds.

Groundwater contamination in the TNX Area includes chlorinated VOCs, nitrate, mercury, and gross alpha. These constituents exceed the Primary DWS. In September 1990, TCE has been detected in the groundwater at 4800 ppb (or approximately 1000 times the MCL of ppb). VOCs are the most widespread and fastest migrating groundwater constituents in the TNX Area. Current monitoring data was used to back calculate a six gallon inventory of TCE in the groundwater plume. Mercury and gross alpha are elevated in one well out of 50 located in the TNX Area and do not appear to be migrating at this time. TCE has been detected at the seep line in the Savannah River Swamp where the groundwater plume outcrops. However, no constituents from the plume have been detected in the Savannah River, or any offsite groundwater. Currently, no offsite risk is present from the groundwater contamination, however, an unacceptable risk to a theoretical onsite groundwater user has been documented in a draft baseline risk assessment. There is also a potential ecological risk at the seep line which has not been adequately characterized.

Accomplishments/Activities

Initially, Savannah River Laboratory (now the Savannah River Technology Center (SRTC)) proposed using the TNX Groundwater Operable Unit as a unit to test new technologies. Under the impetus of EPA, the process evolved to include an Interim Action Proposed Plan (IAPP). Rev. 1 of the IAPP was submitted on January 22, 1993 to EPA in accordance with a prior agreement. The installation of horizontal wells in the flood plain area as spelled out in the IAPP Rev. 1, and was subsequently unsuccessful because of unfavorable geologic conditions.

On July 22, 1993, a revised IAPP (Rev. 2) was submitted to EPA and SCDHEC, describing an interim remedial action proposal to address groundwater contamination in the TNX Area.

The actions proposed in the IAPP (Rev. 2) are consistent with a July 6, 1993 letter from the DOE to the EPA outlining DOE's proposal. The letter indicated that the objective of the interim action was to make a commitment to evaluate innovative technologies for final remediation and to protect human health during the interim period. Institutional controls such as restrictions to onsite access and water use were proposed in combination with continued monitoring to protect human health during the interim. A Focused Feasibility Study of innovative remediation technologies for the TNX Groundwater Operable Unit would be conducted to identify a promising technology for bench scale and field scale testing at TNX. If the subsequent implementation of the treatability study was successful, and if funding was available, the selected technology would be demonstrated in the field.

EPA-Region IV faxed a letter to the DOE, on July 22, 1993, in response to the DOE July 6, 1993 letter that indicated "EPA intends to invoke informal dispute resolution on the Rev. 1 TNX-Area groundwater operable unit as soon as the FFA was made effective". EPA also stated that the submission of Rev. 2 was unacceptable and would not be formally reviewed.

For the purpose of clarification, two IAPP's (Rev. 2) have been prepared. The original IAPP Rev. 2, dated April 1993, incorporated EPA comments and essentially reflected the preferred alternative referred to in the IAPP (Rev. 1) (submitted to EPA on January 22, 1993). However, this original IAPP (Rev. 2) was held by DOE, and never submitted to EPA or SCDHEC. The second IAPP (Rev. 2) (also called a Rev. 2 because the first was never submitted to EPA) was extensively revised by DOE-SR and DOE-HQ, and submitted to the EPA on July 22, 1993. A Risk Evaluation was developed by SRTC as part of a pilot program and a preliminary draft is undergoing DOE-HQ review.

Concerns

A dispute resolution meeting between EPA, SCDHEC and DOE was held on September 16, 1993 to discuss the IAPP and a resolution was reached for the unit. Innovative technologies would be tested during the treatability studies and a final evaluation of the technologies would be included in the Feasibility Study. One or a combination of technologies would be proposed for an interim corrective action. It was agreed that if all the innovative technologies failed, some form of pump and treat would be selected and implemented.

Scheduled Activities for Next Quarter (First Quarter FY94)

Monitoring well sampling and analysis will continue in the TNX Groundwater Operable Unit according to regulatory guidelines. The revised IAPP (Rev. 2) is to be submitted to EPA and SCDHEC. In addition, a Treatability Study Work Plan, with addendums for all selected innovative technologies, will be developed and submitted as required in the IAPP.

4.1.3.21 SRL 904-A Process Trench (904-A)

Description

The SRL 904-A Process Trench (904-A) (the Trench) is located in the northwestern section of the SRS 700 Area within the boundaries of the (SRTC). The SRTC was formerly the Savannah River Laboratory. The Trench, active since 1953, is an enclosed underground concrete pipe trench containing high activity and low activity waste lines between Building 773-A and the waste storage and shipping complex at Building 776-A. In December 1971,

decontamination procedures were undertaken in the High Level Caves of the E-Wing of Building 773-A. Resulting contaminated wash water was collected in a separator pit. The separator pit released an estimated 2500 gallons of radioactive wash water into the trench box, where it flowed by gravity through the system. The trench box plug was in place at Building 776-2A, resulting in a collection of the wash water within the Trench. Calculated Trench volumes indicated a possible release of radioactive wash water to surrounding soils if overlying concrete-slab seals had deteriorated.

A trade waste sewer line at SRTC parallels then crosses the Trench. Due to this proximity, it may contribute to subsurface impacts in the area. Known to be breached, this line had the potential of releasing uranium contaminated water to the surrounding subsurface. Deterioration of seals on the Trench overlying concrete-slab may have resulted in release of contaminated water from the trade waste line to the Trench box.

The constituents of concern include the following inorganics: barium, cadmium, chromium, magnesium, manganese, nickel, lead, and radionuclides tritium, cobalt-60, thorium, cesium-137, plutonium -239-240, strontium, and uranium.

Accomplishments/Activities

A preliminary site assessment for the 904-A Trench was performed by SRS in August 1984. The objective of the assessment was to determine if chemical and radiological waste materials were released to the surrounding soil. Six soil cores were taken and analyzed for a variety of inorganic and radioactive constituents. In May 1992, soil borings were drilled at seven locations along the Trench. The borings were drilled immediately adjacent to the Trench and sampled at depths approximately 4 ft, 6 ft, 10 ft, and 14 ft bls. The Trench depth is 2.66 ft with the top believed to be 6 to 10 ft bls. The project also included the generation of a map indicating core locations, including elevations.

The RFI/RI Phase I Work Plan (Rev. 0) was developed and received by EPA and SCDHEC on March 7, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.1.3.22 Par Pond (NBN)

Description

The Par Pond (NBN) is a 2,640-acre reservoir near the eastern edge of SRS and is located adjacent to P and R Areas. It was created as a cooling pond to augment the cooling requirements of both P and R Reactors. Par Pond dam is an earthen embankment 65 ft high and 4,500 ft long. The water level (at 200 ft mean sea level [msl]) has been maintained in the reservoir since its construction. From August 1958 to October 1961, Par Pond received thermal effluent from R Reactor only. During this time, R Reactor discharged thermal effluent

to the Middle or Hot Arm of Par Pond via the precooler Pond C. Both reactors utilized Par Pond from November 1961 to June 1964. During this period, R Reactor discharged effluent to the North Arm via Pond B. The P Reactor discharged effluent into the Hot Arm of the pond via a series of canals and precooler ponds, including Pond C. In July 1964, R Reactor operations were suspended and the reactor was placed on standby. Thereafter, Par Pond has received thermal effluent from P Reactor only and Pond B has not received any effluent cooling water. Currently, these reactors are not operating, and their discharge to the reservoir has ceased.

During a routine structural inspection of the dam in March 1991, a small surface depression was noted on the downstream face of the dam. Based on the inspection report, DOE ordered a detailed structural investigation into the cause of the depression and initiated a simultaneous precautionary drawdown of the reservoir to the 181-foot (msl) elevation in June 1991. This level was chosen to reduce the risk and consequences of flooding in the event of a dam failure downstream of the reservoir.

As the drawdown and structural investigation proceeded, regulatory agencies and the public were notified and apprised of the drawdown. Due to radionuclide contamination of the sediment below the 200-foot (msl) elevation, the DOE and EPA viewed the drawdown and the exposed sediments of the Par Pond as a removal action under CERCLA. As a result, SRS was directed to perform a CERCLA Risk Assessment associated with the exposed sediments. The Oak Ridge National Laboratory (ORNL) was subcontracted to perform the Baseline Risk Assessment. To monitor activity levels and cesium-137 content during drawdown of the reservoir, water and sediment samples were tested weekly at monitoring points in Lower Three Runs Creek by SRS.

The lowering of Par Pond poses potential for environmental impact because the reservoir and antecedent streams have received releases of radionuclides. The main source of radionuclides were accidental releases resulting from fuel element failures and leaks during the 1950s and 1960s. The largest release was from a fuel element which failed in 1957.

Par Pond currently receives discharges from all storm sewer outfalls from the deactivated R Area, a few storm sewers in P Area, and probably discharges from the water-table aquifer. Most of the radionuclide inventory comes from the 1950-1960 era releases. In the 30 years since these releases, approximately half of the strontium-90 and cesium-137 (the main isotopes in the release) would have decayed. The current estimated inventory in Par Pond is approximately 43 Ci of cesium-137. The constituents of concern identified thus far for the Par Pond sediments and water include cesium-137, tritium, and mercury.

Accomplishments/Activities

An Interim Proposed Plan for the Par Pond Removal Action underwent a 45-day public comment period from June 8 through July 23, 1992. In October 1992, the Baseline Risk Assessment using Existing Data for Par Pond was prepared to meet the EPA request for a risk assessment based on the drawdown of the Par Pond reservoir.

Currently, a Focused Feasibility Study and Interim Action Proposed Plan are being developed. These documents evaluate potential remedial alternatives in detail.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.2 Site Evaluation Program/Process

Description

Section X of the SRS Federal Facility Agreement requires the SRS to submit to EPA and SCDHEC a Site Evaluation Report for those areas listed in Appendix G of the Agreement. The Site Evaluation Report will have one of two recommendations for a suspect area. The reports' recommendation could be to add the area to the Appendix C, the EPA and SCDHEC are required to submit a letter of concurrence to file on the recommendation RCRA/CERCLA Units List, or that the area requires "No Further Action".

On March 2, 1993, the Environmental Protection Agency (EPA) Region IV expressed a number of concerns regarding the SRS Site Evaluation Program. As a result of those concerns, SRS was requested to cease submitting the Site Evaluation Reports to the EPA and SCDHEC until the concerns could be resolved. On March 10, 1993, SCDHEC concurred with those concerns, and also requested that no further Site Evaluation Reports be submitted until an agreement could be reached on a revised process.

Accomplishments/Activities

Refer to Table 4.2-1. SRS Site Evaluation Reports Submitted to EPA and SCDHEC.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

The completion of two Site Evaluation Reports.

Table 4.2-1. SRS Site Evaluation Reports Submitted to EPA and SCDHEC

Page 1 of 6

Area Name	Date EPA and SCDHEC Received	Receipt of EPA Comments by SRS	Receipt of SCDHEC Comments by SRS	Status
R-Area Asbestos Pit (080-1R)	10/16/91	6/16/92	3/12/93	EPA and SCDHEC concurred with SRS recommendation for No Further Action.
C-Area Asbestos Pit (080-21G)	8/1/92	8/31/92	3/12/93	EPA and SCDHEC concurred with SRS recommendation for No Further Action.
C-Area Reactor Seepage Basin (904-068G)	3/1/93	4/6/93	6/4/93	EPA and SCDHEC concurred with SRS recommendation that the area should be investigated with the C-Reactor Seepage Basin (904-068G).
L-Area Rubble Pile (631-26G)	5/1/91	6/2/92	10/8/92	EPA and SCDHEC requested additional information.
R-Area Rubble Pile (631-25G)	5/1/91	9/21/92	3/5/93	EPA and SCDHEC requested additional information.
Spill on 01/12/53 of 1/2 Ton of Uranyl Nitrate	10/1/92	10/19/92	4/1/93	EPA and SCDHEC concurred with SRS recommendation for No Further Action.

