



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
INSPECTOR GENERAL

September 26, 2002

**MEMORANDUM**

SUBJECT: Federal Facility Cleanups: Improvement Needed  
In EPA Oversight of Cleanup Actions at the  
Savannah River Nuclear Facility  
Report No. 2002-P-

00014

A handwritten signature in cursive script that reads "Carolyn Copper".

FROM: Carolyn Copper  
Director of Program Evaluation  
Hazardous Waste Issues  
Office of Program Evaluation

TO: Jimmy Palmer  
Regional Administrator  
Region 4

Attached is a copy of the final report on Region 4 oversight of Department of Energy cleanups at the Savannah River Site nuclear facility.

In accordance with EPA Order 2750, you are requested to provide a written response to the recommendations presented in the final report by December 27, 2002. The response should address all recommendations and include a timetable for actions not completed by the response date. Reference to specific milestones for incomplete actions will assist in deciding whether to close this report in our assignment tracking system.

If you or your staff have any questions regarding this report, please contact me at (202) 566-0829 or John Price, Project Manager, at (404) 562-9837.

Attachment





**Office of Inspector General**  
**Evaluation Report**

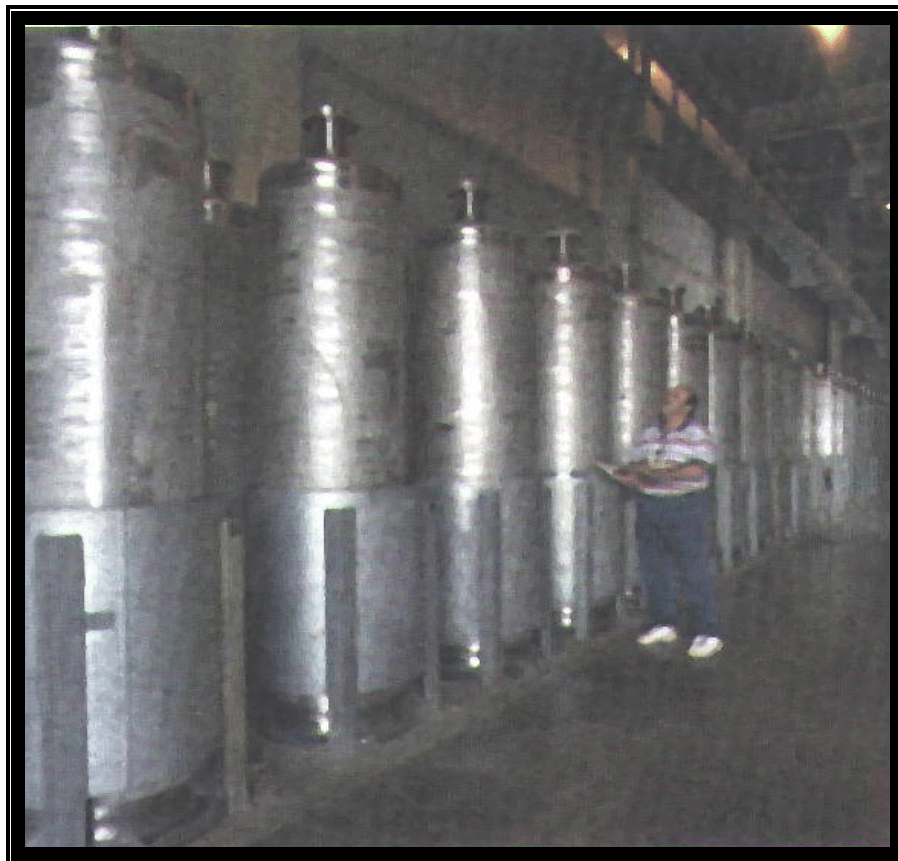
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# **Federal Facility Cleanups**

## **Improvement Needed In EPA Oversight of Cleanup Actions at the Savannah River Nuclear Facility**

**Report No. No. 2002-P-00014**

**September 26, 2002**



**Stainless steel canisters for storing high level nuclear waste after being combined with glass at Savannah River's vitrification plant.**

**Region Covered:** **Region 4**

**Regional Program  
Office Involved:** **Waste Management Division,  
Federal Facilities Branch**

**EPA Headquarters Program  
Office Involved:** **Office of Solid Waste and Emergency Response**

**Report Contributors:** **Angela Bennett  
Carolyn Copper  
John Price  
Johnny Ross**

### **Abbreviations**

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act  
CFR: Code of Federal Regulations  
DOD: Department of Defense  
DOE: Department of Energy  
EPA: Environmental Protection Agency  
FFA: Federal Facility Agreement  
FFRRO: Federal Facilities Restoration and Reuse Office  
FTE: Full-Time Equivalent  
NCP: National Contingency Plan  
NPL: National Priorities List  
OIG: Office of Inspector General  
ORWBG: Old Radioactive Waste Burial Ground  
OSWER: Office of Solid Waste and Emergency Response  
PREScore: Preliminary Ranking Evaluation Score  
RCRA: Resource Conservation and Recovery Act  
ROD: Record of Decision  
SARA: Superfund Amendment and Reauthorization Act  
SRS: Savannah River Site

(Source of photo on cover: *SRS Environmental Report for 2000, Summary*)



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September 26, 2002

**MEMORANDUM**

**SUBJECT:** Federal Facility Cleanups: Improvement Needed  
In EPA Oversight of Cleanup Actions at the  
Savannah River Nuclear Facility  
Report No. 2002-P-00014

**FROM:** John A. Price  
Project Manager

A handwritten signature in black ink that reads "John A. Price".

**TO:** Jimmy Palmer  
Regional Administrator  
Region 4

Attached is our final report on the Environmental Protection Agency's (EPA) oversight of Department of Energy (DOE) cleanup actions at the Savannah River Site (SRS) nuclear facility. The objectives of our evaluation were to determine whether (1) the SRS Federal Facility Agreement (FFA) cleanup requirements and related cleanup actions were consistent with CERCLA and planned use for SRS sites, (2) EPA Region 4's oversight of cleanup activities for SRS was effective in achieving compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and FFA requirements; and (3) DOE's compliance with CERCLA and FFA requirements was adversely affected by funding limitations.

The report contains findings that describe problems the Office of Inspector General (OIG) has identified and the corrective actions the OIG recommends. This report represents the opinion of the OIG and the findings contained in this report do not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures.

## **ACTION REQUIRED**

On August 8, 2002, we issued a draft report to you and received your response on September 11, 2002. Your response indicated that you generally concurred with the report's findings and recommendations. Your response included specific, as well as broad, potential actions that may be taken in response to the recommendations. Specific corrective actions which address all of the recommendations and milestones for completion of planned actions will be needed to close the final report.

In accordance with EPA Order 2750, you, as the primary action official, are required to provide this office with a written response within 90 days of the final report date. The response should address all recommendations. For corrective actions planned but not completed by the response date, please describe the actions that are on-going and provide a timetable for completion. Reference to specific milestones for these actions will assist in deciding whether to close this report in our assignment tracking system.

We have no objection to the release of this report to the public. Should you or your staff have any questions, please have them contact me or Angela Bennett at (404) 562-9830.

Attachment

# ***Executive Summary***

## **Introduction**

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund) gives the Environmental Protection Agency (EPA) authority and oversight responsibility for the cleanup of hazardous waste sites owned and operated by other federal agencies. Department of Energy (DOE) facilities represent some of the most contaminated federal facilities. As a result of preliminary research at the Hanford facility in Washington State, the OIG decided to review remedial actions and related EPA oversight at other selected DOE facilities. The Savannah River Site (SRS), a Superfund site near Aiken, South Carolina, was selected for review primarily because the facility had the second highest estimated long-term CERCLA cleanup costs of all DOE facilities (\$2 billion to \$4.4 billion).

## **Objectives**

The objectives for this evaluation were to determine whether:

- SRS Federal Facility Agreement (FFA) cleanup requirements and related cleanup actions were consistent with CERCLA and planned use for SRS sites;
- EPA Region 4's oversight of cleanup activities for SRS was effective in achieving compliance with CERCLA and FFA requirements; and
- DOE's compliance with CERCLA and FFA requirements was adversely affected by funding limitations.

## **Results in Brief**

FFA cleanup requirements were consistent with CERCLA and the National Contingency Plan, and did not provide any exceptions to the requirements. Further, proposed remedies under the FFA generally complied with applicable requirements. We noted that, to increase efficiency and effectiveness, DOE and EPA Region 4 had developed processing protocols for FFA primary documents and established a core team to scope remedial investigations and develop cleanup alternatives and strategies.

However, we found that Region 4 oversight did not ensure that DOE prioritized SRS cleanups based on potential risks to human health and the environment. Over 41 percent of the sites/operable units on SRS's 2002 list of operable units (sites)

that require further cleanup had not been scored for human health and environmental risk. Also, high risk sites had not been prioritized for cleanup while many low scoring sites received substantial attention. While guidance indicates that risk should be the primary factor in establishing priorities, SRS instead placed an emphasis on internal goals. Further, our review of Region 4 oversight disclosed that:

- Due to Region 4 personnel shortages, remedial actions at SRS sites have been delayed because of late Region 4 responses to DOE primary cleanup decision documents. Regional comments were overdue by as much as a year, and late EPA responses delayed cleanups by 8 months or more. For 2002, DOE estimated that late Region 4 responses and related cleanup delays will cost DOE approximately \$2.7 million.
- Region 4 did not properly review and comment on the last official DOE five-year review of SRS remedial actions, issued in 1997, to ensure that the review properly documented the continued protectiveness and compliance of the remedial actions. Further, the 2002 review report omitted certain remedial actions from the five-year review process.
- The SRS FFA does not: (1) acknowledge that DOE, rather than EPA, performs five-year reviews; and (2) require EPA review and approval of DOE five-year review reports. Further, the FFA does not provide EPA with the authority to dispute or otherwise resolve inadequate site evaluations.

We also found that DOE's remedial cleanup funding level for the SRS may not be sufficient to maintain the current level of effort and provide expeditious cleanups. Increasing costs for long-term response actions will continue to erode funding.

