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Scoping Summary for the Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Groundwater Remedies (U)

SRNS-RP-2019-00506

Final

September 2019

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1.0 BACKGROUND

The size of the Savannah River Site (SRS) Five-Year Remedy Review Reports has grown considerably since the first report was submitted to the U.S. Environmental Protection Agency (USEPA) and South Carolina Department of Health and Environmental Control (SCDHEC) in July 1997. These increases are primarily the result of increasing numbers of SRS remedial decisions requiring five-year remedy reviews, and new USEPA guidance and format requirements that are not easily implemented for a large National Priorities List site with numerous remedial decisions issued. In 2014, the Core Team (i.e., representatives from the United States Department of Energy-SR [USDOE-SR], SCDHEC, and USEPA) reached agreement during review and approval of the *Fourth Five-Year Remedy Review Report for the Savannah River Site (U)* (SRNS-RP-2012-00011, Revision 1.1, November 2013) to submit future SRS Five-Year Remedy Review Reports in a phased approach rather than combining all operable unit (OU) reviews in a single document.

Agreement was reached during the May 2014 Core Team scoping meeting to group the OUs by the following remedy types: 1) native soil cover and/or land use controls (LUCs); (2) groundwater; 3) compacted clay cover systems; 4) geosynthetic (geo) or stabilization/ solidification (s/s) cover systems; and 5) operating equipment. These groupings were chosen to provide the opportunity to effectively identify and resolve issues for similar remedies simultaneously and efficiently implement optimization initiatives for similar projects. The phased approach for submittal of future reports began with the *Fifth Five-Year Remedy Report for Savannah River Site Operable Units with the Native Soil Covers and/or Land Use Controls (U)* (SRNS-RP-2014-00902, Revision 0, December 2014) followed by the submittal of four additional reports to complete the Fifth Five-Year Remedy Review cycle.

This scoping summary supports the development of the Sixth Five-Year Remedy Review Report cycle. In accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), remedy reviews are conducted every five years. Issuance dates for the Sixth Five-Year Remedy Review Reports will occur over a five-year period (2021-2025) as shown in Table 1. A complete list of OUs/decision documents and acronyms are provided in Table 2. The implementation schedule for the Sixth Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies is provided in Figure 1.

2.0 PROBLEM WARRANTING ACTION

To remain in compliance with CERCLA and the NCP and to not exceed the five-year limit that is required between OU/decision documents reviews, a phased approach with a schedule for annual submittal of the Sixth Five-Year Remedy Review Reports is needed. To maintain this schedule and obtain the final signature for the last report no later than January 21, 2024, the Revision 0 submittal of the Sixth Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies is due on or before December 20, 2019.

3.0 SCOPE OF THE PROBLEM

This scoping summary addresses SRS OUs that implemented groundwater remedies as the selected remedy and are grouped under the Groundwater Remedies category.

SRS uses a graded approach for groundwater remediation. The selection of groundwater remediation technologies for a specific contamination area is based on the size, contaminant type, contaminant concentration, and configuration of the plume. These attributes are the result of the nature and mass of the source of contamination and the subsurface characteristics in the area of the plume. Many large plumes consist of several zones that are most efficiently addressed with separate complementary corrective action/remedial technologies. The highest concentrations of contaminants are found in the source zone. The most robust, high-mass-removal technologies are best suited for remediation of the source zone. In the primary plume zone, active remedies such as pump-and-treat may be necessary to remove contaminants and exert hydraulic control of the plume. In the dilute fringe zone, contaminants are generally low in concentration and can often be treated with passive techniques.

Enhanced-passive remedies are used extensively at SRS for groundwater remediation. These are low-energy-consumption, low carbon-emission systems that are not completely passive. These "green" technologies leverage natural systems to protect and remediate groundwater. BaroBall™ and MicroBlower™ systems are two types of enhanced-passive soil vapor extraction systems currently in operation at SRS.

Monitored natural attenuation (MNA) is a passive groundwater remedial action where the fringe and dilute areas of a plume degrade by natural biogeochemical or physical processes such as biodegradation, radioactive decay, dilution, and simple dispersion. MNA remedies must be accompanied by source control and a technical justification that conditions are favorable for natural attenuation. Additionally, the groundwater plume should not be expanding significantly, and surface water standards should not be exceeded at the groundwater discharge point.