Table 4.2-1. SRS Site Evaluation Reports Submitted to EPA and SCDHEC

Page 2 of 6

Area Name	Date EPA and SCDHEC Received	Receipt of EPA Comments by SRS	Receipt of SCDHEC Comments by SRS	Status
L-Area Hot Shop (717-G)	9/19/91	6/19/92	1/28/93	EPA and SCDHEC recommended that the area be listed as a RCRA/CERCLA unit in Appendix C of the FFA.
Spill on 5/1/57 of 125 ft ³ of Radioactive Liquid From Solvent Trailer	7/1/92	8/31/92	5/5/93	EPA and SCDHEC recommended combining with other spills areas.
F-Area Railroad Crosstie Pile	1/31/92	6/1/92	10/7/92	EPA and SCDHEC recommended the unit be handled as SWMU.
Spill on 12/23/54 of Unknown Quantity of Pu-239 from 221-FB	7/1/92	8/31/92		EPA and SCDHEC requested additional information.
TNX Rubble Pile	5/1/92	9/21/92	4/1/93	EPA and SCDHEC requested additional information.
Spill on 2/1/57 of Seepage Basin Pipe Leak from 904-44G	10/30/92	1/5/93	6/4/93	Revised report submitted 7/15/93 to EPA and SCDHEC.
40-Acre Hardwood Site (761-G)	8/1/92	8/31/92	3/12/93	EPA and SCDHEC concurred with SRS recommendation for No Further Action.

Table 4.2-1. SRS Site Evaluation Reports Submitted to EPA and SCDHEC

Page 3 of 6

Area Name	Date EPA and SCDHEC Received	Receipt of EPA Comments by SRS	Receipt of SCDHEC Comments by SRS	Status
C-Area Asbestos Pit (080-22G)	8/1/92	8/31/92	3/12/93	EPA and SCDHEC concurred with SRS recommendation for No Further Action.
Gunsite 051 Rubble Pile (080-29G)	11/20/92	6/25/93		SRS recommended No Further Action.
Gunsite 102 Rubble Pile (080-30G)	11/21/92	6/25/93		SRS recommended No Further Action.
Kato Road Site (761-6G)	12/16/92			SRS recommended No Further Action.
Road F Site (761-7G)	12/14/92			SRS recommended No Further Action.
Gunsite 072 Rubble Pile (080-31G)	10/30/92			SRS recommended No Further Action.
R-Area Rubble Pit (131-2R)	10/1/92	11/2/92	4/12/93	EPA and SCDHEC requested additional information.
L-Area Rubble Pit (131-4L)	11/1/92	1/25/93	5/5/93	EPA and SCDHEC requested additional information.
Risher Road Open Metal Pit (631-17G)	10/30/92	7/28/93		SRS recommended No Further Action.

Table 4.2-1. SRS Site Evaluation Reports Submitted to EPA and SCDHEC

Page 4 of 6

Area Name	Date EPA and SCDHEC Received	Receipt of EPA Comments by SRS	Receipt of SCDHEC Comments by SRS	Status
Spill of 3/15/79 of 500 Gallons of Contaminated Water	2/1/93	5/14/93		SRS recommended the area be incorporated with the M-Area Settling Basin (NBN) RCRA/CERCLA unit
B-Area Sanitary Treatment Plant Rubble Pile	12/16/92			SRS recommended No Further Action.
Old Ellenton Rubble Pile	12/14/92			SRS recommended No Further Action.
Small Arms Training Area (SATA)	4/7/92	6/10/92	2/12/93	EPA and SCDHEC requested additional information.
Gas Cylinder Disposal Facility (131-2L)	1/29/93	4/26/93		SRS recommended for No Further Action however the area will be temporarily incorporated with the L-Area Rubble Pit (131-1L) RCRA/CERCLA unit until 131-1L is remediated

Table 4.2-1. SRS Site Evaluation Reports Submitted to EPA and SCDHEC

Page 5 of 6

Area Name	Date EPA and SCDHEC Received	Receipt of EPA Comments by SRS	Receipt of SCDHEC Comments by SRS	Status
Fire Department Hose Training Facility (904-113G)	2/1/93	5/14/93	8/20/93	SCDHEC concurred with SRS recommendation that the area be investigated further and included with Ford Building Seepage Basin RCRA/CERCLA unit.
Advanced Tactical Training Area (ATTA) Firing Ranges	11/21/92			SRS recommended for No Further Action until this active area is closed.
Warners Pond (Spill on 9/24/56 of Beta-Gamma)	5/1/92	7/10/92	1/29/93	EPA and SCDHEC recommended that the unit be added to the RCRA/CERCLA unit list.
D-Area Waste Oil Facility (484-D)	3/1/93	4/13/93	7/12/93	EPA and SCDHEC recommended that the site be added to the RCRA/CERCLA unit list.
Savannah River Forest Service Rubble Pile (631-9G)	3/1/93	4/13/93	5/24/93	EPA and SCDHEC concurred with SRS recommendation for No Further Action.

Table 4.2-1. SRS Site Evaluation Reports Submitted to EPA and SCDHEC

Page 6 of 6

Area Name	Date EPA and SCDHEC Received	Receipt of EPA Comments by SRS	Receipt of SCDHEC Comments by SRS	Status
SREL Rubble Pile (761-9G)	1/29/93	4/13/93	7/12/93	EPA and SCDHEC concurred with SRS recommendation for No Further Action.
Imhoff Tank Rubble Pile	3/1/93	4/6/93	5/24/93	EPA and SCDHEC concurred with SRS recommendation for No Further Action.
412-D, 401-D, and 402-D Heavy Water Facility and Gas Plant	2/24/93	4/26/93		SRS recommended the area structures be addressed as part of the SRS Asbestos Removal Program and the soils be addressed as an addendum to the Site Evaluation.
Removal of Contaminated Soil (321-M)	4/12/93	6/4/93	9/27/93	EPA and SCDHEC concurred with SRS Recommendation for No Further Action.
DWPF Concrete Batch Plant Lagoon (NBN)	6/21/93	7/9/93	7/15/93	EPA and SCDHEC concurred with SRS Recommendation for No Further Action after closure.
Abandoned Drums - CSX Railroad Right of way	3/17/93	6/7/93	9/27/93	EPA and SCDHEC concurred with SRS Recommendation for No Further Action.

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4.3 RCRA Regulated Units

4.3.1 723-A Met Lab Basin/Carolina Bay (904-110G)

Description

The Metallurgical Laboratory (Met Lab) Basin/Carolina Bay (904-110G) is located in the eastern part of the A Area (700-Area). It is located 1.4 miles away from the SRS boundary to the northwest of the facility. In all other directions, the SRS property boundary lies beyond a 4-mile radius from the unit. The closest surface water body is Tims Branch, a tributary of Upper Three Runs, located approximately 4400 ft east-southeast of the unit.

The unit consists of the Met Lab Basin, the drainage outfall to the Carolina Bay, and the Carolina Bay itself. The Met Lab Basin is a small, unlined, man-made surface impoundment approximately 5 ft deep. Dimensions at the top of the basin are approximately 60 ft by 120 ft. The basin sides slope inward at a nearly 25 degree angle (from the horizontal) giving the bottom dimensions of approximately 40 ft by 100 ft. The resulting volume capacity of the basin is approximately 27,600 cubic ft. The Carolina Bay is a marshy, oval-shaped, natural depression that covers approximately 6 acres, and is adjoined to the Met Lab Basin, via the drainage outfall.

The Met Lab Basin was constructed in 1956. It received effluent consisting primarily of noncontact cooling water and small quantities of laboratory rinse water (containing small quantities of metals, solvents, and caustics) from the Metallurgical Laboratory. Effluent was discharged continuously at approximately 1000 gallons per day throughout the operating period of the basin 1956 to 1985. During periods of heavy rainfall, wastewater and surface water runoff overflowed the Met Lab Basin via a drainage outfall (A-007), and were discharged to the adjacent Carolina Bay.

The Carolina Bay also received process effluent from the A/M Area powerhouse (a maximum of 300,000 gallons per day) through Outfall A-008. Currently this powerhouse effluent is being collected and transported by tanker truck to another onsite powerhouse location for discharge. Effluent into the A-008 outfall from the A/M Area powerhouse consisted of stormwater overflow, powerhouse yard and floor drains effluent or discharge, and cooling water from pumps. All other effluent from the powerhouse is tanked and shipped to the D Area for disposal. Stormwater runoff from the spare parts machinery storage area presently flows into the Carolina Bay at the A-009 outfall. There are no plans to divert this flow.

The unit received F001, F003, F007, and D011 waste. F001 waste includes spent halogenated solvents used in degreasing (TCE, 1,1,1-trichloroethane, and carbon tetrachloride). F003 waste includes spent nonhalogenated solvents (acetone). F007 waste consists of spent cyanide plating bath solution. Extract from D011 waste obtained using the EP toxicity test contains silver in concentrations greater than 5 mg/L.

Accomplishments/Activities

The release of hazardous waste from the Metallurgical Laboratory (Building 723-A) to the Met Lab Basin was discontinued in 1983. Since 1983, hazardous wastes from the Metallurgical Laboratory have been stored at a permitted hazardous waste facility in the central portion of

SRS while awaiting final treatment and disposal. All discharges to Met Lab Basin were terminated on November 8, 1985.

Groundwater sampling was begun at the Met Lab Basin/Carolina Bay unit to monitor the constituents released to the groundwater, in 1984. Since that time the SRS has added numerous monitoring wells around the unit and within the entire A/M-Area to comply with RCRA requirements for groundwater. During that same year, SRS began a characterization program of the Met Lab Basin and a portion of the process sewer line.

In 1985, a portion of the process sewer line was plugged and abandoned in place. In addition, the overflow pipe from the basin to the Carolina Bay was excavated after discharges to the basin were stopped. In 1988, the first phase of characterizing the Carolina Bay was initiated, and included preliminary sampling to identify constituents and areas of concern within the perimeter of the bay.

A Technical Data Summary on the Met Lab Basin was submitted to SCDHEC per a Consent Decree. The decree identified the unit as being subject to RCRA. In 1989, the coal-fired power plant process effluent, received from the A-Area powerhouse since 1953 was discontinued from flowing to the Carolina Bay through Outfall A-008. Also, during that year the RCRA Part B Permit Application (Rev. 0) was submitted to SCDHEC.

The unit experienced a great deal of activity in 1990. The RCRA Groundwater Quality Assessment Plan for the Metallurgical Laboratory Hazardous Waste Management Facility (HWMF) (U) (Rev. 0) was submitted to SCDHEC and the initial characterization of Carolina Bay was completed. The RCRA Groundwater Quality Assessment Plan for the Met Lab HWMF (U) (Rev. 1) was resubmitted to SCDHEC regarding the installation of eight additional monitoring wells. Finally, the pre-closure sampling of the basin liquids (rainwater) was conducted to determine if the fluid could be disposed through an NPDES Outfall under a temporary permit modification.

In 1990, SRS addressed a Notice of Deficiency (NOD) from SCDHEC. The NOD addressed inadequacies noted within revision of the permit application regarding the monitoring well network and the hydrogeologic characterization of the Met Lab HWMF.

In 1991, SRS revised and resubmitted the RCRA Groundwater Quality Assessment Plan for the Met Lab HWMF (U) (Rev. 2) to SCDHEC in response to comments. The second phase of the characterization of the Carolina Bay was conducted in May to determine the extent of contamination, and in June the RCRA Groundwater Quality Assessment Plan for the Met Lab HWMF (U) (Rev. 2) was approved by SCDHEC. Further, a phased Closure Plan (Rev. 5) for the Met Lab HWMF was approved by SCDHEC. Construction to close the Met Lab basin began in September 1991, and dewatering began in November 1991.

The Draft Carolina Bay Technical Data Summary was submitted to the SCDHEC on November 25, 1991. In December 1991, the RCRA Part B Permit Application (Rev. 1) was resubmitted to the SCDHEC. All of the SCDHEC comments cited in the NOD were addressed. In response to the NOD, additional wells were installed to monitor the Met Lab HWMF and a detailed hydrogeologic characterization was prepared for Rev. 1 of the permit application. In May 1992, closure construction of the Met Lab Basin was finished and the closure of the Met Lab Basin became official on May 11, 1992. The closure certification of the Met Lab HWMF Basin was submitted to SCDHEC on July 10, 1992.

In September 1992, the 1992 RCRA Part B Permit Renewal Application (Rev. 0) was submitted to SCDHEC in accordance with the regulatory requirement to update and resubmit permit applications every five years.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.3.2 F-, H-, K- and P-Areas Acid/Caustic Basins (904-74G, -75G, -78G, and -80G)

Description

Each of the four Acid/Caustic Basins (904-74G, -75G, -78G, and -80G) are located within their respective operating areas (F, H, K and P Area) on SRS. The basins were used until 1982 to support processes needed for power generation activities at each area. The basins are associated with boiler feed water conditioning for the removal of inorganic salts from raw water before its use in the boiler.

Boiler feed water at SRS contains natural salts which effect boiler operation, and thus must undergo a demineralization process. This demineralization process uses cation and anion resins to remove the salts. The cation resin exchanges hydrogen for cations, and the anion resin exchanges hydroxyl ions for the anions. When these resins become saturated with cations or anions, they must be regenerated. This is accomplished by passing a dilute solution of sulfuric acid over the cation resin and a dilute solution of sodium hydroxide over the anion resin. The partially spent regenerant solutions, and associated rinse water, comprised the influent of the acid/caustic basins.