## **Recommendations**

We made various recommendations to the Region 4 Administrator to address the issues noted, including establishing improved oversight procedures and ensuring that there is sufficient Region 4 staff. Further, we made recommendations to improve the five-year review and site evaluation processes, and to assist Region 4 in determining whether DOE funding levels are adequate.

## **Agency Comments and OIG Evaluation**

Region 4 generally concurred with the OIG's findings and recommendations and included planned or possible actions that the Region may take in response to the recommendations. Some of the proposed actions were broader in scope than the report's recommendations. To resolve and close this report, the Region needs to provide specific actions planned or taken for each recommendation in the final report, along with milestones for completion of planned actions.



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# Chapter 1

## Introduction

### Purpose

The Office of Inspector General (OIG) initiated this evaluation based on concerns related to certain remedial actions at the Department of Energy (DOE) Hanford facility, near Richland, Washington, and Environmental Protection Agency (EPA) oversight. As a result of preliminary research at Hanford, OIG decided to review remedial actions and related EPA oversight at other selected DOE facilities. The Savannah River Site (SRS), a Superfund site near Aiken, South Carolina, was selected for review primarily because the facility had the second highest estimated long-term cleanup costs of all DOE facilities.

The specific objectives of our evaluation were to determine whether:

- The Federal Facility Agreement (FFA) cleanup requirements and related cleanup actions were consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and planned use for SRS sites.
- Region 4's oversight of cleanup activities for SRS was effective in achieving compliance with CERCLA and FFA requirements.
- DOE's compliance with CERCLA and FFA requirements was adversely affected by funding limitations.

### Background

#### *DOE Responsibility*

Over the past five decades, DOE and its predecessors were responsible for the research, development, testing, and production of nuclear weapons and a variety of nuclear-related research projects. These activities created significant amounts of hazardous chemical and radioactive wastes and contamination at DOE sites.

In 1980, CERCLA, also referred to as "Superfund," provided EPA with enforcement authority for cleaning up abandoned/inactive contaminated waste sites. Section 120 of CERCLA provided EPA with specific regulatory enforcement and oversight authority for the cleanup of hazardous waste sites owned by other federal agencies, such as DOE. The National Contingency Plan (NCP) in 40 Code of Federal Regulations (CFR) Part 300 establishes the

requirements for all CERCLA cleanup actions, to include federal facility cleanups.

The DOE Environmental Management Program is currently conducting cleanup activities at 53 of its sites to bring them into compliance with federal and State environmental laws and regulations. In 1998, total life cycle cleanup costs for these sites were estimated by DOE at \$147 billion. More recently, DOE has estimated total life cycle cleanup costs at \$220 billion, which DOE acknowledges could easily increase to more than \$300 billion. Only about one-third of the Environmental Management Program budget is currently going toward actual cleanup and risk reduction. The remainder is spent on maintenance, fixed costs, and other activities required to support safety and security. These life cycle costs include much more than the cleanup of hazardous waste under Superfund. At the SRS, while DOE estimated the total life cycle cleanup costs to be \$29.7 billion, estimated costs for CERCLA-regulated cleanups ranged from \$2 billion to 4.4 billion of that amount.

### ***Savannah River Site***

The SRS has been in operation for about 52 years and encompasses about 310 square miles. The facility is located on the South Carolina and Georgia border, near Augusta, Georgia. The Savannah River, which forms the boundary between Georgia and South Carolina, runs about 35 miles along the southwestern boundary of the site. This river and underlying groundwater is a drinking water source for the SRS and other communities in Georgia and South Carolina.

The SRS was established in 1950 to produce special radioactive isotopes for nuclear weapons (such as plutonium-239 and tritium). In addition, SRS produced other special isotopes to support research in nuclear medicine, space exploration, and commercial applications (such as californium-252, plutonium-238, and americium-241). The SRS includes nuclear reactors, a fuel and target fabrication plant, two chemical separations plants, the Defense Waste Processing Facility, the Savannah River Laboratory, and support operations. SRS generates a variety of radioactive, non-radioactive, and mixed (radioactive and hazardous) wastes. SRS waste management practices (past and present) include the use of seepage basins for liquids, pits and piles for solids, tanks for high-level radioactive mixed wastes, and landfills for low-level radioactive wastes. Federal and contractor staff at SRS totaled more than 13,000 employees, as of December 2001. A map of the SRS showing principal areas of contamination is shown on next page.



**Figure 1: Weapons-grade plutonium stored at SRS.**  
(Source: DOE SRS web site.)

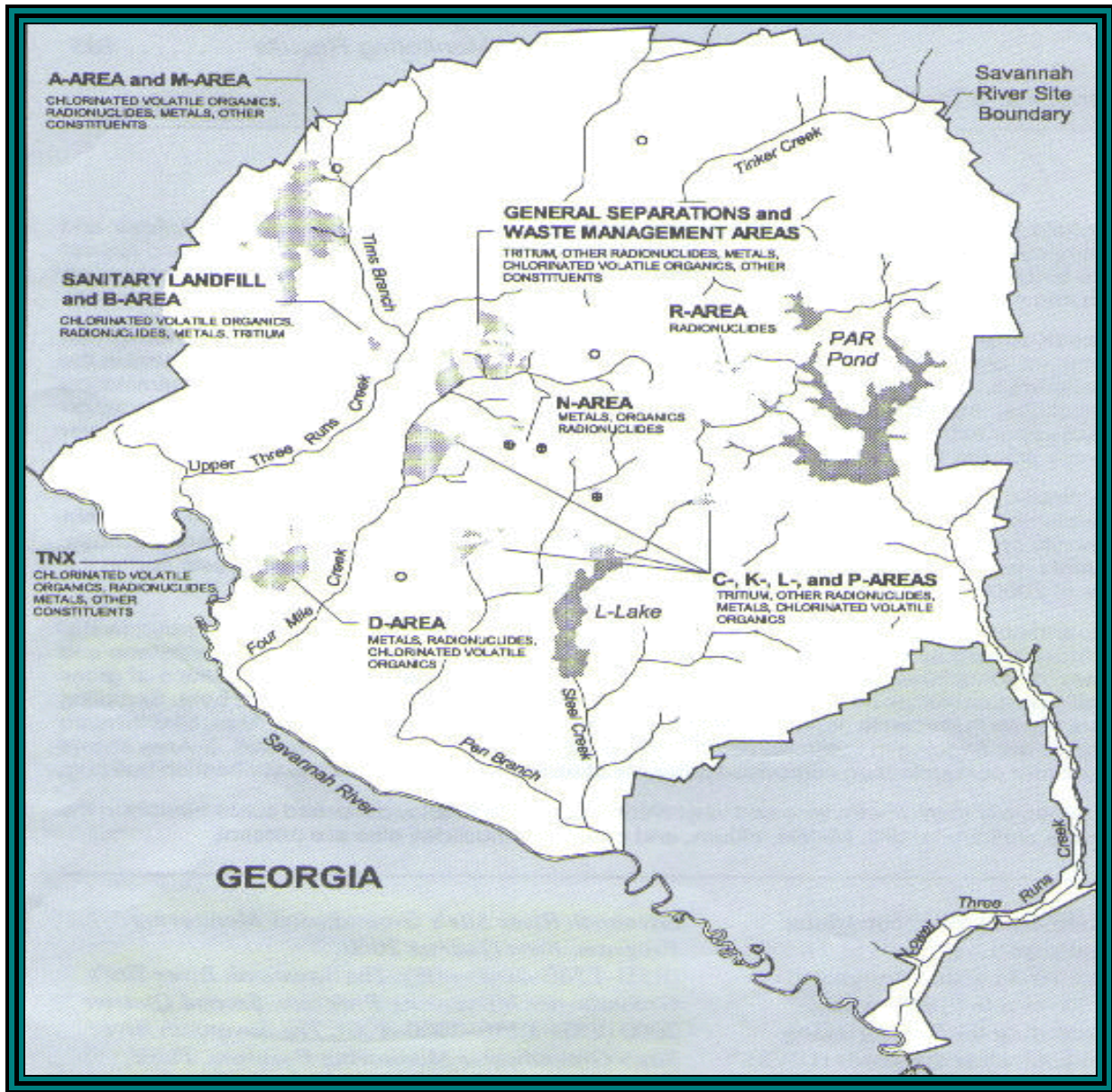


Figure 2: SRS Map showing major areas of contamination. (Source: SRS Environmental Report for 2000, Summary)

On November 21, 1989, EPA placed the SRS on the Superfund National Priorities List (NPL). CERCLA requires that each federal agency with a facility on the NPL enter into an interagency agreement with EPA for the expeditious completion of all necessary remedial action at the facility. The SRS FFA between EPA, DOE and the South Carolina Department of Health and Environmental Control (the State) became effective on August 16, 1993, although CERCLA cleanup activities under the FFA had already been initiated by DOE on some sites in 1992. The SRS FFA actually covers numerous operable units (generally separate sites)<sup>1</sup>, of which 84 have been designated by EPA as CERCLA operable units. The FFA generally

<sup>1</sup> For purposes of this report, the terms “site” and “operable unit” are used interchangeably and refer to specific areas of contamination at SRS that have been listed for cleanup actions.

provides the statutory, regulatory, and policy requirements for remedial cleanups; the roles and responsibilities of each party to the agreement; the scope of work to be accomplished; and the milestones to be met. The FFA also represents a compliance agreement between EPA and the DOE with enforceable milestones. Penalties can be assessed against DOE for noncompliance with FFA requirements and enforceable milestones.

### ***EPA Oversight***

The Federal Facilities Branch within EPA Region 4's Waste Management Division is principally responsible for oversight and implementation of the SRS FFA. The Federal Facilities Restoration and Reuse Office within EPA's Office of Solid Waste and Emergency Response (OSWER) is responsible for EPA's federal facility oversight policies and provides support to regional oversight programs.

## **Scope and Methodology**

This evaluation was performed in accordance with the *Government Auditing Standards*, issued by the Comptroller General of the United States. We assessed management controls and compliance with applicable laws and regulations. Control weaknesses and recommended corrective actions are identified in this report. We did not identify any instances of noncompliance with statutory or regulatory requirements.