The Sixth Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies includes a review of the following OUs:

- C-Area Groundwater (CAGW);
- Chemicals, Metals, and Pesticides (CMP) Pits (080-170G, 080-171G, 080-180G, 080-181G, 080-182G, 080-183G, and 080-190-G);
- D-Area Oil Seepage Basin (DOSB) (631-G);
- L-Area Southern Groundwater (LASG);
- R-Area Reactor Seepage Basins (RRSBs) (904-57G, 904-58G, 904-59G, 904-60G, 904-103G, 904-104G) and 108-4R Overflow Basin; and
- R-Area OU (RAOU).

The OUs listed above were previously evaluated in the Fifth Five-Year Remedy Review Report. The Fifth Five-Year Remedy Review Report also included the L-Area Burning/Rubble Pit (131-L), Gas Cylinder Disposal Facility (131-2L) and L-Area Rubble Pile (131-3L) (LBRP) OU.

However, the USEPA and SCDHEC agreed on October 3, 2017 and October 25, 2017, respectively, to discontinue monitoring and reporting at the LBRP OU. On January 11, 2018, USDOE requested that the LBRP OU be designated as a No Action OU since remediation goals had been met, monitoring and reporting had been discontinued, and the institutional controls (i.e., LUCs) were no longer required. SCDHEC and USEPA approved the request on February 8, 2018 and February 16, 2018, respectively. Therefore, the LBRP OU is not discussed in the Sixth Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies.

The Sixth Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies will apply the 2016 Five-Year Review Recommended Template (OLEM 9200.0-89, January 2016). Comments received from the USEPA during review of the *Fifth Five-Year Remedy Review for Savannah River Site Operable Units with Operating Equipment* (SRNS-RP-2017-00567, Revision 0, December 2017) recommended that the USDOE implement the 2016 template when preparing future five-year remedy review reports. The 2016 recommended template amends Appendix E of the "*Comprehensive Five-Year Review Guidance,"* OSWER Directive 9355.7-03B-P, June 2001. The 2016 recommended template also replaces the 2011 Updated Five-Year Review Summary Form (OSWER Directive 9200.2-105, December 2011) implemented for all SRS Fifth Five-Year Remedy Review reports.

4.0 OBJECTIVE

The objective of the Five-Year Review team is to prepare an approvable Sixth Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies. The five-year report will document at the appropriate level of detail that each remedy is, or is not, protective of human health and the environment. Evaluations are based on relevant document reviews, data reviews and analyses, and site inspections. The following USEPA reference information will be used during preparation of the report:

- *Comprehensive Five-Year Review Guidance*, EPA 540-R-01-007, Office of Emergency and Remedial Response, OSWER Directive 9355.7-03B-P, June 2001.
- Recommended Evaluation of Institutional Controls: Supplement to the "Comprehensive Five-Year Review Guidance", Office of Solid Waste and Environmental Control, OSWER Directive 9355.7-18, September 2011.
- *Five-Year Review Recommended Template*, Office of Solid Waste and Emergency Response, OLEM 9200.0-89, January 2016.

5.0 RESPONSE

USDOE will prepare the Sixth Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies consistent with the Core Team agreement for phased submittal of five-year remedy review reports. The following tasks will be performed as part of the five-year review to determine the protectiveness of the groundwater remedies and effectiveness of the access controls:

- Review of OU-specific regulatory documentation including RODs, Early Action RODs (EARODs), Interim RODs (IRODs), and Explanation of Significant Differences (ESDs).
- Review of appropriate data (e.g., groundwater and surface water monitoring data, process and performance data, etc.). Issues and recommendations that impact the protectiveness

of the remedy will be documented in the Issues/Recommendations section.