The basins provided mixing and neutralization of the regenerants before discharging to local surface streams. The F-, H-, K- and P-Area acid/caustic basins have been inactive since 1982, when SRS neutralization facilities went on line.

All four acid/caustic basins are approximately the same dimensions: 50 ft long by 50 ft wide by 7 ft deep. They have a capacity of approximately 75,000 gallons. When in operation, the basins received the following amounts of spent regenerants and rinse water: F Area 3.8 million gal/year, H Area 2.4 million gal/year, K Area 1.5 million gal/year, and P Area 1.6 million gal/year.

The regenerant solutions consisted of calcium and magnesium cations, sulfates, chlorides, carbonic acid, silicic acid, and any acid or base in the original solution that was unused. In addition to the spent regenerant and rinse water, the H-Area basin also received 5.3 gal/year of 1 percent sodium dichromate-10 percent phosphoric acid solution until February, 1985. Otherwise, no known hazardous waste constituents were discharged to the basins. Analyses of sediment samples from each basin using Toxicity Characteristic Leaching Procedure (TCLP) indicate that concentrations of analyzed metals were well below the EPA guideline

concentration. The main environmental concern with the acid/caustic basins is the pH of the solutions in the basins. It cannot be proved that the pH did not go below 2 or above 12.5.

Accomplishments/Activities

The initial issue of Interim Status Closure Plan for the F-, H-, K-, and P-Area Acid/Caustic Basins was submitted to SCDHEC on January 25, 1989. The Closure Plan was submitted for public comment in August, 1990 and the only changes to the Closure Plan since that time was the addition of data and a Health-Based Risk Assessment supporting the initial closure proposal. The final Closure Plan (Rev. 3) was submitted on July 13, 1991 and updated on February 5, 1992 to include a Dewatering Plan and groundwater data through the third quarter of 1991.

SCDHEC is currently reviewing the Closure Plan. The EPA Region IV has determined that the interim status closure plan specifically for the H- and P-Area Acid Caustic Basins is protective to human health and the environment. SRS is initiating the closure of H- and P-Area Acid Caustic Basin with the understanding that the closure plan may change in its requirements during the SCDHEC approval process.

Concerns

The Interim Closure Plan is currently awaiting approval from SCDHEC.

Scheduled Activities for Next Quarter (First Quarter FY94)

Continued planning of closure activities for the F- and K-Area basins.

4.3.3 Burial Ground Solvent Storage Tanks (S23-S30)

Description

The Burial Ground Solvent Storage Tanks (S23-S30) are located within E Area (the BGC) in the central part of the SRS between the F and H Separations Areas. The tanks are situated in the northern corner of E Area.

The Solvent Storage Tanks S23 through S30 were installed from 1976 to 1981. The tanks store spent solvent generated by the F and H Separation Areas. The tanks placed underground are constructed of 3/8 inch thick carbon steel, covered with bitumastic coating to prevent external corrosion. Each tank is cylindrical, has a 25,000 gallon capacity, and is anchored to a concrete pad to prevent floating during high groundwater conditions. Each tank is equipped with a sump, a rodding tube for inventory purposes, a fill tube, and an emptying tube.

Tanks S24 and S25 are empty. Tanks S28 and S29 have a small heel of less than 57 gallons each. Tanks S23, S26, and S30 have small volumes in them, and tank S27 is full. Wastes were placed in these tanks from 1976 to 1987. The wastes were not considered hazardous until September 25, 1990 when the tanks were protectively filed under RCRA interim status because of suspect TCLP constituents.

Most of the waste stored in these tanks is PUREX, a mixture of tributyl phosphate (TBP) and n-paraffin. These solvents are not RCRA listed hazardous wastes. Although the primary

concern is the radioactive constituents, the tanks were placed on interim status September 25, 1990 based on the potential that traces of benzene and methyl ethyl ketone may be present in the waste. At that time a sampling and analysis was initiated to determine if these constituents were truly present in the tanks.

Sampling and analysis was completed in September 1991 which included an isotopic analysis and both Toxicity Characteristic (TC) metal and organic analyses. The Savannah River Laboratory (now the SRTC) completed the isotopic analyses which resulted in ranges from $6.40 \text{ by } 10^3$ to $3.8 \text{ by } 10^5$ disintegrations/minute/milliliter (d/m/ml) gross alpha and $2.35 \text{ by } 10^3$ to $1.09 \text{ by } 10^6$ d/m/ml beta-gamma. The laboratory was also able to perform volatile and semi-volatile organics analysis. However, due to inadequate equipment and unapproved procedures, they were only able to complete a screening for TC metals. Samples were then sent to ORNL for confirmation analysis.

On March 18, 1992, SRS received sample results from Tanks S26 and S28 from ORNL which indicated that the wastes are hazardous for silver, lead, and mercury. On July 13, 1992 analytical results were received by SCDHEC on Tanks S23 and S30. The results indicated the wastes in those tanks were hazardous for mercury. Difficulty in sampling procedures, analytical procedures, analytical techniques, and hazards associated with shipping samples offsite are some of the reasons why analytical results have been delayed.

To date, all of the analytical data have not been received; current data indicate that elevated levels of benzene, TCE, lead, mercury, and silver are present in some of the tanks. Radioactive constituents are present in all of the tanks, and two of the tanks (S26 and S29) contain transuranic (TRU) waste.

Accomplishments/Activities

The sumps for Tanks S23 through S30 have been checked weekly for the accumulation of liquid since the tanks were in service, whether or not the tanks were involved in filling/emptying operations. Sump contents were sampled, analyzed, and removed in accordance with the SRS procedures.

On September 25, 1990 the revised TC rule became effective, replacing the EP leach test with the TCLP, and added 25 organic chemicals to the list of toxic constituents regulated. This action subjected additional wastes to regulatory control under Subtitle C of RCRA. On September 25, 1990 Tanks S23-S30 were protectively filed under RCRA Interim Status based on process knowledge indicating a potential presence of benzene and methyl ethyl ketone (MEK) in the waste. Under RCRA Interim Status, SRS was required to submit the appropriate documentation for the Part A Permit Application (Rev. 0). The Part A Permit Application was modified in October 1990 (Rev. 1) to include the waste code (7777) nonhazardous waste and in March 1992 (Rev. 6) to include the waste codes (D004 to D011) upon indication that RCRA metals may be present in the waste.

The South Carolina Hazardous Waste Management Regulations (SCHWMR) R. 61-79.265.193(a) (5) requires secondary containment and leak detection for existing tank systems either within two years of the date the tank systems become subject to the regulations or when the tank systems have reached 15 years of age, whichever comes later. Additionally, Section 265.191(a) requires that the tank system must undergo a tank integrity assessment within 12 months after the date the tank system became subject to the regulations. Furthermore, an

annual leak test that meets the requirements of Section 265.191(b)(5) must be conducted until such time that approved secondary containment is installed.

In September 1991, a technology was still not available to leak test the tanks. SRS petitioned for a variance from provisions contained in Sections 265.191(b)(5)(ii) and 265.191(c) which required leak tests of the tanks to be conducted by September 25, 1991 and requested an extension for the completion of the assessment. The SCDHEC verbally granted the extension for completion of the assessment contingent upon no waste being added to the tanks. On January 7, 1992, SRS requested an extension of the one year time limit as outlined in Section 265.112(d)(2) which defines the date SRS "expects to begin closure" as "no later than one year after the date on which the unit received the most recent volume of hazardous waste". On April 20, 1992, the SRS received SCDHEC and EPA's response granting a one additional year time extension to the one year time limit for tank closure as outlined in 265.112(d)(2) was approved. The leak test variance petition as outlined in Sections 265.191(b)(ii) and 265.191(c) was denied because there are no regulatory provisions for a variance from the requirements of 265.191. The tanks were determined unfit for use and mandated to be removed from service per Section 265.196 and closed per Section 265.197.

On May 20, 1992, SRS requested an extension to Section 265.112(d) extending the submission date of the closure plan until August 11, 1992. On June 10, 1992 the extension was approved. A revised closure plan will request an additional extension due to funding delays for the new tank facility.

These tanks fall within the unit facility boundary for the combined BGC RCRA/CERCLA unit. Tank closure will proceed under RCRA guidance; however, closure data and any environmental impacts will be incorporated into, and evaluated under, the RCRA/CERCLA program for the combined BGC.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.3.4 DWPF Organic (Waste) Storage Tank (430-S)

Description

The DWPF Organic (Waste) Storage Tank (430-S) is located within S Area at SRS approximately one-half mile east of Road 4.

Organic waste generated at the SRS DWPF Vitrification Building will be stored onsite in the Organic (Waste) Storage Tank (OWST). The OWST will temporarily store organic waste generated by the DWPF vitrification process.

During radioactive operations, the organic waste stored in the OWST will be transported by pipeline to the proposed Consolidated Incineration Facility (CIF) in H Area. A Federal Facility Compliance Agreement (FFCA) (Docket Number 91-01-FFR) has been signed to permit

storage of the radioactive organic waste in OWST until the CIF is constructed and operational. The OWST has the capacity to store about 3 years of organic waste generation at DWPF design rate operations.

During startup and testing of the DWPF Vitrification Building, nonradioactive organic waste will be generated and transferred to the OWST before being shipped offsite by tank truck for disposal at a permitted Treatment/Storage/Disposal Facility (TSDF). The waste will be pumped through a pipe to a truck loading station southwest of the OWST for tank truck loading.

The OWST is an existing tank with a capacity of 150,000 gallons. The OWST is designed and operated in accordance with the South Carolina Hazardous Waste Management Regulations (SCHWMR). It is constructed of 304 L stainless steel and is approximately 35 ft in diameter and 25 ft high with a permanent, outside fixed roof and an inside floating roof. The 150,000-gallon OWST (primary tank) is enveloped by a 230,000-gallon secondary containment tank. This secondary containment (secondary tank) completely surrounds the bottom and sides of the primary tank so that any release from the primary tank will be contained in the secondary tank. The secondary tank is about 41 ft in diameter and 24 ft high. The secondary tank also has a roof to exclude rainwater and a system for leak detection. The OWST is mounted on a foundation near the DWPF Vitrification Building in the 200-S Area of SRS.

Organic waste will be transferred from the Organic Evaporator Condensate Tank (OECT), a liquid waste storage tank located in the DWPF Vitrification Building, to the OWST via a welded, stainless steel overhead line. The organic liquid will have a specific gravity of about 0.89 and will consist primarily of benzene (approximately 85 percent) and other aromatic compounds, with small amounts of mercury.

The floating roof will rise and fall with the liquid level in the primary tank and will serve to restrict evaporation of the organic liquid. The National Emissions Standards for Hazardous Air Pollutants (NESHAP), Subpart Y, requires that the OWST's floating roof be kept floating except when the tank is being filled or emptied. The roof begins to float when there are approximately 13,000 gallons of liquid in the tank.

The material to be stored in the OWST is organic liquid received from the OECT, which is located in the DWPF Vitrification Building. This mixed (hazardous and radioactive) waste is produced as a byproduct of the precipitate hydrolysis process, in which tetraphenylborate decomposes to benzene and other products in the presence of formic acid and a copper catalyst. The mixed waste has low levels of radioactivity. Routine radioactive operations of the DWPF Vitrification Building and OWST were scheduled to begin in 1993. The EPA and SCDHEC were notified in October 1992 the goal would not be met. SRS is currently working to establish a new schedule. The organic waste will be incinerated at the proposed Consolidated Incineration Facility (CIF) at SRS.

Based on the results of studies conducted by the SRTC, the waste in the OECT will consist of two phases, organic and aqueous. Only the organic phase will be transferred to the OWST. It is possible, however, that small amounts of the aqueous waste may be entrained or dissolved within the organic phase during transfer. Thus, a thin, aqueous layer at the bottom of the OWST could occasionally be present. Any aqueous waste will be periodically pumped back to the OECT.

All of the organic compounds will be dissolved in the main component, benzene. Only one organic phase has been observed from bench scale testing; therefore, only one organic phase is expected during waste storage within the OWST. From these tests, each of the organic compounds was determined to be nonreactive and compatible with all of the other compounds, even at temperatures as high as the distillation temperatures of the solution.

The waste is considered hazardous by the characteristic of ignitability (D001), toxicity characteristic (TC) for benzene (D018), and TC for mercury (D009) and is subject to the LDR.