The evaluation fieldwork was primarily performed at Region 4 in Atlanta, Georgia; DOE SRS near Aiken, South Carolina; and the South Carolina Department of Health and Environmental Control in Columbia, South Carolina. The evaluation included a review of the FFA and related CERCLA remedial activities from June 1992 through December 2001. Although the FFA was not effective until August 1993, SRS initiated three remedial actions in June 1992 under the proposed FFA.

See Appendix 1 for further details concerning the audit scope and methodology.

## **Prior Coverage**

This is the OIG's first evaluation of Region 4's oversight of DOE cleanup actions at the SRS. Similar evaluations have been conducted at DOE's facilities in Richland, Washington, and Oak Ridge, Tennessee. The EPA OIG, the DOE OIG and program management, and the General Accounting Office have performed numerous reviews directly or indirectly related to federal facility hazardous waste cleanups. See Appendix 2 for a list of reports directly or indirectly related to this evaluation.

## **Chapter 2**

### **FFA Requirements Consistent With CERCLA**

FFA cleanup requirements were consistent with CERCLA and 40 CFR Part 300 (the NCP). The SRS FFA did not provide any exceptions to CERCLA and NCP requirements. In addition, analyses of proposed remedies by Region 4 and the State agency indicated that remedies approved under the FFA generally complied with the NCP and applicable federal and State requirements or needed waivers were obtained. To increase the efficiency and effectiveness of remedial actions and EPA oversight, DOE SRS and Region 4 developed processing protocols for FFA primary documents and established a core team to scope remedial investigations and develop cleanup alternatives and strategies.

#### **CERCLA and NCP Established Requirements**

CERCLA established EPA's hazardous substance release reporting and cleanup program, and the NCP sets forth the process and regulations for conducting Superfund cleanup actions. The NCP provides that a remedy shall be selected based on whether it provides:

- Overall protection of human health and the environment.
- Compliance with Applicable or Relevant and Appropriate Requirements.
- Long-term effectiveness and permanence.
- Reduction of toxicity, mobility, or volume through treatment.
- Implementability (including technical feasibility).
- Cost effectiveness.

#### **SRS Remedial Actions Generally Addressed Containment or Control**

Of the 41 remedial actions approved since the FFA became effective in 1993, 32 represented source control and containment-type remedies. The remaining nine remedies involved excavation and off-site disposal of contaminated media or treatment of groundwater for organic compounds and metals. These remedies generally represented proven cleanup techniques used by EPA and responsible parties on other Superfund sites. Basins generally required dewatering with burial of contaminated sediments and surrounding soil in the basins with a low permeability soil or clay cover. Buried wastes were sometimes grouted or stabilized to further reduce contaminant mobility and add permanence to the remedy. Treatments included soil vapor extraction, air stripping, and burial of hazardous wastes on-site. The cleanup goals/levels for remedial actions were consistent with requirements and the planned use of the land involved. The future



Figure 3: In-situ stabilization (grouting) of K Reactor Seepage Basin (Source: SRS 2001 Annual Performance Report)

use for most of the CERCLA operable units has been restricted to industrial use or designated to remain in federal control for perpetuity. Since many remedial actions required burial of hazardous wastes on-site, the remedies included institutional controls to preclude human and ecological exposure to the contaminants.

SRS currently has 84 CERCLA operable units under the FFA. Of the 41 remedial actions issued since FFA's inception to implement remedies, 13 were interim and 28 were final. Refer to Appendix 3 for list of remedial actions.

## Region 4 and SRS Took Actions to Ensure Compliance

To ensure compliance and reduce revisions to primary decision documents (such as Records of Decision [ROD] and Remedial Investigations/Feasibility Studies), Region 4 and the SRS developed protocols for each document. The protocols ("Environmental Restoration Documents Handbook") were issued in 1999. These protocols helped assure that documents issued by SRS contained all of the information needed to support the cleanup decisions and remedy development and selection. Another objective was to reduce the number of revisions required before the documents were acceptable to all parties for issuance/publication. According to the SRS lead Remedial Project Manager and DOE officials, the protocols substantially reduced revisions to primary documents and provided for more timely issuance of cleanup decisions.

In addition, Region 4 and SRS established a core team process for critical decisions on scoping remedial investigations and developing remedial alternatives.

The core team consists of representatives from Region 4, the State, and SRS. Because the team is extensively involved in the scoping of remedial activities and development of cleanup decisions, draft primary documents generally reflect decisions already agreed upon by the three parties to the FFA. The core team concept may substantially reduce the cost of remedial actions in some cases. For example, the team accelerated completion of the Remedial Investigation/ Feasibility Study for one operable unit by 2 years and developed a cleanup proposal for consolidating excavated contaminated soil and related wastes within the unit. This is expected to save \$5 million over other cleanup alternatives.



Figure 4: SRS dynamic underground stripping plant for removing solvents from groundwater. (Source: SRS 2001 Annual Performance Report.)



Processes and procedures developed by Region 4 and the SRS to ensure the consistency and cost effectiveness of remedial cleanup operations at SRS should be evaluated for possible use in performing oversight at other federal facilities.

## **Conclusion**

The FFA requirements for SRS are consistent with CERCLA. In addition, based on Region 4 documentation and comments by Region 4, DOE, and the State, the remedies for contaminated media at SRS were selected based on realistic expectations that such remedies would meet the requirements of CERCLA and the NCP for the specific media addressed in the remedy. Whether the remedies will ultimately meet remedial goals and objectives and, therefore, provide the protectiveness to human health and the environment as set forth in the applicable RODs can only be determined over the long term. Thus far, five-year reviews of SRS remedial actions have indicated that completed actions continue to meet remedial goals and provide adequate protection to human health and the environment.

## **Recommendation**

We recommend that the Region 4 Administrator:

- 2-1. Evaluate potential benefits of using the SRS primary document protocols and core team process for oversight of cleanups at other federal facilities.

## **Agency Comments and OIG Evaluation**

Region 4 agreed with the recommendation and indicated that the core team approach had been implemented for Region 4's oversight of the Department of Defense's Base Realignments and Closures and active military bases and facilities. The Region also signed an agreement in June 2002 with DOE and the Tennessee Department of Environment and Conservation that includes, in part, implementation of core team processes at DOE's Oak Ridge Reservation.



# Chapter 3

## Relative Risk to Human Health and Environment Not a Primary Factor in Prioritizing Cleanup Actions

Although the FFA requires that DOE prioritize cleanups based on potential risks to human health and the environment, Region 4 did not ensure that SRS did so. In fact, over 41 percent (51 of 124) of the sites on SRS's 2002 list of operable units that require further cleanup had not been scored as to human health and environmental risks. Also, high risk operable units had not been sufficiently prioritized for cleanup while many low scoring sites received attention and resources. Further, all stakeholders were not sufficiently involved in the methodology DOE used to prioritize cleanups and how this methodology related to the risk-based approach in the FFA. The FFA, interagency policy, and DOE management note that reduction of relative risk to human health and environment should be the primary factor in establishing cleanup priorities. However, SRS placed an emphasis on internal program goals rather than consistently addressing high risk sites. DOE's recent review of its Environmental Management Program acknowledged that the cleanup program, as a whole, lacked a comprehensive, coherent, technically supported process for prioritizing and reducing risk to workers, the public, and the environment<sup>2</sup>. In addition, a recent General Accounting Office report indicated that SRS's process for allocating resources to cleanups did not adequately allow for the consideration of serious risks to human health and the environment<sup>3</sup>.

### Policies and Agreements Emphasize Risk as Basis for Cleanup Priority

EPA's policy on establishing cleanup priorities at federal facilities is in Chapter 5, Funding and Priority Setting, Final Report of the Federal Facilities Environmental Restoration Dialogue Committee: *Consensus Principles and Recommendations for Improving Federal Facility Cleanup*, issued April 1996. This policy provides that while factors other than risk warrant consideration in setting cleanup priorities, risk to human health and the environment is an all important factor that should be a primary consideration in setting environmental cleanup priorities at federal facilities. The policy further emphasizes that the priority setting should

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<sup>2</sup> DOE Report, *A Review of the Environmental Management Program* (a.k.a. Top to Bottom Review), issued February 4, 2002.

<sup>3</sup> General Accounting Office report, *Waste Cleanup, Status and Implications of DOE's Compliance Agreements*, GAO-02-567, issued May 2002.

involve all stakeholders – including the general public and local communities – and the process used to establish priorities should be transparent to all interested parties.

The SRS FFA provides requirements for scoping work priorities in Section XIX, and Appendix F (Prioritization of Environmental Restoration Tasks). These procedures are to be used to prioritize sites. The DOE each year is to submit a listing of the sites, according to priority, to EPA and the South Carolina Department of Health and Environmental Control, for review and comment.

EPA's Hazard Ranking System (30 CFR Part 300, Appendix A) is the principal mechanism for ranking potential adverse effects on the environment and relative potential human health risks attributable to CERCLA sites. The comprehensive Preliminary Ranking Evaluation Score ("PREScore") computer program, based on the Hazard Ranking System criteria, provides a ranking system for work activities at each site. The SRS FFA, Section XIX, Appendix F, indicates the PREScore program is to be used to rank SRS work activities.

## **Cleanup Priority Based On DOE Internal Goals**

Based on our review of SRS cleanup actions, work plans, and related documentation, it was not clear that relative risk was the primary factor in prioritizing sites for remediation. Further, there was no clear, consistent SRS methodology for prioritizing remedial cleanups.

DOE managers we spoke to acknowledged that PREScore was not the primary factor in prioritizing site cleanups in annual and future work plans. Rather, officials indicated internal goals included completed cleanups per year which required DOE to focus resources on lower risk sites to meet these goals. DOE managers indicated that annual and future work plans were negotiated between DOE, EPA, and the State. However, DOE staff said they decide what projects and related sites are listed in individual work plans, and the negotiations with EPA and the State normally only involve the number of each type of cleanup action in the plans and the milestone dates.