- Inspection of the OUs and documented interviews with maintenance personnel. Consistent with the first phased five-year remedy review report, the Five-Year Review Site Inspection Checklist will be streamlined to only publish the checklist sections that are applicable to the OU;
- Review changes in standards and to-be-considered guidance with respect to the protectiveness of the remedies. Current regulatory standards applicable to the OUs with groundwater remedies include the following:
  - USEPA Regional Screening Levels (RSLs) for Nonradiological Constituents (May 2019)
  - USEPA Preliminary Remediation Goals (PRGs) for Radionuclides (January 2019)
  - USEPA Surface Preliminary Remediation Goals (SPRGs) for Radionuclides (May 2018)
  - USEPA Maximum Contaminant Levels (MCLs)
  - USEPA Radioactivity in Drinking Water, Appendix III (January 1981)
- Update maps and figures where remediation is ongoing (i.e., most recent plume maps, etc.) as appropriate.

USEPA's Federal Facility CERCLA Five Year Reviews Enhancement Interagency National Workgroup recommended increased community involvement during the five-year remedy review process. The following community involvement activities will be applied to the remedy review report as follows:

- A public notice will be published soon after the scoping meeting to inform the public that a remedy review will be conducted.
- A briefing to the Citizen's Advisory Board will be conducted during the ninety (90) day regulatory review of the Revision 0 document.
- A Fact Sheet for each remedy review report will be included when the three-Party signed reports are public noticed.

6.0 UNCERTAINTY

None

7.0 STRATEGY

- The USDOE will submit the Revision 0 Sixth Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies on or before December 20, 2019. The format and level of detail for this report is consistent with the *Sixth Five-Year Remedy Report for Savannah River Site Operable Units with the Native Soil Covers and/or Land Use Controls (U)* (SRNS-RP-2018-00811) and the *Five-Year Review Recommended Template* (OLEM 9200.089).
- Consistent with the Sixth Five-Year Remedy Review Report for SRS OUs with Native Soil Covers and/or LUCs, the USDOE will implement the *Five-Year Review Recommended*

Template (OLEM 9200.0-89, January 2016) in the introductory section of the Sixth Five-Year Remedy Review Report for SRS OUs Groundwater Remedies. The proposed outline and tables are provided in Attachments 1 and 2, respectively. The following changes will be reflected in the Sixth Five-Year Remedy Review Report:

- The Executive Summary will no longer contain the Five-Year Review Summary Form.
- Tables from the 2016 recommended template guidance will be presented as individual tables as shown in Attachment 2. This information was previously presented in the Five-Year Review Summary Form.
- The "Sitewide Protectiveness Statement" table is not included because the SRS has not achieved sitewide protectiveness.
- No format changes are proposed for the individual OU appendices.

- The USDOE-SR, SCDHEC, and USEPA will approve and sign the *Sixth Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies*. The document approval is based on a 90/90-day review cycle.
- USDOE will prepare an Environmental Bulletin for issuance to the public prior to submittal of the Revision 0 Sixth Five-Year Remedy Review document. A draft Environmental Bulletin will be transmitted informally to USEPA and SCDHEC for review and input.
- A draft Fact Sheet will be submitted with the Revision 0 Sixth Five-Year Remedy Review document for regulatory review and comment.
- A record of Core Team key agreements for the Five-Year Remedy Review Report phased approach is provided in Table 5.