The organic waste will contain low levels of radioactivity after actual waste processing begins at the DWPF. During startup, simulated, nonradioactive chemical feeds will be used to demonstrate the operability of the DWPF system. This process testing will generate an organic wastestream chemically identical to the organic waste expected to be generated during routine radioactive operations, except that the wastestream will be nonradioactive and may not contain mercury. The OWST will be used to store the nonradioactive organic wastestream prior to disposal of the waste offsite at a permitted hazardous waste Treatment/Storage/Disposal Facility (TSDF). During radioactive operations, the waste will be transferred via a direct pipeline to the CIF for treatment.

Accomplishments/Activities

The RCRA Part A application was submitted for the OWST in September 1985. The original RCRA Part B Permit Application was submitted to SCDHEC in December 1988. Subsequent revisions to the RCRA Part B Permit Application were submitted in November 1989 in response to a SCDHEC Notice of Deficiency (NOD), in September 1990 to incorporate the Toxicity Characteristic (TC) rule, and in July 1991 to incorporate the SCDHEC Location Demonstration Standards.

In March 1992 the RCRA Part B Renewal Application (Rev. 0) was submitted for the OWST to SCDHEC. On January 11, 1993 Rev. 1 to the application was submitted to SCDHEC which incorporated the roof levels associated with the operation of the facility.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.3.5 F-Area Hazardous Waste Management Facility (904-41G, -42G, and -43G)

Description

The F-Area Hazardous Waste Management Facility (HWMF) (904-41G, -42G, and -43G) is a source specific operable unit within the F-Area Operable Unit. The F-Area HWMF is located in the center of SRS, east of Road C and north of Road E approximately 5 miles from the nearest plant boundary.

The F-Area HWMF consists of three unlined, earthen surface impoundments referred to as seepage basins F-1, F-2, and F-3. The three basins had a combined maximum operating capacity of 20.5 million gallons of wastewater. Dimensions of the basins were F-1: 98 ft by 288 ft by 12.7 ft; F-2: 98 ft by 538 ft by 12.7 ft; and F-3: 320 ft by 730 ft by 13.2 ft. The resulting volume capacity for each basin is F-1: 1.6 million gallons; F-2: 3.1 million gallons; and F-3: 15.8 million gallons. These basins were in service continuously from 1955 until November 7, 1988.

The F-Area HWMF began receiving waste effluents from F Area chemical separation facilities processes such as the nitric acid recovery unit, waste storage system evaporator overheads, and general purpose evaporator overheads. Significant amounts of nitrate and caustic were received. More than 99 percent of the radioactive releases to these basins were attributable to tritium.

Several studies were conducted to characterize the subsoils. A 1984 soil coring study showed that approximately 90 percent of the radionuclides, cations, and anions were concentrated within the top 1 ft of basin soil. These constituents consisted of tritium, cobalt, strontium, zirconium, cesium, cerium, thorium, uranium, plutonium, iron, ammonia, fluoride, sodium, nitrate, carbonate, silicon, iodide, niobium, promethium, ruthenium, and mercury among others. The primary constituents were tritium and nitrate.

The remedial alternatives evaluated under RCRA guidelines included: No Action, No Waste Removal with Basin Closure, and Waste Removal with Basin Closure. The selected was the remediation alternative No Waste Removal with Basin Closure.

This alternative involved: (1) the elimination of free liquids by removing liquid waste or solidifying the remaining waste and residues; (2) Stabilization of the remaining wastes to a bearing capacity sufficient to support the cover system; (3) Placement of a final cover over the surface impoundment. The cover consisted of a layer of backfill, a two foot layer of compacted kaolin clay, a geotextile fabric, topped with two feet of topsoil to support a vegetative cover; (4) The HWMF is being routinely inspected for a minimum of 30 years to verify the integrity of the cover system, fences, signs, etc. Any necessary repairs to the cap will be made as part of the program; (5) Access to the HWMF is restricted to authorized personnel with appropriate training of applicable requirements. The survey plat and records associated with use of the HWMF have been filed with Aiken County, S.C.

Groundwater monitoring activities around the F-Area HWMF have indicated that contaminants have migrated from the seepage basins to the uppermost aquifer. Sampling and analysis activities have shown that some constituents are present in the uppermost aquifer in concentrations greater than those currently delineated in the Groundwater Protection Standards (GWPS) in the RCRA Part B Post-Closure Permit. Constituents of concern (COCs) being proposed for corrective action include tritium, barium, cadmium, chromium, lead, mercury, cobalt, copper, cyanide, nickel, (PCE), trichlorofluoromethane, zinc, gross alpha, gross beta, total radium, and nitrates. The proposed corrective action includes an extraction/injection system, a skid-mounted treatment system, and a secondary waste treatment/handling system.

Accomplishments/Activities

The RCRA Part A application was submitted to SCDHEC in September 1980. In February 1985 the original RCRA Part B Permit Application was submitted to SCDHEC for the F-Area

HWMF. Between December 1985 and April 1987, SRS responded to two Notice of Deficiency letters from SCDHEC. In August 1988 the RCRA Part B Permit Application for the F-Area HWMF was denied.

In December 1988, SRS submitted an interim status Closure Plan for the F-Area HWMF. Upon approval of the closure plan in June 1989, SRS prepared and submitted a RCRA Part B Post Closure Permit Application in December 1990.

After three revisions during 1991 and 1992, SCDHEC indicated the RCRA Part B Permit Application was complete in June 1992. SCDHEC issued a Draft Part B Permit for public comment in July 1992. On September 30, 1992 the Part B Permit was issued by SCDHEC and the Part B Permit for F-Area HWMF became effective on November 2, 1992.

A RCRA Part B Post-Closure Permit Renewal Application is currently being prepared for the unit. This application will contain a Corrective Action Plan for groundwater remediation. The application is scheduled to be submitted to SCDHEC by October 4, 1993.

The basins were closed by dewatering, physically and chemically stabilizing the remaining sludges, and placing a protective multi-layer cover system over them to reduce rainwater contact with basin bottoms. The closure was completed in February 1991.

A CERCLA Proposed Plan for the F-Area HWMF source control operable unit was generated and submitted to EPA and SCDHEC on June 10, 1993. The plan included information to support a CERCLA No Further Action Necessary Decision for source control at the F-Area HWMF and the integration of CERCLA actions with previously approved State of South Carolina RCRA actions.

Due to previous F-Area HWMF RCRA corrective action, No Further Action under CERCLA is necessary for this source control operable unit. The RCRA corrective action provides the necessary protectiveness to human health and the environment to satisfy all CERCLA requirements.

The proposed plan was issued for public comment by from June 18, 1992 until August 2, 1992. No comments were received. The Record of Decision document was issued for the unit on September 10, 1993.

Monitoring has shown that the seepage basins have contributed to the contamination of the uppermost aquifer. A proposed plan for the groundwater operable unit is being prepared. A ROD on this proposed plan will be issued in December 1993.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Continued sampling and analysis of monitoring wells.

4.3.6 H-Area Hazardous Waste Management Facility (904-44G, -45G, -46G, and -56G)

Description

The H-Area Hazardous Waste Management Facility (HWMF) (904-44G, -45G, -46G, and -56G) is a source specific operable unit within the H Area Operable Unit. The H-Area HWMF is located in the center of SRS, south of Road E and east of Road 4 approximately 6 miles from the nearest plant boundary.

The H-Area HWMF consists of three unlined, earthen surface impoundments referred to as seepage basins H-1, H-2, and H-4. The three basins had a combined maximum operating capacity of 26.5 million gallons of wastewater. Dimensions of the basins were H-1: 93 ft by 243 ft by 11 ft; H-2: 113 ft by 463 ft by 11 ft; and H-4: 130-430 ft by 2400 ft by 10.7 ft. The resulting volume capacity for each basin is H-1: 1.1 million gallons; H-2: 2.8 million gallons; and H-4: 22.6 million gallons. These basins were in service continuously from 1955 until November 7, 1988 and are considered RCRA regulated units. The H-3 basin was not a RCRA regulated unit but was identified as a RCRA 3004(u) requiring investigation and remediation. It was decided to incorporate basin H-3 into the RCRA closure. Basin H-3 had dimensions of 315 ft by 430 ft by 9.5 ft and an operating capacity of 9.4 million gallons. The basin was in use from 1955 to 1962 at which time it was replaced by unit H-4.

The H-Area HWMF began receiving waste effluents from H-Area chemical separation facilities processes such as the nitric acid recovery unit, waste storage system evaporator overheads, and general purpose evaporator overheads, the overheads from two waste tank farm evaporators. Additional sources of effluent were cooling water from tritium facilities retention basin transfers, and liquid from receiving basins for offsite fuel. Significant amounts of nitrate and caustic were received. More than 99 percent of the radioactive releases to these basins were attributable to tritium.

Several studies were conducted to characterize the subsoils. A 1984 soil coring study showed that approximately 90 percent of the radionuclides, cations, and anions were concentrated within the top foot of basin soil. These constituents consisted of tritium, cobalt, strontium, zirconium, cesium, cerium, thorium, uranium, plutonium, iron, ammonia, fluoride, sodium, nitrate, carbonate, silicon, promethium, ruthenium, chromium, manganese, calcium, titanium and zinc among others. The primary constituents were tritium and nitrate.

The remedial alternatives evaluated under RCRA guidelines included: No Action, No Waste Removal with Basin Closure, and Waste Removal with Basin Closure. The selected was the remediation alternative No Waste Removal with Basin Closure.

The preferred remedial alternative involved: (1) The elimination of free liquids by removing liquid waste or solidifying the remaining waste and residues; (2) Stabilization of the remaining wastes to a bearing capacity sufficient to support the cover system; (3) Placement of a final cover over the surface impoundment. The cover consisted of a layer of backfill, a two ft layer of compacted kaolin clay, a geotextile fabric, topped with two ft of topsoil to support a vegetative cover; (4) The HWMF is being routinely inspected for a minimum of 30 years to verify the integrity of the cover system, fences, signs, etc. Any necessary repairs to the cap will be made as part of the program; (5) Access to the HWMF is restricted to authorized

personnel with appropriate training of applicable requirements. The survey plat and records associated with use of the HWMF have been filed with Aiken County, S.C.

Groundwater monitoring activities around the H-Area HWMF have indicated that contaminants have migrated from the seepage basins to the uppermost aquifer. Sampling and analysis activities have shown that some constituents are present in the uppermost aquifer in concentrations greater than those currently delineated in the GWPS in the RCRA Part B Post-Closure Permit. Constituents of concern (COCs) being proposed for corrective action include tritium, arsenic, barium, cadmium, lead, mercury, cobalt, copper, nickel, vanadium, (PCE), zinc, gross alpha, gross beta, total radium, and nitrates. The proposed corrective action includes an extraction/injection system, a skid-mounted treatment system, and a secondary waste treatment/handling system.

Accomplishments/Activities

The RCRA Part A Permit Application was submitted to SCDHEC in September 1980. In February 1985 the original RCRA Part B Permit Application was submitted to SCDHEC for the H-Area HWMF. Between December 1985 and April 1987, SRS responded to two Notice of Deficiency letters from SCDHEC. In August 1988 the RCRA Part B Permit Application for the H-Area HWMF was denied.

In December 1988, SRS submitted an interim status Closure Plan for the H-Area HWMF. Upon approval of the closure plan in June 1989, SRS prepared and submitted a RCRA Part B Post Closure Permit Application, submitted in December 1990.

After three revisions during 1991 and 1992 SCDHEC indicated the RCRA Part B Permit Application was complete in June 1992. SCDHEC issued a Draft Part B Permit for public comment in July 1992. On September 30, 1992 the Part B Permit was issued by SCDHEC and the Part B Permit for H-Area HWMF became effective on November 2, 1992.

A RCRA Part B Post-Closure Permit Renewal Application is currently being prepared for the unit. This application will contain a Corrective Action Plan for groundwater remediation. The application is scheduled to be submitted to SCDHEC by October 4, 1993.

The four basins were closed by dewatering, physically and chemically stabilizing the remaining sludges, and placing a protective multi-layer cover system over them to reduce rainwater contact with basin bottoms. The closure was completed in August 1991.

A CERCLA Proposed Plan for the H-Area HWMF source control operable unit was generated and submitted to EPA and SCDHEC on June 10, 1993. The plan included information to support a CERCLA No Further Action Necessary Decision for source control at the H-Area HWMF and the integration of CERCLA actions with previously approved State of South Carolina RCRA actions.

Due to previous H-Area HWMF RCRA corrective action, No Further Action under CERCLA is necessary for this source control operable unit. The RCRA corrective action provides the necessary protectiveness to human health and the environment to satisfy all CERCLA requirements.