We found that from fiscal 1996 to 2002, SRS discontinued scoring and ranking CERCLA operable units listed in the FAA's Appendix C. The fiscal 1996 Appendix contained 86 operable units with 79 units sorted on a PREScore value. While the fiscal 2002 Appendix listed 124 operable units, 73 (59 percent) had a PREScore value and 51 (41 percent) did not. Although this list did not comply with FFA requirements, Region 4 approved the fiscal 2002 Appendix C on January 10, 2002. The OIG requested an explanation from DOE as to why all operable units had not been evaluated using PREScore, but DOE did not provide an explanation.

## Low Risk Sites Received Attention and Resources

Use of PREScore to prioritize cleanups should have focused DOE's effort and resources on sites with the highest potential risks. EPA defines NPL sites or high risk sites as sites with a PREScore that exceeds 28.5. However, we found that many low risk sites (sites with a score of less than 28.5) received attention and resources. The 41 remedial actions approved since FFA inception were for sites with scores as shown in Table 3-1 below.

**Table 3-1: Range of PREScore Values for Sites With Remedial Actions**

PREScore Value	No. of Remedial Actions
No Score	5
Less than 10	17
Between 10 and 20	5
Between 20 and 28.5	6
In excess of 28.5	8
Total	41

Further, over 51.5 percent of estimated remedy construction costs have been for sites with scores less than 28.5. Of the \$58.2 million in estimated construction costs (where available) reflected in remedial action decisions, \$28.3 million was estimated as remedy construction costs for NPL caliber sites (scores in excess of 28.5) versus over \$30 million for the remaining, less contaminated sites.

Of the 41 remedial actions mentioned above, 20 (49 percent) indicated that remedial investigations found no significant contamination existed and, therefore, no substantial cleanup actions were required. Of these 20 remedial actions, nearly all (15) required no further action while the remaining 5 only required institutional controls, natural attenuation, and/or groundwater monitoring. These 20 remedial actions involved 26 sites that were generally scored as low risk by PREScore (a score less than 28.5). As stated above, a site with a PREScore value in excess of 28.5 represents an NPL-caliber site and thus high risk. However, of the 26 sites, only 1 exceeded 28.5, as shown in Table 3-2 below:

**Table 3-2: Range of PREScore Values  
for 26 Low Risk Sites**

PREScore Value	No. of SRS Sites
Zero (0)	3
Less than 10	9
Between 10 and 21	10
No score available	3
In excess of 28.5	1
Total	26

## Highly Contaminated Sites Continued to Release Hazardous Substances

While low risk sites were addressed, highly contaminated sites continued to release hazardous substances into SRS groundwater and watersheds. The SRS F and H areas and nearby burial grounds included some of the most contaminated SRS operable units, per PREScore. These areas are adjacent to each other near the center of the SRS, and contain three of the highest risk CERCLA operable units. However, only one of these three units (Old Radioactive Waste Burial Ground - ORWBG) had received a remedial action as of December 2001, and this action was only an interim soil cover over part of the unit. At these three sites, the soil and groundwater are highly contaminated with radionuclides (especially tritium and cesium), nitrates, and metals. Tritium and cesium are considered carcinogens, mutagens, and teratogens, and have been linked to developmental and reproductive problems and genetic abnormalities<sup>4</sup>. Table 3-3 below shows the activity and status of these operable units as of December 2001:

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<sup>4</sup> EPA Public Health Statement, Essential Information about Certain Hazardous Substances in Savannah River Fish, dated May 1997. Information in this publication was compiled from documents from the National Institutes of Health and the Agency for Toxic Substances and Disease Registry.

**Table 3-3: Cleanup Activity and Status for Highest Risk Operable Units**

Operable Unit	Remedial Investigation Field Start	Remedial Investigation Complete	Feasibility Study Complete	RODs	Remedial Actions Initiated/ Completed
ORWBG	1995	Workplan Approved 2001, In-process	In-process	03/01/96 09/14/01	Interim/Partial Soil Cover
H-Area Retention Basin	06/30/94	March 2001	In-process	None	None
H-Area Tank Farm Groundwater	08/08/93	Workplan Approved 2001, In-process	NA	None	None

According to a 1994 DOE report, SRS had experienced the highest tritium emissions of any DOE facility. Streams and related watersheds down gradient of the H-Area and burial ground sites, shown in chart above, have been adversely impacted by contaminant migration from these sites, especially tritium. However, remedial actions through 2000 showed little impact on decreasing tritium.

Ground and surface water monitoring data for the ORWBG and H-Area indicated that migration of contaminants from these units had increased or stabilized rather than decreased. The number of monitoring wells with contaminants in excess of EPA's maximum contaminant levels (MCL) increased between 1998 and 2000. The percentage of monitoring well results above EPA MCLs for the H and F Areas and burial grounds are shown in Table 3-4 below<sup>5</sup>:

**Table 3-4: H and F Areas and Burial Grounds - Percent of Monitoring Wells Above EPA's Maximum Contaminant Level**

Contaminant of Concern	% Monitoring Wells Above Maximum Contaminant Level		
	1998	1999	2000
Metals	17%	14%	21%
Tritium	51%	54%	63%
Other Radionuclides	40%	36%	46%
Sulfates/Nitrates	20%	22%	35%

Not only did the number of wells exceeding MCLs increase, but the amount of

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<sup>5</sup> We requested monitoring well data for the ORWBG and the H-Area operable units for the period 1995-2001. However, the data DOE provided did not comply with our request and could not be used to determine overall contamination trends in these units.



Figure 5: SRS monitoring well.  
(Source: SRS Environmental  
Report for 2000, Summary)

contamination within the wells increased. For example, in 1996, the average tritium concentration in ORWBG wells was about 11 million picocuries per liter (pCi/L) with the highest annual detected concentration being 160 million pCi/L. These concentrations were 535 and 8,000 times greater than EPA's 20,000 pCi/L MCL for tritium, respectively. In 2000, the average tritium concentration was found to be almost 15 million pCi/L (739 times greater than MCL), and the highest detected concentration was 272 million pCi/L (13,600 times MCL). This increase in tritium concentrations indicates that the ORWBG interim, temporary soil cover may not be adequate to reduce the contaminant migration from the ORWBG soil to the groundwater as originally intended. In a May 2001 meeting between SRS, Region 4, and the State, SRS staff stated that tritium and gross alpha and beta concentrations had increased in the

burial ground groundwater.

## Not All Stakeholders Fully Involved in Prioritization Process

EPA's policy for prioritizing federal facility cleanup work, as stated in Chapter 5, *Consensus Principles and Recommendations for Improving Federal Facility Cleanup*, emphasizes that priority setting for cleanup actions should involve all stakeholders. The policy recommends a priority setting process whereby stakeholders are informed of and participate in important decisions that will affect the scope and schedules of work to be performed at federal facilities. Further, priority setting and funding allocations must be transparent and done in a fair manner that stakeholders perceive as legitimate. The policy defines stakeholders as: (1) the general public with emphasis on communities of color, indigenous peoples, and low-income communities; (2) regulators, and (3) state, local, and tribal governments.

According to DOE, the SRS site rankings, work plans and the methods used to select remedial activities included in the plans were not published for information and comment by all stakeholders, including the general public and local communities and governments, as recommended in the policy. Each year Region 4 and the State negotiate with DOE on the remedial activities included in annual and future years' work plans. Therefore, EPA and the State are aware of the work plans and the activities included but there was no evidence that Region 4 and the State were aware of the process or methodology SRS used to initially prioritize and select projects to be included in these plans. Region 4 indicated that SRS does provide the SRS Citizen Advisory Board with their goals/priorities and work plans. However, the information provided to the Board does not include how DOE's priorities relate to site risks and the FFA work prioritization process.



## Recent Reviews Acknowledged That Risk Reduction Was Not A Priority

DOE's recent review of its Environmental Management Program acknowledged that actual reduction of risk to workers, the public, and the environment had not been the primary focus of DOE's cleanup program. The report, "A Review of the Environmental Management Program," issued February 4, 2002, stated that cleanups needed to be better planned and prioritized to achieve the greatest risk reduction. The report further states that more than \$60 billion had been spent since the cleanup program's 1989 inception without a corresponding reduction in actual risk. In this regard, the report points out that DOE's current work planning processes and related interpretations of laws, regulations, and cleanup agreements:

*...have created obstacles to achieving cleanup that reduces risk to human health and the environment as quickly as possible. Instead, they [processes and interpretations] have resulted in resources being diverted to low-risk activities* [DOE Review of the Environmental Management Program, dated February 2002, page ES-2].

The DOE review recommends that DOE's cleanup work be prioritized to achieve the greatest risk reduction at an accelerated rate.

A General Accounting Office report, *Waste Cleanup: Status and Implications of DOE's Compliance Agreements*, issued May 2002, included a review of SRS's process for prioritizing and allocating resources for site cleanups. The report indicated that SRS developed a decision model for allocating cleanup dollars based on efficiency with little emphasis on risk. According to the report, outside reviewers assessing the model concluded that "the model was so strongly weighted to efficiency that it was unlikely that serious risks to human health and the environment could alter the sequencing of work." DOE officials told the General Accounting Office that the model was revised so that serious risks receive more priority.

## Region 4 Did Not Evaluate DOE Compliance with FFA Prioritization Process

Under FFA requirements, DOE is required annually to provide EPA and the State with a revised FFA Appendix C, and work plans for the current fiscal year (Appendix D) and three future years (Appendix E). EPA and the State are to review and comment on the revised Appendix C within 120 days of receipt, and on work plans no later than December 31 of each fiscal year. By December 1 of each fiscal year, an FFA progress report for the previous fiscal year is required. This report generally describes the status of each operable unit, remedial and removal

activities completed, and cleanup activities planned for the current fiscal year.

Region 4 Federal Facilities Branch staff indicated they did not evaluate SRS progress reports and work plans, along with Appendix C priority listings of operable units, to assess DOE compliance with the FFA's work prioritization requirements. The staff indicated that they reviewed work plans to ensure that a consistent level of work was maintained from year to year, and that there was a balance of different types of cleanup activities in the CERCLA pipeline, i.e., balance between number of Remedial Investigations/Feasibility Studies, RODs, and remedial actions planned. The Region 4 SRS Remedial Project Manager believed that SRS had, to some degree, addressed most of the worst sites, but Region 4 officials had not really looked at SRS's work prioritization for a number of years. The emphasis in SRS work plans on operable units that were highly ranked by PREScore was not evaluated. Region 4 staff realized that DOE may have addressed some low priority operable units to get "bean counts" for DOE performance measurement purposes. The Remedial Project Manager stated that targeting resources on sites of lesser risk allowed DOE's remedial program to show progress.