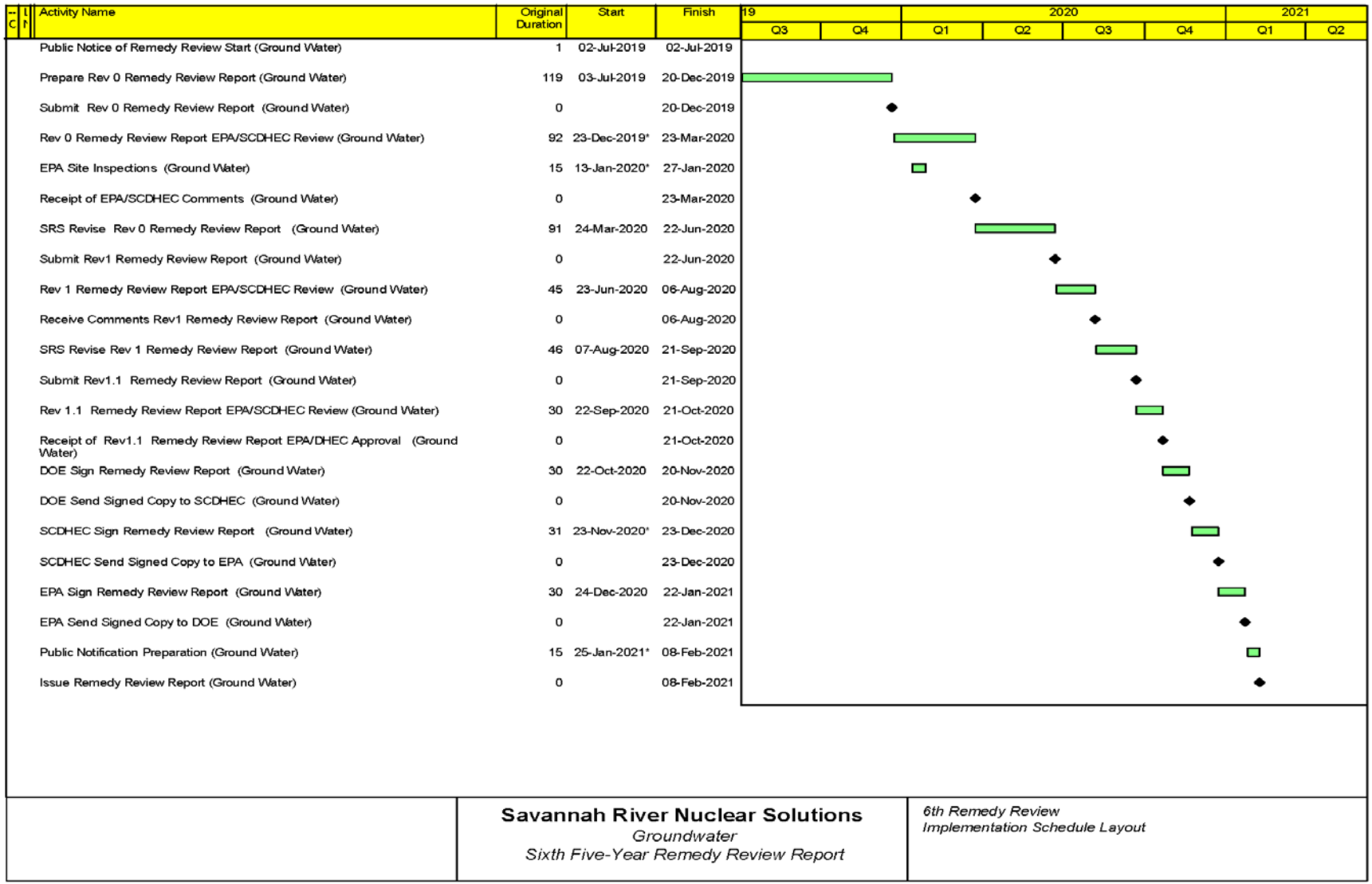

Figure 1. Sixth Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies Implementation Schedule

Table 1. Sixth Five-Year Review Report Transitional Period Submittal Schedule (by Remedy)

Native Soil Cover and/or LUCs		Groundwater		Compacted Clay Cover System		Geo or S/S Cover System		Operating Equipment	
Rev. 0 Submittal Date	*Issuance Year*	*Rev. 0 Submittal Date*	*Issuance Year*	*Rev. 0 Submittal Date*	*Issuance Year*	*Rev. 0 Submittal Date*	*Issuance Year*	*Rev. 0 Submittal Date*	*Issuance Year*
December 2018	2020	December 2019	2021	December 2020	2022	December 2021	2023	December 2022	2024
CAOU[a]		CAGW		CSBRP		BAOU		A/M GW	
CKL-Rx		CMP Pits		DBRP		CRSB		ABRP/MCB/MBP	
ECODS		DOSB		FBSB		DEXOU		AMRP	
FBRP		LASG		FHWMF		ELLWF		CBRP	
Gunsite 012		RAOU[c]		HHWMF		FRB		DAOU	
HEWB		RRSB		KBRP/KRP		FTF		FAGW	
KBPOP				Met Lab HWMF		GSACU		HAGW	
L&PBPOP				MHWMF		HTF[a]		MAOU	
PAR Pond				MWMF		KRSB		MIPSL	
RBPOP				SRL SB		LAOCB		PBRP	
SRWU						L&CRSB		TNX Area	
WADB[b]						OFASB			
						PAOU			
						PRSB			
						RBRP/RRP			
						TAOU			

* Highlighted area identifies OUs evaluated for the sixth five-year remedy review reports due for submittal in 2019.

a OUs that were not previously evaluated in a five-year remedy review but are included in the sixth five-year review cycle.

b WADB was not evaluated in the sixth five-year remedy review cycle because the remedy implementation occurred during the development of the review document.

c R-Reactor Complex will be discussed as part of the RAOU.