The Proposed Plan was issued for public comment from June 18, 1992 until August 2, 1992. No comments were received. The Record of Decision document was issued for the unit on September 10, 1993.

Monitoring has shown that the seepage basins have contributed to the contamination of the uppermost aquifer. A proposed plan for the groundwater operable unit is being prepared. A ROD on this proposed plan will be issued in December 1993

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

A ROD on the proposed plan for the groundwater operable unit will be prepared. Continued sampling and analysis of monitoring wells.

4.3.7 Hazardous Waste Storage Facility (645-N, -2N, -4N, 710-B and Solid Waste Storage Pads)

Description

The Hazardous Waste Storage Facility (645-N, -2N, -4N, and the Solid Waste Storage Pads) are located in the central part of SRS within the Central Shops Area. Building 710-B is located in B-Area approximately one-half mile south of the overpass of Road 2 and Road C. Collectively, these buildings and the Solid Waste Storage Pads are known as the Hazardous Waste Storage Facility (HWSF).

The HWSF consists of four buildings and three concrete pads which are used to store hazardous and mixed waste generated at SRS until an environmentally acceptable treatment and disposal method can be employed or becomes available.

Accomplishments/Activities

The RCRA Part A Permit Application was submitted to SCDHEC in September 1980. In February 1985, the original RCRA Part B Permit Application was submitted for the HWSF. The SRS responded to two Notice of Deficiency (NOD) letters from SCDHEC between November 1985 and April 1987. On September 30, 1987 SCDHEC issued the Part B Permit following a public hearing and comment. On November 1, 1987 the EPA approval put the permit into effect.

From March 1988 to March 1993 the RCRA Part B Permit Application for the HWSF went through sixteen revisions due to regulatory and operational changes and two more NODs.

The 1992 RCRA Part B Permit Renewal Application was submitted to SCDHEC in March 1992. On July 19, 1993 the SRS responded to a SCDHEC NOD.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

The revised Location Demonstration Standard for the HWSF is to be submitted to SCDHEC for approval.

4.3.8 Low-Level Radioactive Waste Disposal Facility (RCRA Regulated Portions)

Description

The Low-Level Radioactive Waste Disposal Facility (LLRWDF) occupies approximately 119 acres within E Area (formerly the BGC), located approximately one-half mile north of Road E and one-half mile west of Road 4. The LLRWDF is the disposal facility for solid low-level radioactive waste generated at SRS. Wastes buried at the LLRWDF include operating and laboratory wastes such as protective clothing, decontamination residues, and analytical waste, as well as, contaminated construction debris and equipment.

Portions of the LLRWDF also received hazardous waste in the form of F-listed solvent contaminated rags and wipes between March 1986 and January 1990. As a result of Settlement Agreement 91-51-SW between DOE and the SCDHEC, trenches suspected of containing hazardous wastes will be closed in accordance with the (RCRA) guidelines set forth in SCHWMR R.61-79.265, Closure and Post-Closure Regulations (Subpart G).

Accomplishments/Activities

The MWMF, which was closed in accordance with RCRA, lies within LLRWDF. The existing 58 acre MWMF cover will be expanded to encompass an additional 21 acres including LLRWDF cells, trenches, boreholes, 13 acres which received RCRA F-listed waste. Where the LLRWDF trenches are adjacent to the existing MWMF cover system, the new cover system will be tied into the existing cap. Where the LLRWDF trenches are not immediately adjacent to the MWMF cap, there will be a discrete cover system.

The main features of the LLRWDF cover system are a composite geosynthetic low permeability layer (i.e., a flexible membrane liner and a geosynthetic clay liner) and a geogrid. The composite low permeability layer will minimize water infiltration through the cover system and the geogrid will serve to strengthen the cover system against differential settlement. The cover system also includes a foundation layer, a drainage layer, and a vegetative layer (including topsoil). The uppermost layer of the cover system will be seeded and maintained to provide a vegetative cover which will help to prevent erosion of the cover system.

The LLRWDF Closure Plan for the cover system was submitted for SCDHEC approval on August 26, 1993.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.3.9 M-Area Hazardous Waste Management Facility (904-51G, and -112G)

Description

The M-Area Hazardous Waste Management Facility (HWMF) (904-51G, and -112G) is located near the Fuel and Target Fabrication Facility within M Area (300-Area). The nearest SRS boundary is approximately one mile northwest of the M-Area HWMF.

In 1954 manufacturing operations of aluminum forming/metal finishing processes started in M-Area. Process wastewaters from these operations were discharged to a nearby stream known as Tims Branch. This waste water contained slightly enriched uranium.

The M-Area Basin is an unlined, man-made depression (i.e., surface impoundment) constructed in 1958 to settle out and contain uranium and other metals discharged from aluminum forming/metal finishing operations. Since surface water flowed from this basin, it is classified as a settling basin rather than a seepage basin. Dimensions at the top of the berm were 331 ft by 279 ft. The sides sloped inward at about a 20 degree angle giving bottom dimensions of approximately 280 ft by 230 ft. Depth of the basin, as constructed, was approximately 17 ft. The total original liquid capacity of the basin, allowing for a two foot freeboard, was just under 8,000,000 gallons.

The seepage area of the basin is estimated to be about two acres in size. An estimated 50 percent of all liquids that over-flowed from the basin ran to Lost Lake and infiltrated into the ground in this area. When normal process discharges to the basin were discontinued in July 1958, this area quickly dried up.

Lost Lake is approximately 25 acres in size. It is a natural shallow depression which, prior to construction of the settling basin, was dry except during periods of heavy precipitation. Since diversion of process effluents to the basin in 1958, water accumulated in Lost Lake. Lost Lake had no outlet, so all liquids entering the area either seeped into the ground or evaporated. Beginning in 1985, process wastes from the M-Area were diverted from the M-Area HWMF to the Liquid Effluent Treatment Facility which is a permitted wastewater treatment facility.

The basin received process wastewater from M-Area production facilities from 1958 to July 1985. Although the concentration and quantity of chemicals in the process wastewater have varied over time, the identity of specified chemicals used in the process is well known. Various metal degreasing solvents such as 1,1,1-trichloroethane, TCE, and (PCE) have been used to clean metal components and organic phthalate compounds used as components in the lubricants for metal forming and extrusion processes. These solvents are classified as F006 wastes, and are the primary groundwater constituents that are being remediated as part of the corrective action program.

Accomplishments/Activities

In 1980, SRS submitted a Part A Permit Application for M-Area Basin and received interim status designation. The following year groundwater contamination was identified beneath M Area. A prototype/experimental groundwater recovery system began operation in 1983 in M Area with a 20 gpm air stripper linked to a single recovery well.

SRS upgraded the M-Area groundwater recovery system to a 50 gpm air stripper linked to a second and third recovery well in 1984. On September 30, 1984 the SRS submitted the M-Area Closure Plan for the basin to SCDHEC.

In February 1985 the RCRA Part B Post Closure Permit Application and groundwater/remediation of M Area was submitted, and in April, a full scale recovery system with a 400 gpm air stripper and 11 recovery wells went into operation. In July, the amended M-Area Closure Plan was submitted to SCDHEC.

SRS began submitting quarterly groundwater monitoring reports for the M-Area HWMF in 1987. In March of that year, EPA and SCDHEC approved the Closure Plan. The RCRA Part B Post Closure Permit Application and a Hazardous Waste Permit were approved in September.

The M-Area Basin closure was initiated in April 1988. The closure of the M-Area HWMF consisted of dewatering, sludge stabilization, contaminated soils excavation, backfill into the basin, and placement of a RCRA cap and vegetative cover over the basin area. There is no basin liner system associated with the M-Area HWMF. The only liners used for closure are the kaolin clay and the Hypalon™ liner located below the drainage layer of the cap. Closure construction was completed in 1990.

In March 1990, SRS upgraded the full scale groundwater recovery system and the flow to the airstripper from 400 to 500 gpm, and in April the Corrective Action Plan in the Part B Permit Application for Post-Closure was modified and submitted to SCDHEC. In 1991 the Vadose Zone Characterization was completed and the presence of Dense Non-Aqueous Phase Liquids (DNAPL) were confirmed in the groundwater below the M-Area Basin. SRS received closure certification for the M-Area Basin from SCDHEC on April 26, 1991.

On March 31, 1992 the 1992 RCRA Part B Permit Renewal Application (Rev. 0) was submitted to SCDHEC in accordance with the regulatory requirement to update and resubmit permit applications every five years.

The 1992 RCRA Part B Permit Renewal Application (Rev. 1) was submitted to SCDHEC in March 1993. This modification addressed streamlining the current sampling/analysis program and quarterly groundwater reports (approval pending).

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.3.10 M-Area Interim Treatment/Storage Facility (341-M)

Description

The M-Area (Process Waste) Interim Treatment/Storage Facility (PWITSF) (341-M) is located 1000 ft west of Road D in the Southern corner of M Area. The unit is a mixed waste management facility and consists of; six 35,000-gallon treatment and storage tanks (Tanks M425-100-1, -2, -3, -4, -5, and -6) situated on a single diked pad inside Building 341-1M, four 500,000-gallon treatment and storage tanks (Tanks M425-100-7, -8, -9, and -10), and a truck loading ramp/facility (M425-400). The PWITSF is a part of the Liquid Effluent Treatment Facility (LETf). The LETf is a physical/chemical treatment plant that processes wastewater originating in the M-Area fuel fabrication facilities and laboratories. The LETf operation consists of the Dilute Effluent Treatment Facility (DETF), located at Building 341-M, the Chemical Transfer Facility (CTF), located at Building 313-M, and the PWITSF. Due to the Building 313-M shutdown in February 1992, the CTF has been cleaned and flushed. Only the slurry hold tank of the CTF is being used. The filtercake from the DETF is transferred to Slurry Hold Tank 200-18 at the CTF. The blended waste is pumped to the PWITSF for treatment and storage.

The total designed storage capacity of the PWITSF is 2,195,730 gallons and the maximum daily treatment capacity is 2,196,606 gpd. The tanks are located in an area south of Building 341-M in the vicinity of the M-Area Fuel and Target Fabrication Facility. The six 35,000-gallon tanks, building, truck loading facility, and two of the 500,000-gallon tanks were constructed under SCDHEC Permit Number 10,287. Four additional 500,000-gallon tanks were constructed under a SCDHEC-approved "Expansion of Interim Status Facilities". Construction of these tanks was completed by August 1985. All of these PWITSF tanks are subject to the RCRA (RCRA) requirements.

The waste stored in the PWITSF is considered a listed F006 mixed waste, defined as wastewater treatment sludges from electroplating operations. It is a mixed waste because it contains the radioactive component uranium.

It should be noted that six 500,000-gallon tanks had been constructed and it was intended that the PWITSF would employ all six tanks. However, it has since been determined that Tanks M425-100-11 and -12 will not be used.

Treatment in the PWITSF tanks occurs both through chemical interactions, which precipitate uranium and facilitate phase separation, and through volume reduction, where the supernate in the PWITSF is removed and treated in the DETF. The remaining sludge is then stored in the PWITSF tanks until treatment (solidification) and disposal. The M-Area DETF was permitted by the SCDHEC and began processing wastewater in May 1990.

The PWITSF treats and stores a waste sludge with a pH range of 10 to 12.4 that is a blend of chemicals processed in both the Fuel and Target Fabrication Facility and the wastewater permitted M-Area LETf. This sludge is a listed hazardous waste, F006, in R.61-79.261 Subpart D of the South Carolina Hazardous Waste Management Regulations (SCHWMR). This waste is also considered a mixed waste because it is radioactive.

The fuel fabrication operations in the 300-M production area of SRS include metal finishing and aluminum forming processes. The major products from this area are enriched uranium-aluminum alloy fuel extruded tubes, lithium-aluminum alloy target extruded tubes, and depleted uranium-aluminum clad target core slugs.

Process wastes treated in the LETF are generated in the Depleted Uranium Metal Target Core Cladding Facility (Building 313-M), the Alloy Fuel Extrusion Fabrication Facility (Building 321-M), the Lithium-Aluminum Alloy Target Tube Extrusion Facility (Building 320-M), and miscellaneous laboratory wastes.

In the Depleted Uranium Metal Target Core Cladding Facility (Building 313-M), depleted uranium cores are treated with acids, caustics, degreasing agents, and nickel plating solutions. The concentrated solutions are neutralized and mixed in the CTF, and then transferred to the PWITSF. The dilute rinse streams from Building 313-M are treated in the DETF, the liquid effluents are released to a NPDES outfall M-004 and the residual filtercake is transferred to the PWITSF via the CTF. Building 313-M target core cladding processes were discontinued in February 1992.