## **Conclusion**

Without greater Region 4 oversight and an SRS work prioritization process that emphasizes reduction of the greatest risks to human health and the environment, severely contaminated SRS sites could continue to release toxic and radioactive substances into the environment, groundwater, and surface waters. In addition, the process used to establish cleanup priorities should (1) involve all stakeholders, (2) be clear to the public and other stakeholders, and (3) provide assurance that the greatest threats to human health and the environment will be timely addressed.

## **Recommendations**

We recommend that the Region 4 Administrator:

- 3-1. Require that DOE SRS develop a work planning process that ranks and schedules sites for cleanup based on a priority system that is clear and easily understood by all stakeholders and provides the greatest risk reduction.
- 3-2. While PREScore continues to be the process for prioritizing cleanup actions, evaluate the use of PREScore by DOE SRS staff to ensure that sites have been properly ranked as to relative risk to human health and the environment, and require that the rankings be considered in annual and future work plans.

- 3-3. Establish Regional oversight procedures that ensure SRS sites are ranked and cleanup projects are planned in compliance with the agreed upon work prioritization methodology.
- 3-4. Require DOE to obtain input from all stakeholders on the scheduling of sites for cleanups, the methodology used for prioritizing cleanup activities, and how the methodology relates to site risks.

## Agency Comments and OIG Evaluation

Region 4 generally agreed with the recommendations. Region 4 agreed to (1) work with DOE and the State to clarify SRS's existing work planning process to the extent possible, (2) evaluate SRS use of PREScore to ensure that sites are properly ranked, (3) require SRS to consider these rankings in annual and future work plans, and (4) review and update Region 4 oversight procedures to ensure that sites are ranked and cleanups are planned in compliance with the agreed upon prioritization methodology.

In terms of obtaining input from all stakeholders, Region 4 said that it will discuss with DOE and the State the possibility for improvement in this area. Region 4 indicated that DOE had established a stakeholder participation program at SRS based on the *April 1996 Final Report of the Federal Facilities Environmental Restoration Dialogue Committee* and had worked diligently to inform stakeholders of the methodology used to prioritize site cleanups. This report specifies that all stakeholders, including local communities, local governments, and the general public should be involved in establishing federal facility cleanup priorities. However, we were not provided information, by Region 4 or DOE SRS, that shows all stakeholders were included. Rather, DOE SRS informed us that work plans and cleanup prioritization methodologies were not submitted to the general public or local governments and communities for information and comment. Therefore, DOE needs to improve its outreach to involve all stakeholders as specified in the subject report.

The OIG requires information on specific actions taken or planned in response to the recommendations, and milestone dates for completion of planned actions, in order to resolve the recommendations presented in this chapter.



# Chapter 4

## Insufficient Region 4 Oversight Causing Delays and Potential Impacts to Human Health and the Environment

Remedial actions at highly contaminated SRS sites have been delayed due to late Region 4 responses to DOE primary cleanup decision documents. Region 4 comments on primary documents were overdue by as much as a year. Further, late EPA responses and non-attendance at meetings have delayed cleanup milestones by 8 months or more. In some cases, DOE officials said they proceeded with cleanup actions without Region 4 approval, contrary to FFA requirements, to avoid delays. Region 4 staffing was reduced in 1996 but an increasing workload in 1999 and subsequent years resulted in escalating problems with timely review of SRS cleanup actions. Federal Facility Branch workload analyses indicated that the SRS FFA team has been understaffed by a minimum of two full-time equivalents (FTEs). However, Region 4 management had not allocated the level of staffing reflected in these workload analyses. For 2002, DOE estimated that late Region 4 responses will cost DOE approximately \$2.7 million. These delays may result in continued contaminant releases to the environment and associated risks to human health.

### **EPA's Review Period for Primary Documents Established by FFA**

The SRS FFA established DOE's responsibility for issuing primary and secondary documents to EPA and the State (Section XXII). Primary documents include major cleanup decision documents for which milestones have been established in the FFA annual work plans. These documents include Remedial Investigation Work Plans and Reports, Baseline Risk Assessments, Feasibility Studies, Statements of Basis/Proposed Plans, RODs, Remedial Design Work Plans and Reports, Remedial Action Work Plans, and Post-Construction/Final Remediation Reports. The period of review for EPA and the State on primary documents is generally established in Appendix I of the FFA, and ranges from 45 to 120 days.

### **Consistently Late Responses and Staff Unavailable for Meetings**

Both DOE and the State agency staff told us that, since 1999, Region 4 has been consistently late in responding to primary cleanup documents and, on occasion, have been unavailable for meetings on important cleanup decisions. DOE Summary of Extension Requests for October 2000 through February 4, 2002, showed that milestones for completion of decisions on five RODs, four Statements of Basis/Proposed Plans, and two Remedial Investigation reports were delayed due

to “Delay in receipt of US EPA comments,” or “US EPA unable to participate in meetings.” SRS provided a status report that showed that, as of January 21, 2002, Region 4 was late in responding on 11 primary remedial cleanup documents, which represent 85 percent of the documents included in the January 21 status report. Region 4 comments and/or approval on SRS primary documents were delayed from up to 12 months to just 2 days after the original due date. Details on the 11 primary documents and resulting delays are shown in Table 4-1 below.

**Table 4-1: Late Region 4 Responses to SRS Primary Documents**

Operable Unit/ FFA Primary Document	Original Due Date	Date Received	Total Delay
TNX Statement of Basis/Proposed Plan (SB/PP)	05/11/01	05/10/02	364 days
TNX Remedial Investigation/Feasibility Study	07/06/01	05/10/02	308 days
A-Area Miscellaneous Rubble Pile ROD	12/28/01	Not Rec'd	184 days as of 06/30/02
TNX Outfall Delta Remedial Investigation/Baseline Risk Assessment	11/23/01	05/10/02	168 days
TNX Area Groundwater ROD Explanation of Significant Difference	12/10/01	05/10/02	151 days
Old F-Area Seepage Basin Groundwater Corrective Action Plan	11/27/01	04/04/02	128 days
Ford Building Seepage Basin ROD	09/19/01	12/16/01	88 days
Fourmile Branch Remedial Investigation Work Plan	01/04/02	03/13/02	68 days
L-Area Reactor Seepage Basin ROD Technical Evaluation Report	01/12/02	02/14/02	33 days
Central Shops Burning Rubble Pit SB/PP	01/20/02	01/23/01	3 days
P-Area Burning/Rubble Pit SB/PP	01/20/02	01/22/02	2 days

## Potential Environmental and Human Health Impact of Untimely Region 4 Oversight

Delays in cleaning up hazardous wastes caused by untimely Region 4 action may result in continued contaminant releases to the environment and associated risks to human health. Following are two cases in which material impacts on DOE implementation schedules may have compounded existing risks to human health and the environment.

- ❑ Late EPA responses to three decision documents related to the TNX operable unit resulted in a possible 8-month delay in issuance of the ROD. The original ROD milestone was March 20, 2002, but is expected to be moved to late November 2002 due to Region 4's inability to respond timely to ROD

supporting documents. A portion of this TNX operable unit represented the sixth highest of 73 ranked CERCLA units in 2002 based on relative risk to human health and the environment. The TNX ROD will include remediation of groundwater highly contaminated with chlorinated volatile organic compounds, which are migrating to the nearby swamp and surface water and could eventually enter the Savannah River one-fourth a mile away.

- Because of an overdue response from Region 4, DOE also indicated that the ROD milestone for the A-Area Miscellaneous Rubble Pile operable unit had been moved from February 25, 2002, to June 20, 2002, a 4-month delay. DOE further indicated that they expect further delays in issuing this ROD due to the need for specific language from Region 4 related to institutional controls included as part of the proposed remedy. The ROD addresses significant human health threats in the soil due to contamination from polycyclic aromatic hydrocarbons, polychlorinated biphenyl, arsenic, lead, and volatile organic compounds.

DOE officials told us that the constant rescheduling of meetings and time extensions for comments/approvals from Region 4 consume a significant amount of DOE's resources. For 2002 alone, DOE estimated that Region 4's overdue responses will cost DOE approximately 2,793 days of lost time, or approximately \$2.7 million in resources. A DOE analysis showed that, for 2002, Region 4 had been 6 to 168 days late on 90 percent (42) of primary documents.

To avoid delays, DOE officials indicated that, in at least two cases, DOE proceeded with cleanup activities without EPA comments and approvals.

## **Inadequate Regional Staff Precluded Timely EPA Oversight**

Both the SRS staff and the State, as well as DOE, indicated Region 4 is understaffed in the DOE oversight section. The Region 4 lead Remedial Project Manager for SRS said that, with current staff, he could not effectively handle the volume of documents received from SRS for review, comment, and/or approval. There are currently three Remedial Project Managers assigned to the SRS. Two work full time and the third has limited availability. Workload analyses prepared by the Region 4 Federal Facilities Branch in 1999 and 2002 noted that minimum staffing required five full-time equivalents. The SRS oversight team was reduced from four to three Remedial Project Managers in 1996 but workload increases due to the maturing of SRS's cleanup program and implementation of the core team process has elevated the full-time equivalent positions needed for effective SRS oversight by Region 4.

For SRS, Region 4 currently oversees cleanups at 84 CERCLA operable units and 25 RCRA waste management units. About 250 sites remain to be evaluated for

future characterization and cleanup actions. In addition, Region 4 oversees the closure of 51 SRS high level waste tanks. An average of about 30 to 40 highly technical primary documents, ranging up to several hundred pages, are received by Region 4 from SRS each year. For each of these primary documents, there are multiple supporting, secondary documents that Region 4 must review, as well as numerous periodic reports on SRS activities. Also, the Remedial Project Managers attend up to 30 plus core team and management meetings that also include SRS staff and the State. The Region 4 Federal Facilities Branch Chief stated that he had requested additional staff (currently, two staff positions), but Regional senior management had told him that the positions were not available.