Table 2. Five-Year Remedy Review Report Operable Units

#	Acronym	OPERABLE UNIT[a]	SEMS No.[b]
1	ABRP/MCB/MBP	A-AREA BURNING/RUBBLE PITS (731-A AND 731-1A) AND RUBBLE PIT (731-2A), MISCELLANEOUS CHEMICAL BASIN (731-4A) AND METALS BURNING PIT (731-5A)	28
2	AMRP	A-AREA MISCELLANEOUS RUBBLE PILE (731-6A)	30
3	A/M GW	A/M AREA GROUNDWATER	36[c]
4	BAOU	B-AREA OPERABLE UNIT	48
5	CAOU	C-AREA OPERABLE UNIT	79
6	CBRP	C-AREA BURNING/RUBBLE PIT (131-C) AND OLD C-AREA BURNING/RUBBLE PIT (NBN)	31
7	CAGW	C-AREA GROUNDWATER	82
8	CRSB	C-AREA REACTOR SEEPAGE BASINS (904-66G, 904-68G)	60
9	CKL-Rx	C-, K-, AND L-REACTOR COMPLEXES	79, 90, 91
10	CSBRP	CENTRAL SHOPS BURNING RUBBLE PITS (631-1G AND 631-3G)	50
11	CMP Pits	CHEMICALS, METALS, AND PESTICIDES PIT (080-170G, 080-171G, 080-180G, 080-181G, 080-182G, 080-183G, 080-190G)	24
12	DBRP	D-AREA BURNING/RUBBLE PITS (431-D AND 431-1D)	15
13	DEXOU	D-AREA EXPANDED OPERABLE UNIT (COMPRISED OF D-AREA ASH BASIN (488-D) AND D-AREA RUBBLE PIT [431-2D])	67
14	DOSB	D-AREA OIL SEEPAGE BASIN (631-G)	27
15	DAOU	D-AREA OPERABLE UNIT	63
16	ELLWF	E-AREA LOW-LEVEL WASTE FACILITY (643-26E)	86
17	ECODS	EARLY CONSTRUCTION AND OPERATIONAL DISPOSAL SITE (ECODS) L-1, N-2, P-2, and R-1A, -1B, -1C	22
18	FBRP	F-AREA BURNING/RUBBLE PITS (231-F, 231-1F, AND 231-2F)	14
19	FAGW	F-AREA GROUNDWATER OPERABLE UNIT (904-41G, -42G, -43G)	8[c]
20	FHWMF	F-AREA HAZARDOUS WASTE MANAGEMENT FACILITY (904-41G, 904-42G, AND 904-43G)	6[c]
21	FRB	F-AREA RETENTION BASIN (281-3F)	23
22	FBSB	FORD BUILDING SEEPAGE BASIN (904-91G)	58
23	FTF	F-AREA TANK FARM	23
24	GSACU	GENERAL SEPARATIONS AREA CONSOLIDATION UNIT (Comprised of Old Radioactive Waste Burial Ground [Including Solve Tanks] [643-E], HP-52 Ponds, H-Area Retention Basin [281-3H] and Spill on 05/01/1956 of Unknown Amount of Retention Basin Pile Leak [NBN], Warner's Pond [685-23G] and Spill on 03/08/1978 of Unknown Seepage Basin Pipe Leak in H-Area Seepage Basin [NBN] and Spill on 02/08/1978 of Unknown H-Area Process Sewer Line Cave-In [NBN])	32
25	Gunsite 012	GUNSITE 012 (INCLUDING ECODS G-3)	78
26	HAGW	H-AREA GROUNDWATER OU	9[c]
27	HHWMF	H-AREA HAZARDOUS WASTE MANAGEMENT FACILITY (904-44G, 904-45G, 904-46G, AND 904-56G)	7[c]
28	HEWB	HEAVY EQUIPMENT WASH BASIN (NBN) AND CENTRAL SHOPS BURNING/RUBBLE PIT (631-5G)	53
29	HTF	H-AREA TANK FARM	89
30	KBPOP	K-AREA BINGHAM PUMP OUTAGE PIT (643-1G)	20