Dilute rinse streams from the Alloy Fuel Extrusion Fabrication Facility (Building 321-M) are transferred to the DETF for treatment. These streams may contain dilute acids, caustics, and degreasing agents. Similar to 320-M, no concentrated wastestreams are transferred to the PWITSF.

The Lithium-Aluminum Alloy Target Tube Extrusion Facility (Building 320-M) produces rinse water which contains aluminum and other metals, degreasers, caustics, and nitric acid. The dilute rinse water is treated in the DETF. No concentrated streams are generated in Building 320-M for direct transfer to the PWITSF.

The primary waste material currently treated and stored in the PWITSF tanks is the filtercake slurry generated in the DETF. The filtercake slurry from the DETF contains heavy metals such as uranium and nickel. The pH of the slurry transferred from the CTF to the PWITSF is maintained in the range of 7.0 to 12.4. Once the slurry is in the tanks, the pH is maintained in the range of 10 to 12.4. The slurry from the DETF is transferred to the PWITSF tanks where the waste separates into a semi-solid sludge and a dilute liquid supernate. The dilute liquid supernate is decanted off the waste and is transferred back to the DETF for treatment. The dilute supernate decanted from the PWITSF makes up the majority of waste treated at the DETF.

As previously stated, the waste stored in the PWITSF separates into two phases: a semi-solid sludge and a liquid supernate. The waste exhibits low levels of radioactivity due to the presence of depleted uranium. The majority of the uranium settles into the sludge as sodium uranate ($\text{Na}_6\text{U}_7\text{O}_{24}$). The ratio of spent chemicals in the wastestream varies with the level of production activity occurring in each M-Area building. For example, since the M-Area metal plating operations have been discontinued, the wastestream does not contain the same concentrated chemical rinse sludges as when metal plating production was ongoing. The current wastestream is a product of cleanup activities in the M-Area production buildings and from ongoing activities in the M-Area laboratories and the supernate treatment.

Accomplishments/Activities

The RCRA Part A application for the PWITSF was submitted to SCDHEC in November 1986. The original RCRA Part B Permit Application was submitted in October 1991 to SCDHEC for approval. In September 1992, the 1992 RCRA Part B Permit Renewal Application was submitted to supersede the original permit application.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.3.11 Mixed Waste Hazardous Waste Management Facility (643-28E)

Description

The Mixed Waste (Hazardous Waste) Management Facility MWMF (643-28E) is included within the boundary of the LLRWDF in the northern portion of E Area (formerly the BGC). The E Area occupies approximately 330 acres within the General Separations Area (GSA) of the central SRS and includes several adjacent facilities which were/are former, current, and planned disposal sites for solid metallic and radioactive waste, and spent solvents generated from plant processes.

In 1986, it was determined that hazardous waste, in the form of solvent contaminated rags, may have been placed in certain areas of the LLRWDF, and these areas were designated as the MWMF. Since that time, additional areas have been determined to contain solvent rags and have been included in the MWMF under settlement agreement.

The mixed waste facilities in the LLRWDF include the MWMF which consists of shallow, unlined trenches in which various low-level waste and waste containing solvents and metals were placed. Also part of the MWMF, however under separate RCRA unit identification, are the eight mixed waste solvent tanks located in the northeastern part of the LLRWDF which are currently used to store waste solvents. Tank S32 is also in this area; it contained tritiated oil and was closed under interim status in 1988 (See Section 4.3.3 and 4.3.14). The Mixed Waste Storage Buildings (MWSBs), (643-29E and 643-43E) are located near the southeastern corner of the LLRWDF, and provide storage for mixed waste until appropriate treatment and disposal methods are available (See Section 4.3.12 and 4.3.13). Lastly the Transuranic Waste Storage Pads (TRU Pads) which are above-grade concrete pads where containerized wastes contaminated with isotopes of transuranic elements are placed (See Section 4.3.19 and 4.3.20).

As required by Settlement Agreements No. 87-52-SW and No. 91-51-SW, the Solvent Rag Portions of the LLRWDF are included in the MWMF for purposes of the RCRA Part B Permit Application. Areas within the LLRWDF where disposal of solvent rags occurred include: Trench Disposal Areas 1-6, Engineered Low-Level Trenches (ELLTs) 2-4, and the Greater Confinement Disposal Engineered Trenches (GCD-ET) and GCD Boreholes. These areas are suspected of receiving rags and wipes used with F-listed solvents for cleaning and radioactive decontamination prior to January 25, 1990. After this date no rags or wipes used with F-listed

solvents were accepted into the LLRWDF. In ELLT 4, which is still operational, the suspect solvent rag waste received prior to January 25, 1990 is segregated from the waste currently being accepted into the ELLT.

The MWMF trenches were generally 20 ft deep and 20 ft wide, with variable lengths of up to 1,200 ft. Trenches were spaced approximately 10 ft apart. The trenches were backfilled daily during landfilling operations to minimize the potential for fire and airborne releases. There was no treatment of the materials in the trenches.

Individual trenches in the MWMF have been grouped together for purposes of closure and postclosure regulatory requirements. Mixed wastes buried in the MWMF trenches consist of scintillation fluids, waste oil in absorbent material sealed in 55 gallon drums, lead shielding, wastes in metal disposal boxes, F-listed solvent-contaminated rags and wipes, and radioactively contaminated equipment.

These materials were randomly placed in the trenches. Some waste materials were placed in the MWMF trenches uncontained. Other wastes were encapsulated in concrete or buried in concrete casks or steel boxes.

Disposal ceased in 1986 and a RCRA Closure Plan for the MWMF, which included installation of a clay cap and vegetative cover, was approved by the SCDHEC in 1987. Closure was completed in December 1990, and SCDHEC accepted the closure certification in April 1991.

The solvent rag portion of the LLRWDF-Trench Areas 1 to 6 were opened in 1986 after the original MWMF trenches were filled. No solvent rags have been placed in these trenches since January 25, 1990. Construction and storage procedures for these trenches were similar to the other MWMF trenches. Trench Areas 1 to 6 are shallow (20 ft wide by 20 ft deep) and are of varying lengths. Wastes are in 55 gallon drums and in steel boxes. Miscellaneous bulky equipment has been placed in some trenches without containerization. Materials placed in the trenches were backfilled at the end of each day, and were covered with a minimum of 4 ft of soil when filled.

ELLTs are located in the LLRWDF (ELLT-1 was covered by the cap for the MWMF and is closed). The ELLTs are designed to provide greater efficiency of trench use by employing larger trenches for waste disposal. The ELLTs used at the LLRWDF are rectangular or polygonal in shape, and have minimum dimensions of 120 ft wide by 500 ft long at the top of the trench and are approximately 22 ft deep.

Wastes disposed of in the ELLTs typically consist of process waste (e.g., cleanup materials including solvent rags, equipment, plastic huts), some of which may have been radioactively contaminated. These wastes are contained in carbon steel boxes. The boxes are stacked in a maximum of four layers, leaving space for a minimum of 4 ft of soil overburden. The space between the stacked boxes and sloped walls of an ELLT are used for disposal of bulky containerized waste and radioactive contaminated soil.

At the MWMF, GCD-ET and GCD Boreholes were used for the disposal of the high-activity fraction of low-level waste corresponding approximately to waste labeled Nuclear Regulatory Commission Class B and Class C. The GCD concepts are also useful for the disposal of wastes with half-lives of 30 years or less and for radionuclides with high mobility. The GCD Borehole methodology consists of a deeper burial, stabilization of the waste forms with grout

after emplacement, surrounding the waste forms with a foot or more of grout, and closure methods to prevent root intrusion into the waste and also reduce to a minimum the percolation of water to the waste.

Twenty GCD Boreholes are located in the southeast corner of the LLRWDF approximately 200 ft west of the GCD-ET. The Boreholes became operational in 1984 and are spaced 16.5 ft on center in two rows of ten. The area around the Boreholes is graded to prevent surface water intrusion. Each Borehole consists of a 0.5 inch thick water tight fiberglass cylinder, 7 ft in diameter with an integral bottom. The liner is placed in a 9-ft diameter augered borehole on a 1-ft thick concrete pad that is 30 ft below grade and 10 ft above the expected highest water table fluctuation.

The Boreholes are used for emplacement of high-activity waste forms including spent melt crucibles, reactor scrap metal, and drummed incinerator ash. Disposal volume for each Borehole is approximately 770 cubic ft.. Each Borehole can hold six layers of seven 55-gallon drums, or boxed waste at a lesser volume utilization. The small amount of disposal space that remains in the Boreholes will be used for disposal of reactor resins. All of the Boreholes have received waste.

The grout liner is expected to last for hundreds of years, and while the lifetime of the inner fiberglass liner is not known, the fiberglass is made with a resin that is unaffected by most chemicals. It is expected to be stable in the grout matrix for greater than one hundred years.

The GCD-ET became operational in 1987. It is located in the southeast corner of the LLRWDF. The GCD-ET is constructed of 18-inch thick reinforced concrete and consists of four cells. Each cell is approximately 25 ft long by 50 ft wide by 29 ft high (36,250 cubic ft) and is separated from adjacent cells by a concrete wall. Each cell has a liquid collection system installed under it and a protective cell cover to prevent storm water intrusion. The GCD-ET is used for disposal of bulky materials which cannot be placed in the Boreholes. The full length of the GCD-ET on each side has a reinforced runway to support a rubber-tired, remote-operated crane designed to stack waste in the cells. Packages are lowered by crane to the trench bottom and grouted in layers depending on shielding requirements. Reactor scrap, spent melt crucibles, and incinerator ash are among the wastes placed in the GCD-ET. The GCD-ET is continuing to be used for storage of nonhazardous radioactive waste.

Samples from monitoring sumps in and around the GCD-ET and Boreholes have indicated no impact to the groundwater due to GCD operations.

Accomplishments/Activities

The RCRA Part A application was submitted to the SCDHEC in April 1986. In August 1986 the original RCRA Part B Permit Post Closure Application was submitted to the SCDHEC for the MWMF. Between January 1986 and August 1989 SRS responded to three Notice of Deficiency (NOD) letters from the SCDHEC. An Exposure Information Report (EIR) was submitted to the SCDHEC in February 1987. Subsequently, a revised EIR was submitted to SCDHEC in November 1992 in support of the 1992 Part B Permit Renewal Application, in accordance with South Carolina Hazardous Waste Management Regulations R.61-79. 270.10(j).

The 1992 RCRA Post Closure Part B Permit Application was submitted to the SCDHEC on November 25, 1992 and most recently of the 1992 RCRA Part B Permit Post Closure Application (Rev. 1) was submitted to the SCDHEC for approval on April 2, 1993.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.3.12 Mixed Waste Storage Building (643-29E)

Description

The Mixed Waste Storage Building (MWSB) (643-29E) is located near the southeastern corner of the LLRWDF and serves as a storage facility for mixed waste until appropriate treatment and disposal methods are available.

MWSB 643-29E is a pre-engineered, metal structure constructed of a steel I-beam frame with sheet metal roofing and partial sheet metal siding. The outside walls of the building are chain link fencing from the ground level to a height of about 5 ft. Fiberglass screening has been installed on the outside of the chain link fencing walls. MWSB 643-29E is 60 ft by 60 ft in size and the storage area is 50 ft by 50 ft.

The floor of the building is constructed of a concrete pad. The pad is surrounded by a 4-inch high by 6-inch wide reinforced concrete perimeter dike to provide secondary containment. The joint between the dike and the floor is sealed with grout (e.g., epoxy grout or equivalent). The dike is set in from the walls of the building by 5 ft to minimize the potential of rainwater being blown into the waste storage area. The diking provides a secondary containment system that is capable of containing at least 10 percent of the maximum volume of waste containing free liquids that could be stored in the building. The floor of the MWSB 643-29E has a reinforced concrete sump to collect liquids which may enter the waste storage area and the floor is sloped toward the sump. All of the floor, sump, and floor joints in Building MWSB 643-29E are sealed with a compatible sealer.

Access into the building is through personnel doors or gates. In addition, the building has an overhead steel sectional door to allow forklifts to transfer waste containers into the building. The building has a 4 ft by 20 ft concrete loading/unloading pad located outside the overhead door. MWSB 643-29E has a 4.5-ft by 20-ft steel ramp to allow forklift access into the storage areas. The waste containers, typically 55-gallon drums, 90-ft³ metal storage boxes, specially fabricated stainless steel boxes and concrete culverts, are stored in rows in the storage area of the building.