We noted that, in one case, Region 4 worked around the staffing problem by assigning an SRS primary document to a Region 4 employee in the Region's Science and Ecosystem Support Division. This person was able to quickly respond to the document and lessen the impact on DOE's cleanup implementation schedules.

## **Conclusion**

Late Region 4 responses and/or approvals for primary cleanup decision documents unnecessarily delay the containment and control of hazardous substance releases and the cleanup of highly contaminated sites. These delays may result in continued contaminant releases to the environment and associated risks to human health.

## **Recommendations**

We recommend that the Region 4 Administrator:

- 4-1. Evaluate the workload analyses prepared for the SRS and other DOE FFAs to determine the number of Remedial Project Managers needed to effectively oversee these agreements, and obtain and/or allocate resources necessary to properly staff and support the oversight of these FFAs.
- 4-2. If resources cannot be provided to ensure effective oversight, evaluate whether the deficient staffing and related oversight should be reported as a material management weakness in the annual Federal Managers' Financial Integrity Act report.

## **Agency Comments and OIG Evaluation**

Region 4 indicated that, in consultation with Federal Facilities Restoration and Reuse Office (FFRRO), the Region's Federal Facilities Branch had evaluated the current and planned workload for oversight of SRS and other Region 4 federal facilities. Based on this evaluation, FFRRO determined that the Branch was six



FTEs below the number needed for effective oversight of DOE facilities in the Region. Region 4 stated that the Branch had already deferred oversight of 11 major Department of Defense (DOD) facilities to appropriate states and reassigned the staff from DOD to DOE facility oversight to the maximum extent possible. Region 4 indicated that the Region's Waste Management Division will work diligently to obtain, reallocate, or reassign staff, where possible, to properly staff and support the Region's oversight responsibilities. If adequate resources cannot be allocated to the Federal Facilities Branch, the Region, in coordination with EPA national program offices, will evaluate whether the deficient staffing and related oversight should be reported as a material management weakness.

Region 4's analysis of staffing shortages included staffing needed for oversight of all DOE facilities. In response to the final report, the Region needs to provide specific actions taken or planned to correct oversight staffing for the SRS FFA as detailed in this chapter. Also, milestones for completion of planned actions will be needed for resolution of the recommendations.



## **Chapter 5**

### **Improved Procedures and FFA Modifications Needed for Effective Oversight of Five-Year Reviews and Site Evaluations**

Region 4 needs to improve controls over reviews of DOE five-year review reports. Region 4 did not properly review and comment on the DOE 1997 report. Both the 1997 report and draft 2002 five-year report did not adequately address all remedial actions subject to the five-year review process. As a result, the five-year review reports did not reflect the continued protectiveness and compliance of these remedies with Applicable, Relevant, and Appropriate Requirements as required by CERCLA and EPA guidance.

In addition, the FFA needs to be modified to permit more effective EPA oversight of five-year reviews and site evaluations. The FFA does not reflect current EPA requirements for five-year reviews, including the requirement for EPA review and approval of DOE's five-year review reports as reflected in EPA guidance, dated June 2001. The FFA also does not provide a process for resolving inadequate SRS site evaluations. EPA has encountered serious deficiencies in SRS sample data validation procedures for site evaluations but site evaluations are not subject to dispute resolution and enforcement under the FFA. Site evaluations have remained unresolved for years. Inadequate site evaluations could result in threats to human health and the environment not being properly identified and addressed by appropriate remedial actions.

#### **Region 4 Oversight of Five-Year Reviews Needs Improvement**

Region 4 did not formally review and provide comments to DOE on the last official SRS five-year review of remedial actions, issued in 1997, to ensure that the review provided adequate assurance that remedial actions remained protective of human health and the environment. These reviews were considered secondary documents under the FFA which only required Region 4 review and comment if appropriate. Consequently, Region 4 provided no formal comments, even though EPA guidance required Region 4's review and approval. On the other hand, the draft 2002 five-year review report for SRS adequately addressed protectiveness issues, but did not include at least five remedies that should have been subject to a five-year review. The problems with both the 1997 and 2002 review reports occurred because SRS believed that remedies that were also RCRA corrective actions did not require a five-year review, but this was not the case.

## **CERCLA and NCP Require Five-Year Reviews**

CERCLA, as amended by the 1986 Superfund Amendment and Reauthorization Act (SARA), and the NCP require that five-year reviews be performed for any remedial action that results in any hazardous substance, pollutants, or contaminants remaining at a site above levels that allow for unlimited use and unrestricted exposure. These are referred to as statutory reviews. EPA guidance also requires policy reviews for any pre-SARA remedial actions that leave waste on-site at a level that does not permit unlimited use or exposure and any remedial actions that will take more than five years to obtain remedial goals of unlimited use and exposure at the site.

OSWER five-year review guidance, in effect since 1991, requires that long-term response actions that will take more than five years to complete will be subject to a five-year review by policy. In 1994, OSWER added the requirement that five-year reviews performed by other federal agencies required EPA's review and approval. OSWER Directive 9355.7-02, dated May 23, 1991, stated performance of ongoing or interim remedies expected to take more than five years to accomplish should be subject to five-year policy reviews. Several ongoing interim remedial actions at SRS are projected to continue for up to 30 years. Five-year reviews should determine whether such long-term remedies are performing as intended, interim remediation goals are being met, and human health and the environment are protected. OSWER Directive 9355.7-02A, dated July 26, 1994, provided that other federal agencies could perform five-year reviews of their remedial actions, but EPA should review it and concur or non-concur. Further OSWER Directive 9355.7-03A, dated December 21, 1995, stated that the most important determination from a five-year review is whether the remedy remains protective of human health and the environment. Five-year reviews should fully inform Congress and the public as to the compliance and protectiveness of remedial actions.

In June 2001, OSWER issued Directive 9355.7-03B-P, titled *Comprehensive Five-Year Review Guidance*, which superseded all prior OSWER directives on five-year reviews. This Directive consolidated prior five-year review requirements, as cited above, into one policy document.

## **Five-Year Review Reports Not Consistent With CERCLA and EPA Requirements**

Only 15 of 23 remedial actions in SRS's 1997 five-year review report required a five-year review under CERCLA and EPA guidance. However, for one third of these actions (i.e., five), DOE did not answer the questions as to the current and future protectiveness of the remedies or areas of noncompliance. Rather, DOE noted, "This section is covered by SRS RCRA." In other words, DOE believed

that CERCLA remedies that were also RCRA corrective actions did not require a five-year review. However, the remedies reviewed in the 1997 report were subject to CERCLA requirements because they had been issued as RODs.<sup>6</sup> In addition, DOE's proposed 2002 five-year review did not include five remedies, that should have been reviewed. Inadequate five-year reviews and omission of remedial actions from the five-year review process does not provide assurance to Congress and the public as to the continued protectiveness of such actions.

## **FFA Needs Modifications to Improve Region 4 Oversight**

The SRS FFA needs modifications related to requirements for remedial action five-year reviews and site evaluations to improve Region 4 oversight. Specifically:

- ❑ The FFA has not been modified to reflect 1994 changes in EPA five-year review guidance, which permitted federal facilities to perform five-year reviews with EPA review and concurrence/nonconcurrence<sup>7</sup>. The FFA currently provides that EPA and the State will perform the five-year reviews of SRS remedial actions. However, DOE performs those reviews. The FFA contains no provision for Region 4 review and approval of five-year reviews, as currently required by EPA guidance.
- ❑ Although site evaluations are primary decision documents for continuing sites into the Remedial Investigation/Feasibility Study phase, the SRS FFA currently lists site evaluations as secondary documents. Such documents are only subject to review and comment by Region 4, and not the FFA dispute resolution and enforcement provisions. Region 4 and the State have noted serious problems with the quality of SRS site evaluations. The FFA contains no process for resolving disagreements over site evaluations, and some site evaluations have been in "limbo" for years.

## **Deficiencies in 1997 Five-Year Report Not Identified and Resolved**

EPA guidance for five-year reviews, in effect when the SRS FFA was finalized (OSWER Directive 9355.7-02, dated May 23, 1991), indicated that EPA and/or states were responsible for performing five-year reviews of remedial actions. EPA supplemental guidance (OSWER Directive 9355.7-02A, dated July 26, 1994)

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<sup>6</sup> Two of these five remedies have serious problems and will not, in their current form, meet remedial goals. Groundwater extraction, treatment, and re-injection systems currently have problems in screening metals from the groundwater, and tritiated water in excess of maximum contaminant levels have continued to migrate into watersheds.

<sup>7</sup> In June 2001, the 1994 five-year review requirements were incorporated into EPA's *Comprehensive Five-Year Review Guidance*, OSWER Directive 9355.7-03B-P.

changed the 1991 policy to indicate that, generally, each federal agency would perform five-year reviews of remedial actions implemented at their respective facilities. This policy change was subsequently incorporated into EPA's *Comprehensive Five-Year Review Guidance* (OSWER Directive 9355.7-03B-P) issued in June 2001. Under both the 1994 and current 2001 guidance, EPA is responsible for evaluating the reviews performed by other federal agencies and providing concurrence/nonconcurrence. However, the SRS FFA was not modified to reflect the 1994 change in EPA guidance. As noted previously in this chapter, the SRS DOE 1997 five-year review was issued without EPA comments, and the 2002 SRS five-year review omitted five CERCLA actions that required a five-year review.

## **Problems with SRS Site Evaluations Remain Unresolved**

The Region 4 SRS Remedial Project Manager indicated that at the time the SRS FFA was executed, EPA was more focused on cleaning up sites where there was known contamination, whereas sites where there was no information as to releases or potential releases of contaminants were considered secondary. However, since that time Region 4 has realized that sites on the SRS site evaluation list could represent threats to human health and the environment and need to be properly addressed.