Table 2. Five-Year Remedy Review Report Operable Units (continued/end)

#	Acronym	OPERABLE UNIT[a]	SEMS No.[b]
31	KBRP/KRP	K-AREA BURNING/RUBBLE PIT (131-K) AND K-AREA RUBBLE PILE (631-20G)	40
32	KRSB	K-AREA REACTOR SEEPAGE BASIN (904-65G)	55
33	L&PBPOP	L-AREA BINGHAM PUMP OUTAGE PITS (643-2G AND 643-3G) & P-AREA BINGHAM PUMP OUTAGE PITS (643-4G)	26, 39
34	LAOCB	L-AREA OIL AND CHEMICAL BASIN (904-83G)	17
35	L&CRSB	L-AREA REACTOR SEEPAGE BASINS (904-64G) AND C-AREA REACTOR SEEPAGE BASIN (904-67G)	65, 60
36	LASG	L-AREA SOUTHERN GROUNDWATER	77
37	MHWMF	M-AREA HAZARDOUS WASTE MANAGEMENT FACILITY (904-51G AND 904-112G)	1[c]
38	MIPSL	M-AREA INACTIVE PROCESS SEWER LINE (081-M)	19
39	MAOU	M-AREA OPERABLE UNIT	92
40	Met Lab HWMF	METALLURGICAL LABORATORY HAZARDOUS WASTE MANAGEMENT FACILITY (904-110G)	2[c]
41	MWMF	MIXED WASTE MANAGEMENT FACILITY (643-28E)	33[c]
42	OFASB	OLD F-AREA SEEPAGE BASIN (904-49G)	16
43	PAR Pond	PAR POND (685-G) (INCLUDING THE PRE-COOLER PONDS AND CANALS) AND LOWER THREE RUNS INTEGRATOR OPERABLE UNIT TAIL PORTION (MIDDLE AND LOWER SUBUNITS)	35
44	PBRP	P-AREA BURNING/RUBBLE PIT (131-P)	59
45	PAOU	P-AREA OPERABLE UNIT	94
46	PRSB	P-AREA REACTOR SEEPAGE BASIN (904-61G, 904-62G, AND 904-63G)	66
47	RBPOP	R-AREA BINGHAM PUMP OUTAGE PITS (643-8G, 643-9G AND 643-10G) AND R-AREA UNKNOWN PITS #1, #2, AND #3	38
48	RBRP/RRP	R-AREA BURNING/RUBBLE PITS (131-R AND 131-1R) AND RUBBLE PILE (631-25G)	43
49	RAOU[d]	R-AREA OPERABLE UNIT	95
50	RRSB	R-AREA REACTOR SEEPAGE BASINS (904-57G, 904-58G, 904-59G, 904-60G, 904-103G, AND 904-104G) AND 108-4R OVERFLOW BASIN	25
51	SRWU	SILVERTON ROAD WASTE UNIT (731-3A)	13
52	SRL SB	SRL SEEPAGE BASINS (904-53G1, 904-53G2, 904-54G, AND 904-55G)	47
53	TAOU	T-AREA OPERABLE UNIT	96
54	TNX GW	TNX AREA OPERABLE UNIT	21, 29
55	***WADB***	***WETLAND AT DUNBARTON BAY IN SUPPORT OF STEEL CREEK INTEGRATOR OPERABLE UNIT (NBN)***	***71***

a OUs with approved or scheduled remedy decisions as of 2020 are shown. ***Bolded italics*** items indicate new OUs or portions of OUs not included in any previously submitted Five-Year Remedy Review Report.
b SEMS number is based on the latest approved version of the FFA Appendix C.
c RCRA unit with approved remedy decision document.
d R-Reactor Complex will be discussed as part of the RAOU.