Accomplishments/Activities

The RCRA Part A application was submitted to SCDHEC in May 1986. Shortly thereafter the original RCRA Part B Permit Application was submitted in July. Between February 1987 and July 1991, SRS prepared three revisions to the Part B Permit Application. The first revision

was in response to a SCDHEC Notice of Deficiency (NOD) letter and the latter two revisions incorporated additional information pertaining to the facility's waste and siting criteria.

On May 20, 1992, the 1992 RCRA Part B Permit Renewal Application for the facility which superseded the previous permit applications was submitted to SCDHEC. MWSB 643-43-E and the Waste Storage Pads 20 to 22 were incorporated as part of this application.

Concerns

A NOD is anticipated to be received from SCDHEC on this facility.

Scheduled Activities for Next Quarter (First Quarter FY94)

A response to the NOD will be prepared by SRS and submitted to SCDHEC for resolution.

4.3.13 Mixed Waste Storage Building (643-43E)

Description

The Mixed Waste Storage Building (MWSB) (643-43E) is located near the southeastern corner of the LLRWDF, and serves as a storage facility for mixed waste until appropriate treatment and disposal methods are available.

Some hazardous wastes may be treated at MWSB 643-43E to facilitate storage efficiency and safety, or to prepare the waste for treatment at facilities such as, the Consolidated Incineration Facility, or the Hazardous Waste/Mixed Waste Disposal Facility. Treatment processes at MWSB 643-43E may include: compaction of solid wastes, cutting solid waste, separation of different types of wastes into different containers, absorption of liquids, pH adjustment, and filtering.

The MWSB 643-43E is a pre-engineered, metal structure constructed of a steel I-beam frame with sheet metal roofing and partial sheet metal siding. The outside walls of the building are chain link fencing from the ground level to a height of about 5 ft. Fiberglass screening has been installed on the outside of the chain link fencing walls. MWSB 643-43E is 160 ft by 60 ft in size and the storage area is 50 ft by 150 ft.

The floor of the building is constructed of a concrete pad. The pad is surrounded by a 4-inch high by 6-inch wide reinforced concrete perimeter dike to provide secondary containment. The joint between the dike and the floor is sealed with grout (e.g., epoxy grout or equivalent). The dike is set in from the walls of the building by 5 ft to minimize the potential of rainwater being blown into the waste storage area. The diking provides a secondary containment system that is capable of containing at least 10 percent of the maximum volume of waste containing free liquids that could be stored in the building. The floor of the MWSB 643-43E has a reinforced concrete sump to collect liquids which may enter the waste storage area and the floor is sloped toward the sump. All of the floor, sump, and floor joints in Building MWSB 643-43E are sealed with a compatible sealer.

Access into the building is through personnel doors or gates. In addition, the building has an overhead steel sectional door to allow forklifts to transfer waste containers into the building. The building has a 4 ft by 20 ft concrete loading/unloading pad located outside the overhead

door. MWSB 643-43E has a 7-ft by 20-ft steel ramp to allow forklift access into the storage areas. The waste containers, typically 55-gallon drums, 90-ft³ metal storage boxes, and concrete culverts, are stored in rows in the storage area of the building.

Accomplishments/Activities

The RCRA Part A application was submitted to SCDHEC in October 1991. Shortly thereafter the original RCRA Part B Permit Application was submitted in July. Between February 1987 and July 1991, SRS prepared three revisions to the Part B Permit Application. The first revision was in response to a SCDHEC Notice of Deficiency (NOD) letter and the latter two revisions incorporated additional information pertaining to the facility's waste and siting criteria.

On May 20, 1992, the 1992 RCRA Part B Permit Renewal Application for the facility was submitted to SCDHEC. The Waste Storage Pads 20 to 22 were incorporated as part of this application.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.3.14 Mixed Waste Storage Tank (S-32) (650-32E)

Description

The Mixed Waste Storage Tank S-32 (650-32E) is located between F and H Areas in the LLRWDF. The tank is situated in the northern corner of the LLRWDF.

Tank S-32 was a 25,000 gallon underground tank installed in 1983 for the storage of tritiated waste oil. The tank was certified closed by SCDHEC under RCRA Interim Status on September 9, 1988.

The mixed waste oil is generated during the processes of recovering, purifying, and packaging tritium gas for national defense and research purposes. The oil generated was waste lubricating oil from pumps which move the tritium gas through the process. This oil has not been stored within the MWSB 643-29E because contamination levels are significantly less (<0.05 microcuries per milliliter) and do not require elaborate packaging.

The storage tank was constructed of 3/8 inch-thick carbon steel, externally triple coated with Koppers Bitumastic 50 paint for external corrosion protection. The tank was 10 ft. 6 inches in diameter, 39 ft. 10 inches in length, and rests on a sloped concrete saddle, anchored by four metal bands. The pad slopes (0.2" per foot) to a fully bituminous coated 64 gallon steel collection sump which was routinely monitored for liquid accumulation. The tank had a secondary containment system consisting of a 30 mil PVC liner which extends under the saddle and up to the surface, providing additional leak protection. An oil resistant 20 mil PVC liner covers the top of the tank and its sump. After this liner was covered with top soil, a layer of

asphalt was added to prevent erosion and act as an additional barrier against rainwater infiltration. The pump, pipes, filters, and other ancillary equipment were designed to allow spill-free filling and emptying of the tank contents, and sampling and removal of liquids which may accumulate within the liner. The secondary containment system is designed to contain the full contents of Tank S-32 and, by virtue of its complete enclosure, prevents both infiltration of rainwater and contamination of external soils and ground water.

Closure was accomplished by properly removing all mixed wastes from the tank, filling it with concrete, and testing and removing all contaminated soil, if any, for proper disposal. The waste oil removed from the tank will be sent to the Beta/Gamma Incinerator (BGI) and used as a supplementary fuel. It will be transported in a container(s) currently used to transport liquid wastes to the BGI.

The Closure Plan was implemented in accordance with the inplace abandonment procedure listed in the South Carolina Underground Storage Tank Control Regulations. An inventory was taken (by rodding) to insure that all regulated substances (waste oil) have been removed from the tank. This action was recorded and documented.

Laboratory testing was conducted to select a self-leveling concrete and grout formulation for use with the abandonment operation. These formulations did not release sufficient heat during hydration to produce any undesirable effects to the fill material.

Accomplishments/Activities

The Part A application for the facility was submitted to SCDHEC in May 1986. In August 1986 the original RCRA Part B Permit Application was submitted, and SCDHEC issued a Notice of Deficiency (NOD) Letter the following January to SRS. SRS recalled the Part B Permit Application when it submitted an Interim Status Closure Plan in February 1987.

The Closure Plan was approved by SCDHEC in August 1987, and the closure activities and certification were completed on September 9, 1988.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.3.15 New TNX Seepage Basin (904-102G)

Description

The New TNX Seepage Basin (904-102G) is located across River Road from the TNX process area, about 2,000 ft east of the Savannah River.

The basin consists of two sections: seepage (roughly 60 ft by 250 ft) and inlet (about 50 ft by 75 ft) with a total volume of approximately 1 million gallons. Any basin overflow is discharged to a low lying area adjacent to the basin. The basin went into service in 1980 and

received process waste flows from pilot-scale simulations conducted at TNX in support of the Defense Waste Processing Facility and Separations areas. Batch discharges of process water were neutralized for pH prior to release to the basin. There are no records of hazardous wastes or hazardous constituents disposed of at the basin. Service was terminated in 1988 at which time influent to the basin was rerouted to the TNX Effluent Treatment Facility.

Accomplishments/Activities

In 1985 basin sediments were sampled and analyzed. Barium and lead, identified as constituents, were detected below background levels. In 1986 the process waste flow was analyzed, no hazardous constituents were detected. In 1990 the Basin surface water was analyzed, the primary constituents detected were some inorganics and metals. Results from basin soil samples indicate that by TCLP Protocols, none of the constituents present in the Basin are hazardous. Furthermore, a human health risk analysis concluded that the low concentrations of non-hazardous constituents present in the Basin are not a hazard to human health or the environment. Groundwater sampling of four groundwater monitoring wells has taken place as part of the SRS sitewide groundwater monitoring program. The most recent available groundwater data from the YSB wells indicate that no Primary DWS MCLs for the monitored parameters are exceeded.

Based on the above data, a closure option evaluation was conducted in which four closure actions were considered: No Further Action, No Waste Removal and Backfilling with Native Soil (hybrid closure), Waste Removal and Closure with a RCRA Cap, and No Waste Removal and Closure with a RCRA Cap. The result of the evaluation was a selected closure remedy of No Waste Removal and Backfilling with Native Soil.

To meet the closure performance standard project activities for this hybrid closure shall involve: Dewatering the basin, site preparation, filling the basin with a clean compacted backfill, and constructing an earthen cover with a vegetative layer to minimize erosion.

Remediation of groundwater is not a part of this closure, however, the impact of the basin on groundwater is discussed. Groundwater concerns and corrective actions will be addressed as part of the TNX Groundwater Operable Unit under the CERCLA Program.

The RFI/RI Phase I Work Plan (Rev. 0) was submitted to EPA and SCDHEC on October 11, 1990. The basin closure plan was submitted to EPA and SCDHEC on March 27, 1992. The Screening Risk Evaluation (Rev. 0) using existing data from the New TNX Seepage Basin was submitted to EPA and SCDHEC on December 21, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Continued sampling and analysis of the groundwater.

4.3.16 Sanitary Landfill (740-G)

Description

The Sanitary Landfill is located approximately one-quarter mile south of B Area, west of Road C and north of the Upper Three Runs. The Sanitary Landfill is an approximately 70-acre site. It was opened in 1974 as a 32-acre site and received solid waste from a variety of sources, including site construction areas, offices, shops, and cafeteria. In 1987, as the Main Section reached its capacity, a 16-acre Northern Expansion and a 22-acre Southern Expansion were permitted, and the Southern Expansion began receiving waste. The Southern Expansion is now nearing capacity and closure is expected along with a simultaneous opening of the Northern Expansion.

During the course of its operation, the Sanitary Landfill reportedly received small quantities of rags and wipes used with F-listed solvents. In 1988, the Sanitary Landfill became the subject of a (RCRA) Facility Investigation and was designated a RCRA Solid Waste Management Unit (SWMU) due to recurring evidence of RCRA hazardous constituents in the groundwater beneath the site. In December 1989, SRS was added to the National Priority List (NPL). At the time, the Sanitary Landfill was included in a combined RCRA/CERCLA unit list in the Federal Facility Agreement (FFA). As a result of an ongoing RCRA permit investigation, EPA removed the Sanitary Landfill from the combined RCRA/CERCLA unit list on August 29, 1991.

Accomplishments/Activities

The Part A application for the Sanitary Landfill was submitted to SCDHEC in 1991. The Sanitary Landfill Closure Plan was received by SCDHEC on March 31, 1993.

The DOE and SCDHEC reached a settlement agreement (SW-91-51) in August 1991 outlining the steps DOE would take to comply with the RCRA regulations. Principally, DOE would close the portions of the landfill containing the solvent rags in compliance with Subpart G (Closure and Post-Closure) of Part 265 (Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities) of the South Carolina Hazardous Waste Management Regulations. Pursuant to the settlement agreement, SCDHEC received a Post-Closure Part B RCRA Permit Application on March 31, 1993, for the portions of the landfill that received the solvent rags. The post-closure application contained sufficient information to establish an Alternate Concentration Limits (ACL) demonstration. SRS has determined that an ACL is not appropriate, then DOE shall submit a Corrective Action Plan (CAP) on or before March 31, 1994. SRS has determined that some constituents concentrations exceed the respective proposed ACL values. Consequently, SRS is preparing a Corrective Action Plan (CAP) that will be submitted to SCDHEC on or before March 31, 1994.

Concerns

Insufficient funding to implement corrective action.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.3.17 SRL Mixed Waste Storage Tanks (776-2A)

Description

Ten radioactive liquid waste tanks (Tanks A through H, J, and K) are located aboveground in a below grade vault; Building 776-2A. Tanks A through G each have a capacity of 5,900 gallons and are 11 ft high by 10 ft in diameter. Tanks H, J and K each have a capacity of 3,670 gallons and are 11 ft high by 8 ft in diameter. All tanks are constructed of one-half inch stainless steel according to ASME codes for unfired pressure vessels. They are located in concrete vaults with eighteen-inch exterior walls and an twelve-inch interior wall between the subject vault and the adjacent vault.