Site evaluations identify and screen newly discovered or existing potentially contaminated areas and determine whether there is a threat to human health and the environment that warrants further action. The State has the lead for oversight of SRS site evaluations. The SRS Region 4 remedial project manager said that the State and Region 4 had serious concerns with the quality of SRS site evaluations, including the extent of sampling and testing performed by SRS and quality assurance/quality control standards. For example, only 10 percent of sample data was subject to validation procedures, whereas 100 percent validation is used by SRS during the remedial investigation/ feasibility study phase. Also, unusable sample data was not flagged by SRS during verification/validation, and data validation criteria was not clear.

According to the State, as of February 2002, there were seven SRS site evaluations for which State and EPA concerns had not been resolved, and had been outstanding as far back as 1995. Since the FFA designated site evaluations as secondary documents not subject to the FFA dispute resolution and enforcement process, there was no process for resolving deficient site evaluations.

## Conclusion

CERCLA and EPA guidance requires that five-year reviews of remedial actions verify the continued protectiveness and compliance of remedial actions. Region 4 oversight procedures for DOE five-year reviews did not ensure that the reviews were consistent with CERCLA and EPA guidance. To ensure DOE understands EPA's five-year review guidance, DOE should be informed of EPA requirements for five-year reviews on RCRA sites when selected cleanup actions are issued as RODs. Further, the FFA does not currently reflect EPA requirements for five-year reviews performed by another federal agency, especially EPA review and approval of such reviews. The FFA also designates site evaluations as secondary documents that are not subject to the FFA dispute resolution and enforcement process. As a result, SRS site evaluations, determined to be inadequate by EPA and the State, have remained unresolved. Inadequate SRS site evaluations could result in risks to human health and the environment not being addressed.

## Recommendation

We recommend the Region 4 Administrator:

- 5-1. Require DOE SRS to perform five-year reviews for RCRA corrective actions that are also included in CERCLA RODs.
- 5-2. Establish procedures to ensure that SRS five-year review reports are properly reviewed by appropriate Region 4 personnel and concurrence or nonconcurrence is provided for each report.
- 5-3. Negotiate modifications to the SRS FFA to provide that:
  - DOE perform the five-year reviews of remedial actions at SRS and that EPA will review the DOE five-year review reports and provide concurrence or nonconcurrence as currently required in EPA guidance.
  - Five-year review reports and site evaluations are primary documents subject to the FFA dispute resolution and enforcement procedures.

## Agency Comments and OIG Evaluation

Region 4 agreed with the findings and recommendations presented in this chapter. Region 4 will (1) require that DOE perform five-year reviews of all CERCLA actions including those remedial actions completed as part of RCRA corrective actions; (2) establish procedures to ensure proper review and

concurrence/nonconcurrence with DOE five-year review reports; (3) seek modifications to the FFA regarding EPA review and approval of DOE five-year reviews and the designation of five-year review reports as primary documents; and (4) evaluate, in consultation with FFRRO, the need to also designate site evaluations as primary documents. Region 4 indicated that, in August 2002, they received a draft Site Evaluation Protocol from DOE that will provide consistent methods for conducting site evaluations at SRS and require EPA review and approval of related Site Evaluation Reports.

The OIG requires information on specific actions taken or planned in response to the recommendations and milestones for completion of planned actions will be needed for final resolution of the recommendations presented in this chapter.



## **Chapter 6**

### **DOE Level of Funding May Not Be Sufficient**

A 1995 dispute resolution between EPA and DOE established the current level of SRS remedial funding. However, this funding level may not be sufficient to maintain the current level of cleanup effort or provide expeditious cleanup of CERCLA sites. DOE's recent review of its Environmental Management Program acknowledged that DOE facility cleanups are not being accomplished expeditiously because resources have been focused on low priority activities. Additionally, increasing costs for long-term response actions have and will continue to erode SRS's "consistent level" of remedial funding, and may preclude new starts. Further, Region 4 has not determined the total long-term estimated costs for SRS CERCLA cleanups and whether SRS's current funding level will result in containment and cleanup of hazardous substances within a reasonable time frame.

#### **CERCLA Requires Expeditious Completion of Remedial Actions**

The SRS FFA states that DOE shall take all necessary steps and use its best efforts to obtain timely funding to meet its FFA obligations and milestone dates, including the submission of timely budget requests (Section XXXIX). CERCLA Section 120 further states there should be agreement on the "expeditious" completion of all necessary remedial actions, and that remedial actions at facilities subject to interagency agreements be completed as "expeditiously as practicable." The FFA does not include provisions for Region 4 involvement in SRS's budget formulation and cost estimations for remedial activities. The FFA does provide for Region 4 review and comment on annual and future years milestones, but these work plans do not include individual project cost estimates or operation and maintenance costs for ongoing remedies.

#### **Dispute Resolution Agreement Provided Level of Effort and Funding**

In 1995, Region 4 and SRS negotiated and resolved a formal dispute over DOE funding for FFA cleanups. According to Region 4 staff, DOE SRS in 1995 agreed to budget about \$100 million annually to maintain a consistent level of remedial investigations and related cleanup activities. The \$100 million annual budget reflected the funds needed to accomplish milestones in the annual and future work plans at that time and the level of effort that EPA and State staffs could effectively review. The level of remedial effort and funding was not based on risk reduction or controlling releases of hazardous substances within a reasonable time frame.

## Long-Term Cleanup Costs May Adversely Impact Remedial Budget

At the time of our review, Region 4 was not aware of the project costs for annual or long-term estimated costs of remedial operations. Therefore, Region 4 did not know how long it would take SRS to complete all agreed to remedial actions. According to the 1998 and 2000 DOE *Paths to Closure* reports, the long-term CERCLA cleanup costs at SRS ranged from about \$2 billion to \$4.4 billion, and would be completed in 2038<sup>8</sup>. However, neither report specifically identified CERCLA cost estimates versus other cleanup estimates. Based on the estimates, a \$100 million annual budget would require 20 to 44 years (excluding affects of inflation) to accomplish the current inventory of remedial cleanup activities, and the effects of inflation on a level budget could more than double these years.

Region 4 agreed to a consistent level of effort and related funding without determining the total scope and estimated cost of CERCLA cleanups at the SRS. The consistent level of effort and funding was not based on reduction of risk to human health and the environment within any specified time frame. As a result, Region 4 does not know if the level of effort and funding is adequate.

Because of the increasing number of long-term remedies, such as groundwater extraction, treatment and re-injection systems, with annual recurring costs, SRS may not be able to maintain the same level of effort with the same level of funds. SRS completed many of the short-term, less costly containment and control remedies at CERCLA units early in the FFA process. With rising costs for long-term, more expensive response actions, the availability of funds to maintain the same number of action starts under the current funding level will be difficult. The State indicated that DOE is already cutting the number of remedial investigation starts and RODs in future work plans.

## DOE Review Acknowledged Cleanups Not Being Timely Completed

The DOE's *Review of the Environmental Management Program*, issued February 4, 2002, indicated that DOE facilities had not properly focused program resources on quickly reducing risk to public health and the environment and had expended resources for low risk activities. The report further states: "The reality of an extended cleanup schedule is that eventually it will lead to more prolonged and severe public health and environmental risks." The report recommends that program resources be increased and focused principally on cleanup actions that achieve the greatest risk reduction at an accelerated rate.

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<sup>8</sup> DOE Office of Environmental Management Reports: *Accelerating Cleanup, Paths to Closure*, June 1998, and *Status Report on Paths to Closure*, March 2000.

## Conclusion

Region 4 needs to obtain more information on SRS budgets and projected costs estimates related to long-term response actions and total estimated final cleanup costs. This information is needed to assess the adequacy of the current funding level to maintain the current level of effort and provide expeditious cleanup of CERCLA sites.

## Recommendations

We recommend that the Region 4 Administrator:

- 6-1. Obtain DOE cost estimates for long-term response actions and final CERCLA cleanup at SRS to determine whether the current funding level is sufficient to (1) maintain the current level of remedial cleanup activities and (2) provide adequate protection to human health and the environment within a reasonable time frame. If not, negotiate an adjustment in the funding level with DOE to ensure that, at a minimum, the current annual level of remedial actions are maintained.

## Agency Comments and OIG Evaluation

Region 4's response indicated that the Region receives cost information for long-term response actions and final CERCLA cleanups at SRS on an annual basis. The Region further stated that the FFA requires EPA agreement on DOE's planned actions and budget for the current fiscal year and the subsequent two years.

Information and documentation provided during the evaluation did indicate that Region 4 received SRS annual and future work plans as required by the FFA, but there was no evidence that Region 4 received project cost or specific budget information related to these work plans. On at least two occasions, we asked the Region 4 lead Remedial Project Manager if any project cost information or total cost estimates for cleanup of SRS CERCLA sites were received and we were told they were not. DOE SRS staff told us that they provided EPA with a budget overview on an annual basis. However, this does not show costs by project or by CERCLA units. Also, total long-term cost cleanup estimates that were provided to us by SRS show costs by DOE program category and not by applicable law or regulation such as CERCLA. Therefore, we do not understand how Region 4 could be receiving final CERCLA cleanup costs for SRS.

In addition, we could not find any provision in the SRS FFA that required that SRS submit their budget to EPA or that EPA had to agree with the budget. Section XX of the FFA requires that DOE submit current fiscal year and two future year work plans to EPA for review and approval but does not require that

project cost estimates and related budget requests also be submitted with the work plans. This Section further states that when DOE receives its budget allotment for the current fiscal year, EPA and the State will be notified of the receipt and a revised work plan will be submitted to EPA for review and concurrence within 30 business days of receipt of the budget allotment. However, the work plans we were provided only included a project description and projected milestone dates for project completion. There were no budget requests, project costs, or budget allotment information in these work plans.

Region 4 did not provide any documentation during the evaluation and in the response to the draft report to show that the Region receives project costs or total long-term remedial cost estimates from DOE. To resolve this recommendation, Region 4 needs to provide documentation that it has received current total CERCLA cleanup cost estimates and has made a determination, based on these estimates, that the current DOE funding level for SRS remedial actions will provide expeditious cleanups as required by CERCLA.