Table 3. Record of Key Agreements

Date	Description of Agreement
May 12, 2014	• Core Team agreed that a phased submittal of the Fifth Five-Year Remedy Review by remedy type was acceptable. • USDOE will continue to coordinate with USEPA and SCDHEC to determine the number of annual submittals and schedule.
	• Core Team agreed to streamline the Site Inspection Checklist to include only the checklist sections that are applicable to the OU, significantly reducing the number of published pages.
	• USDOE will propose the document title (e.g., *Fifth Five-Year Remedy Review Report for Operable Units with Native Soil Covers and/or Land Use Controls*) for review by the Core Team during the Revision 0 review period. • USEPA tracks five-year reviews by CERCLIS numbers so the document title was not as important for their administrative requirements.
	• PAOU was more appropriately assigned to the Geosynthetic or S/S Cover System grouping based on feedback from the Core Team. • The CKLR-Rx OU was moved to the Native Soil Covers and/or LUCs grouping because only the LUC portion of the early action remedy has been implemented for the C-, K-, and L-Reactor Complexes. The R-Reactor Complex is discussed as part of the RAOU. • USDOE will continue to evaluate the grouping of individual OUs to determine if additional adjustments are needed.
	• USEPA and SCDHEC confirmed that their personnel will participate in five-year inspections for all OUs.
August 30, 2016	• The group formerly known as “Compacted Clay Cover Systems” was renamed to “Engineered Cover Systems”.
	• ELLWF from the “Engineered Cover System” group and TAOU from the “Operating Equipment” group were moved to the “Geosynthetic or Stabilization/Solidification Cover System” group.
August 28, 2018	• Core Team agreed to the proposed implementation of the *Five-Year Review Recommended Template* (OLEM 9200.0-89, January 2016) in the introductory section of the Sixth Five-Year Remedy Review Report for SRS OUs with Native Soil Covers and/or LUCs as discussed in Section 7.0.

Attachment 1. Outline for the Savannah River Site Summary of the Five-Year Remedy Review Reports

Section	Headings and Subheadings
I	INTRODUCTION
	Site Chronology Background Physical Characteristics Land and Resource Use History of Contamination
II	RESPONSE ACTION SUMMARY
	Initial Response Basis for Taking Action Response Actions Summary Status of Implementation Systems Operation and Maintenance
III	PROGRESS SINCE LAST REVIEW
IV	FIVE-YEAR REMEDY REVIEW PROCESS
	Community Notification and Involvement Data Review, Site Inspections, and Interviews
V	TECHNICAL ASSESSMENT
	Question A: Is the Remedy Functioning as Intended by the Decision Documents? Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and RAOs still Valid? Question C: Has Any Other Information Come to Light that could call into Question the Protectiveness of the Remedy?
VI	ISSUES AND RECOMMENDATIONS
VII	PROTECTIVENESS STATEMENT(S)
VIII	NEXT REVIEW
IX	OU-SPECIFIC FIVE-YEAR REMEDY REVIEW REPORTS
X	REFERENCES

Attachment 1 and Attachments 2-1 through 2-7 tables will be added to the Savannah River Site Summary section of the Sixth Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies. Example text is provided in Attachment 1 and Attachments 2-1 through 2-7.

Attachment 2-1. Example of Five-Year Review Summary Form[1]

SITE IDENTIFICATION		
Site Name: Savannah River Site		
EPA ID: SC1890008989		
Region: 4	**State:** SC	**City/County:** Aiken/Aiken
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	**Has the site achieved construction completion?** No	
REVIEW STATUS		
Lead agency: Other Federal Agency **If "Other Federal Agency" was selected above, enter Agency name:** US Department of Energy		
Author name (Federal or State Project Manager): N/A		
Author affiliation: Savannah River Nuclear Solutions, LLC		
Review period: July 15, 2019 – January 21, 2021 (Phase 2: SRS OUs with Groundwater Remedies)		
Date of site inspection: August 2019 to November 2019 (Phase 2: SRS OUs with Groundwater Remedies)		
Type of review: Statutory		
Review number: 6		
Triggering action date: January 21, 2019		
Due date *(five years after triggering action date)*: January 21, 2024 (includes all 5 phases)		

[1] Same format as the Fifth SRS Five-Year Remedy Review Reports.