Each tank is equipped with an agitator, a sampling system, and a dip line reaching within about one-inch of the tank bottom. The dip line is used for transferring waste material from the tank. The tanks are agitated for sampling and during waste transfer operations. After a tank is emptied, a liquid heel of approximately fifty liters remains in the bottom of the tank. Each tank has an internal wash jet such that liquid can be circulated internally and sprayed for washdown.

Low level radioactive waste generated in the Technical Area (773-A) is stored in a tank at Building 776-2A until the storage tank is full. High-activity radioactive waste (greater than 1000 d/m/ml, alpha or beta activity) is stored in Tanks A, B, G, H, J and K. Low activity radioactive waste (less than 1000 d/m/ml alpha or beta-gamma activity) is stored in Tanks C, D, E, and F.

When one of the tanks is filled, the waste in the tank is then sampled and analyzed for radioactivity and selected hazardous constituents. Based on the analysis, the waste is transferred to an F-Area Separations facility, if nonhazardous. If it is determined to be hazardous, the waste is treated in the storage tank to remove the hazardous constituents. This liquid waste is potentially hazardous because of corrosivity or Toxicity Characteristics (chromium, lead, or benzene content).

The method of treatment is pH adjustment and/or sorption on an appropriate ion exchange medium using an SRS-designated apparatus. This apparatus is an in-tank treatment system which is installed in on high and one low-activity tank. Each treatment system consists of a treatment probe containing ion exchange resin and a feed pump. This system treats the waste to meet Land Disposal Restriction (LDR) treatment standards.

The RCRA Part A permit limits the mixed waste storage tanks treatment processes (High-activity and Low-activity combined) to 14,400 gallons/day (5,256,000 gallons/yr). The RCRA Part A permit also limits the total annual quantity of waste that is permitted to pass through the tanks to 457,229 gallons/yr (1714 m³/yr). Because this number is lower, it limits the amount of waste that the Ion Exchange Probes can treat annually. From this total annual quantity, the treatment and design capacity of the SRTC (formerly the Savannah River Laboratory) Ion Exchange Treatment Probes is 55,482 gallons/yr (210 m³/yr) for the high-activity waste and 396,300 gallons/yr (1500 m³/yr) for the low-activity waste.

Once a tank is filled, it is also checked for pH. Waste that is hazardous because of corrosivity is made nonhazardous by adjusting the pH with an appropriate neutralizer. This system treats the waste to meet the LDR treatment standards.

Accomplishments/Activities

The Part A application was submitted to SCDHEC on June 30, 1987 placing the facility on RCRA Interim Status. The Part A was revised on February 15, 1991 to include treatment using the Ion Exchange Treatment Probes.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.3.18 SRL Seepage Basins (904-51G1, -53G2, -54G, and -55G)

Description

The SRL Seepage Basins (904-53G1, -53G2, -54G, and -55G) are located in the southern part of A Area. The basins are rectangular in shape and were constructed by removing soil from within the basins to form surrounding dikes. The basins were used to dispose of low-level radioactive liquid waste generated in the laboratories located in Buildings 735-A and 773-A. The basins are connected to the underground waste tanks by a process sewer line constructed of 10-inch diameter vitrified clay at a depth of approximately 10 ft. The process sewer line is about 950 ft long.

The first two basins were placed into operation in 1954, and basin 3 and 4 were added in 1958 and 1960, respectively. The basins were removed from service in October 1982. Pipes in the 904-A trench, which tied into the low-level drains in these laboratories, transferred the waste to one of four 22-cubic meter underground tanks located in Building 776-A. When a tank accumulated about 20-cubic meters of waste, a grab sample was taken for analysis, and another of the tanks was valved online. Wastewater not exceeding 100 d/m/ml alpha and/or 50 d/m/ml beta-gamma was discharged to the basins. Waste exceeding the standards was sent by tank trailer to the 200-F Area Separations Facility for disposal. During the 28-year loading history, approximately 130,000 cubic meters of water was discharged to the basins.

The constituents of concern for the basins are the radionuclides: tritium, uranium, thorium, radium, strontium, manganese, potassium, curium, cobalt, cesium, plutonium and americium; organic chemicals including phthalates, acetone, methyl isobutyl ketone, dichlorodifluoromethane, methyl chloride and toluene; inorganic chemicals such as ammonia nitrogen, arsenic, barium, cadmium, chromium, copper, cyanide, fluoride, lead, mercury, nickel, selenium, silver, and zinc.

Accomplishments/Activities

Soil: In 1982, soil samples were taken from the basin. It indicated that radionuclides and metals had not moved further than the first two feet of soil. In March 1992, the process sewer line was characterized. Nine sampling locations were selected along the sewer line. Three samples, at depths greater than the depth of the sewer line, were taken at each location.

Groundwater: A volume reduction program, consisting of rerouting noncontact cooling water, was implemented in 1982. In 1990, three monitoring wells were installed in the Upper Congaree Aquifer in order to determine if there has been any groundwater impact due to vertical migration. Twenty-one groundwater monitoring wells have been installed in the vicinity of the basins and are sampled and analyzed quarterly for a variety of constituents.

Vegetation: Sampling of vegetation in the basins found radiologic and metal contamination. Modeling of the data for air emissions due to burning the vegetation indicate the release of radionuclides to be one percent of the 10 millirem (mrem) set by EPA.

The facility will be closed in accordance with the consent decree settled under Civil Act No. 1:85-2583. SRS received the Closure Plan to EPA and SCDHEC on March 26, 1992.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

Erosion control measures, including installation of diversion boxes, will occur through the first quarter fiscal year (FY) 1994. These activities do not require closure plan approval to be completed.

4.3.19 TRU Waste Storage Pads 1 to 6 (NBN)

Description

The Transuranic Waste Storage Pads 1 to 6 (TRU Pads) (NBN) are located within E Area (formerly the BGC) in the central portion of SRS. TRU Pads 1 to 6 are situated in the southeast corner of the E Area west of the MWSBs (643-29E and -43E).

TRU Pads 1 to 6 are above grade sloped concrete pads with sumps at the end of each pad. Pads 1 to 5 are approximately 50 ft wide by 120 ft long by 1 ft thick and Pad 6 is approximately 60 ft wide by 150 ft long by 1 ft thick. TRU Pads 1 to 6 received solid TRU mixed, and TRU radioactive waste from 1974 to 1986. These wastes will be stored at SRS for storage until they can be removed for treatment and disposal. The TRU waste component is shipped to the DOE Waste Isolation Pilot Plant in Carlsbad, New Mexico for disposal. The majority of waste is stored in concrete culverts and 55-gallon drums. The waste was primarily accepted from the SRS generators, however, offsite shipments of radioactive waste have been accepted and stored on these pads.

On June 30, 1987, SRS applied for RCRA interim status for its mixed waste facilities, including TRU Pads 1 to 6, by submission of a RCRA Part A Application. On August, 25,

1988 the EPA notified SRS that TRU Pads 1 to 5 should be permitted as RCRA Subpart X Miscellaneous Units. During the 1970's and 1980's as they reached capacity TRU Pads 1 to 5 were buried with earth to reduce the potential radiological exposure to the environment. TRU Pad 6 was subsequently surrounded by bermed earth in 1986.

Accomplishments/Activities

A RCRA Interim Status Closure Plan was submitted to SCDHEC in January 1989.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

4.3.20 TRU Waste Storage Pads 7 to 17 (NBN)

Description

The Transuranic Waste Storage Pads 7 to 17 (TRU Pads) (NBN) are located within E Area (formerly the BGC) in the central portion of SRS. Pads 7 to 13 are situated in the northern section, and pads 14 to 17 are situated in the south-central section of the E Area.

TRU Pads 7 to 17 are above grade sloped concrete pads with sumps at the end of each pad. The pads are approximately 60 ft wide by 150 ft long by 1 ft thick. Pads 14 to 17 are covered with an enclosure. The TRU pads have accepted solid TRU, low-level mixed, and radioactive waste from 1986 to the present. These wastes will be stored at SRS until they can be removed for treatment and disposal. The TRU waste component is to be shipped to the DOE Waste Isolation Pilot Plant in Carlsbad, New Mexico for disposal. The waste is stored in 55-gallon drums, concrete casks, and large metal boxes. The waste is accepted primarily from the SRS generators, however, offsite shipments of radioactive waste have been accepted in the past and stored on these pads.

On June 30, 1987, SRS applied for RCRA interim status for its mixed waste facilities, including TRU Pads 7 to 13, by submission of a RCRA Part A Application. Pads 14 to 17 were added under the expansion provision of RCRA in 1991.

Accomplishments/Activities

On October 18, 1988, SCDHEC granted SRS an aisle spacing variance because of the radiological hazards associated with the waste. A RCRA Interim Status Closure Plan was submitted to SCDHEC in January 1989.

In addition to the RCRA requirements, Pads 7 to 17 are subject to the 1991 SRS Land Disposal Restriction (LDR) Federal Facility Compliance Agreement (FFCA). The agreement stipulates LDR waste container management on the TRU Pads and sampling of pad sumps.

Concerns

None.

Scheduled Activities for Next Quarter (First Quarter FY94)

None.

5.0 CONTRACTOR ASSIGNMENTS

Each Federal Facility Agreement (FFA) Quarterly Progress Report will include a list with the identity and assignment of each of the Department of Energy (DOE) contractors performing work under the FFA. The primary contractors are the Westinghouse Savannah River Company (WSRC), Bechtel Savannah River Incorporated (BSRI), Wackenhut Services Incorporated (WSI), Savannah River Technology Center (SRTC), and the U.S. Forest Service (USFS). These contractors will be performing work at all locations within the SRS.

<u>Contractor</u>	<u>Assignments</u>
Dames & Moore	Technical and Management Assistance for the Resolution of Environmental Issues
Science Applications International Corporation	Technical and Management Assistance for the Resolution of Environmental Issues
CDM Federal Programs Corporation	Technical and Management Assistance for the Resolution of Environmental Issues
Geo Trans	Waste Management
Intera	Waste Management
Law Engineering	Par Pond Dam Inspection, Geotechnical Soil Testing
Atlanta Testing and Engineering	Well Drilling Oversight
Earth Management Systems	Well Drilling Oversight
Exploration Resources	Groundwater and Soil Data Management
RUST	Technical and Management Assistance for the Resolution of Environmental Issues and Well Drilling Oversight
Metcalf and Eddy	Technical and Management Assistance for the Resolution of Environmental Issues
ANSP	Fisheries and Limnological Studies
Geraghty & Miller	Risk-based Analyses
Microseeps	Environmental Sampling, Soil Gas Surveys, and Ground Penetrating Radar
Pro-Eco	Tank Tightness Testing
Axia Services	Industrial Hygiene Sampling
RPM	Dewater TRU Waste Drums
PCA Engineering	Cathodic Protection
Weston	Soil Sampling and Analysis
General Engineering Laboratory	Sampling Analysis
TMA/Eberline	Laboratory Services
Graves	Geotechnical Services
ED & S	Drilling Services
Environmental Exploration	Drilling Services
EMTC	Drilling Services
GEL	Groundwater and Radiological Analysis
GE-HY	Groundwater Sampling
TMA	Wastewater Analysis
TMA/Norcal	Bioassay Analysis
Chem-Nuclear	Radiological Analysis
BCM Engineering	Air Testing

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6.0 COMMUNITY INVOLVEMENT

The SRS published its Public Involvement Plan in October 1992, following a public comment period which resulted in numerous revisions. Most notable among the changes was a decision by the Department of Energy (DOE) to establish a Citizens Advisory Board (CAB).

In December DOE, EPA and SCDHEC began to involve citizens from South Carolina and Georgia in the development of the CAB. After three public meetings, a 16-member citizens' working group was selected, and between December 1992 and June 1993 they joined with the three parties to develop the CAB's charter and a membership selection process. A public comment period was held on those items in July and August, public comments were reviewed and in some cases incorporated, and membership selection was expected to begin in October. The three parties hoped to begin CAB operation by late 1993.

Throughout the year, SRS conducted numerous public meetings and workshops on FFA related issues such as cleanup priorities and Par Pond, mailed to the media and the public five SRS Environmental Bulletins announcing CERCLA actions, and four expanded newsletters with a variety of feature articles on FFA related activities such as groundwater cleanup technologies and CAB development.

The following documents were issued for a 45 day public comment period during the fiscal year.

- The H-Area Emergency Removal Action (Tank 37 CTS Line Leak) (September-October 1992)
- The F-Area Hazardous Waste Management Facility Proposed Plans (March-April 1993)
- The H-Area Hazardous Waste Management Facility Proposed Plans (March-April 1993)
- The Par Pond Removal Action (May-June 1993)
- The A/M Area Fundamental Study Area Interim Action Proposed Plan (May-June 1993).

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