Attachment 2-2. Example of LUC Summary Table[2]

OU	Media, Engineered Controls, and Areas that do not support UU/UE based on current conditions	LUCs Needed	LUCs Called for in the Decision Documents	Impacted Parcel(s)[a]	LUC Objectives	Title of LUC Instrument Implemented and Date (or Planned)
CMP Pits (080-170G, 080-171G, 808-180G, 080-181G, 080-182G, and 080-190G)	Soil and groundwater	Yes	Yes	24	• Prevent contact, removal, or excavation of Ballast Area and Vadose Zone contaminated soil • Maintain the integrity of the existing cover; • Prohibit use of the area for residential development, elementary and secondary schools, child care, and playgrounds; • Prevent unauthorized access to contaminated groundwater in the area.	WSRC 2007

a The Impacted Parcel(s) identification is represented by the SEMS number.

Attachment 2-3. Example of Protectiveness Determinations/Statements from the *Fifth Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies* (SRNS 2016)[3]

SEMS #	Protectiveness Determination	Protectiveness Statement
24	Protective	The remedy at the CMP Pits OU is protective of human health and the environment in the short-term. However, in order to establish long-term protectiveness, additional remedial actions may need to be evaluated and selected, as necessary, based on the results of groundwater modeling and continued groundwater and surface water monitoring.

[2] New template format recommended by OLEM 9200.0-89.

Attachment 2-4. Example of Status of Recommendations from the *Fifth Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies* (SRNS 2016)[3]

SEMS #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
27	1,4-dioxane has been identified as a potential contaminant based on its association with other solvents that are present at the OU. However, there is a lack of groundwater data to dismiss 1,4-dioxane as being present at levels which would be harmful to human health and the environment.	1,4-dioxane will be monitored and reported as detailed in the OU remedy review report. Based on the monitoring results, the USEPA, SCDHEC, and USDOE will determine whether or not 1,4-dioxane should be permanently added to the list of monitored constituents.	Ongoing	1,4-dioxane sampling was completed in 2Q2016, 2Q2017, 2Q2018 and 2Q2019. The data will be reported to the USEPA and SCDHEC in the CY2018 D-Area Oil Seepage Basin OU (631-G) Groundwater Mixing Zone Letter Report.	N/A

Attachment 2-5. Example of Issues/Recommendations[3]

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
SEMS # 24

Attachment 2-6. Example of Issues/Recommendations Identified in the Five-Year Review[4]

Issues and Recommendations Identified in the Five-Year Review:				
SEMS #: 27, 95	**Issue Category:** Monitoring			
	Issue: 1,4-dioxane has been identified as a potential contaminant based on its associated with other solvents that are present at the two OUs. However, there is a lack of groundwater data to dismiss 1,4-dioxane as being present at levels which would be harmful to human health and the environment.			
	Recommendation: 1,4-dioxane will be monitored and reported as detailed in the two OU remedy review reports. Based on the monitoring results, the USEPA, SCDHEC, and USDOE will determine whether or not 1,4-dioxane should be permanently added to the list of monitored constituents.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	No	Federal Facility	USEPA/ SCDHEC	2016 (RAOU) 2017 (DOSB OU)

NOTE: This example is based on the Issues and Recommendations from the Fifth Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies (SRNS-RP-2015-00419, Revision 1, July 2016). This table will be updated as needed for the Sixth Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies.

Attachment 2-7. Example of Protectiveness Statement(s)[4]

Protectiveness Statement(s)		
Operable Unit: CMP Pits (080-170G, 080-171G, 080-180G, 080-181G, 080-182G, 080-183G, and 080-190G), SEMS #22	*Protectiveness Determination:* Protective	*Planned Addendum Completion Date:* N/A
Protectiveness Statement: The remedy at the CMP Pits OU is protective of human health and the environment in the short-term. However, in order to establish long-term protectiveness, additional remedial actions may need to be evaluated and selected, as necessary, based on the results of groundwater monitoring and continued groundwater and surface water monitoring.		

[3] New template format recommended by OLEM 9200.0-89.
[4] Same format as Fifth Five-Year Remedy Review Reports.

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