## Details on Scope and Methodology

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The SRS evaluation fieldwork was performed by the OIG from September 2001 through July 2002. This evaluation was performed in accordance with the *Government Auditing Standards*, issued by the Comptroller General of the United States.

Preliminary research and fieldwork were conducted at Region 4 headquarters in Atlanta, Georgia, and the DOE SRS and South Carolina Department of Health and Environmental Control offices in Aiken and Columbia, South Carolina. The scope of our review included cleanup actions from June 1992 to December 2001.

We interviewed Region 4 staff, DOE staff and contractors, OSWER officials, and staff from the South Carolina Department of Health and Environmental Control. Titles of principal persons interviewed are shown in footnote below<sup>9</sup>. In addition, we evaluated controls established by the SRS FFA to ensure consistency and compliance with applicable laws, regulations, and policies, and Region 4's implementation of these procedures to ensure that remedial actions initiated by DOE were protective of human health and the environment to the maximum extent practicable.

To assess consistency of the FFA and related remedial actions with CERCLA and the NCP, we:

- Compared FFA provisions to requirements in CERCLA and the NCP.
- Identified all 41 remedial actions approved by Region 4 under the FFA and reviewed decision documents and supporting data for each action.
- Reviewed SRS FFA annual progress reports to ascertain EPA and State review and concurrence with FFA remedial actions.
- Interviewed officials (see titles in footnote 8) regarding: (1) the consistency of FFA requirements with CERCLA and NCP; (2) any Regional guidance pertaining to federal facility cleanups and the consistency of guidance with CERCLA and the NCP; (3) whether SRS-selected remedies met statutory and regulatory requirements; and (4) whether there were concerns with any SRS remedies to date.

To assess the adequacy of Region 4 oversight and implementation of the SRS FFA, we:

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<sup>9</sup> EPA Region 4 officials interviewed included the Federal Facilities Branch Chief, DOE Section Chief, and Lead Remedial Project Manager for SRS. EPA OSWER Official included the FFRRO Coordinator for DOE/Regions 4, 5, 6, 8 and 9. DOE SRS officials included the Assistant Manager of Environment, Science, and Technology; Environmental Restoration Division Director; FFA Project Manager; and various SRS contractor technical support personnel. The State staff interviewed included the FFA Project Coordinator and his immediate staff.

- ❑ Identified and evaluated primary Region 4 controls and procedures for ensuring compliance with FFAs and ultimately CERCLA and the NCP. This included specific controls and procedures related to establishing FFA milestones and ensuring that milestones are met.
- ❑ Reviewed FY 1999 through 2001 Federal Managers' Financial Integrity Act reports for the Region 4 Waste Management Division to identify any material weaknesses related to oversight of federal facility cleanups.
- ❑ Interviewed officials (see titles in footnote 8) to identify potential problems with: (1) Region 4 oversight of SRS cleanup activities; (2) FFA requirements; (3) DOE compliance with major FFA requirements and milestones; and (4) Region 4 guidance related to federal facility cleanups.
- ❑ Listed and evaluated all CERCLA operable units at SRS (84) and cleanup actions approved and initiated at each unit from 1992 through December 2001. This analysis included the media involved, contaminants of concern, milestone dates, selected remedies, remedial action status, five-year review requirements, and institutional controls and monitoring.
- ❑ Evaluated SRS land use control plans and remedial action five-year review reports for compliance with applicable policies and guidance and to determine whether institutional controls were properly implemented, maintained, and monitored. This included a review of RODs issued between 1992 and 2001 to determine that responsibility for implementation and maintenance of institutional controls were properly established in the RODs.
- ❑ Obtained FFA work plans with milestones and compared milestones for completion of cleanup actions to extension requests and/or actual completion dates.
- ❑ Obtained and reviewed environmental and water quality monitoring reports for ground and surface waters within and outside DOE facility boundaries to identify contaminant trends and related risks. This included monitoring reports for groundwater in the highly contaminated areas of SRS.
- ❑ Obtained and reviewed State and Centers for Disease Control public health assessments to identify risks from SRS activities and related environmental contamination.

To evaluate the impact of funding on DOE compliance with the FFA, we:

- ❑ Reviewed FFAs for requirements related to DOE budgets, annual plans, and EPA involvement in DOE planning and budgeting; and evaluated reports, plans, and correspondence related to these FFA requirements.
- ❑ Interviewed Region 4 and DOE SRS staff (see titles in footnote 8) regarding the FFA planning process, EPA's involvement in DOE's budgeting for remedial cleanups, the reasons for any funding shortfalls, and impacts of any funding problems on accomplishment of major milestones.

## Prior Reports on Federal Facility Cleanups

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We reviewed various management, evaluation, and audit reports that directly or indirectly related to federal facility cleanups. The principal reports reviewed are listed below:

### EPA OIG Reports:

- ❑ Superfund Audit Report, *Laboratory Data Quality at Federal Facility Superfund Sites*, #7100132, March 1997.
- ❑ RCRA Audit Report, *Report on the Tank Waste Remediation System (TWRS) Program for the Hanford Federal Facility*, #0-P-00012, March 30, 2000.
- ❑ Superfund Audit Report, *Backlog of Five-Year Review Reports Increased Nearly Threefold*, #1999-P-218, September 30, 1999.

### DOE Internal Management Reports:

- ❑ *Tritiated Wastewater Treatment and Disposal Evaluation for 1994*, #DOE/RL-94-77, August 1994.
- ❑ Office of Environmental Management Reports: *Accelerating Cleanup, Paths to Closure*, June 1998, and *Status Report on Paths to Closure*, March 2000.
- ❑ *A Review of the Environmental Management Program* (a.k.a.: *The Top to Bottom Review*), February 4, 2002.

### DOE OIG Reports:

- ❑ *Sale of Land at Oak Ridge*, #DOE/IG-0502, May 2001.
- ❑ *The Decontamination and Decommissioning Contract at the East Tennessee Technology Park*, #DOE/IG-0481, September 2000.
- ❑ *Waste Characterization at Oak Ridge*, #ER-B-00-03, June 2000.
- ❑ *Decontamination and Decommission at the East Tennessee Technology Park*, #ER-B-99-01, December 1998.
- ❑ *Groundwater Remediation at the Savannah River Site*, ER-B-96-02, June 11, 1996.

General Accounting Office Reports:

- ❑ *Nuclear Cleanup - Difficulties in Coordinating Activities Under Two Environmental Laws*, GAO/RCED-95-66, December 1994.
- ❑ *Department of Energy - National Priorities Needed for Meeting Environmental Agreements*, GAO/RCED-95-1, March 1995.
- ❑ *Environmental Protection - Issues Facing the Energy and Defense Environmental Management Programs*, GAO/T-RCED/NSIAD -96-127, March 21, 1996.
- ❑ *Nuclear Cleanup - Completion of Standards and Effectiveness of Land Use Planning Are Uncertain*, GAO/RCED-94-144, August 26, 1994.
- ❑ *Superfund - More Emphasis Needed On Risk Reduction*, GAO/RCED-96-168, May 8, 1996.
- ❑ *Federal Facilities - Consistent Relative Risk Evaluations Needed for Prioritizing Cleanups*, GAO/RCED-96-150, June 1996.
- ❑ *Superfund - Progress Made by EPA and Other Federal Agencies to Resolve Program Management Issues*, GAO/RCED-99-111, April 1999.
- ❑ *Nuclear Cleanup - DOE Should Reevaluate Waste Disposal Options Before Building New Facilities*, GAO-01-441, May 2001.
- ❑ *Waste Cleanup - Status and Implications of DOE's Compliance Agreements*, GAO-02-567, May 2002.



## Records of Decision Issued Under SRS FFA

<b>ROD Date</b>	<b>Operable Unit No.</b>	<b>Operable Unit Name</b>	<b>Remedial Action</b>	<b>PREScore</b>	<b>RODs With No Cleanup Actions</b>
29-Jun-92	2	Met Lab HWMF	IROD	Unknown	
29-Jun-92	3	A/M-Area GW	IROD	4.27	
29-Jun-92	1	M-Area HWMF	IROD	1.79	
10-Sep-93	6	F-Area HWMF	ROD	Unknown	No action ROD
10-Sep-93	7	H-Area HWMF	ROD	Unknown	No action ROD
23-Sep-94	33	MWMF	ROD	42.66	No action ROD
23-Sep-94	34	Tank 105-C HWMF	ROD	Unknown	No action ROD
09-Nov-94	29	TNX Area GW	IROD	22.21	
13-Feb-95	35	Par Pond	IROD	50.34	
06-Mar-95	27	D-Area Oil SB	IROD	2.7	
13-Apr-95	8	F-Area GW	IROD	Unknown	
13-Apr-95	9	H-Area GW	IROD	58.3	
11-Sep-95	12	M-Area West	ROD	9.66	No action ROD
01-Mar-96	32	ORWBG	IROD	76.88	
18-Jun-96	18	Burma Road RP	ROD	6.49	No action ROD
27-Mar-97	13	Silverton Road Unit	ROD	2.67	IC/GW monitoring
27-Mar-97	15	D-Area BRP	ROD	11.82	IC/GW monitoring
27-Mar-97	4	Gunsite 720 RP	ROD	0	No action ROD
27-Mar-97	45	Grace Road Site	ROD	0	No action ROD
27-Mar-97	5	Gunsite 113 A-Road	ROD	0	No action ROD
27-Mar-97	14	F-Area BRP	ROD	13.98	IC only
14-May-97	16	Old F-Area SB	ROD	43.18	
14-May-97	11	Central Shops BRP	ROD	0.43	No action ROD
30-Sep-97	17	L-Area Acid/Caustic Basin/ L-Area Oil & Chemical Basin	ROD	59.62	
23-Mar-98	20	K-Area BPOP	ROD	21	IC only
26-Jun-98	51	Motor Shops SB	ROD	9.36	No action ROD
04-Aug-98	10	Fire Dept HT Facility	ROD	2.64	No action ROD
04-Sep-98	23	F-Area RB	ROD	7.47	
15-Sep-98 1/	67	D-Area CPBR	ROD	17.94	No action ROD
15-Sep-98 1/	41	P-Area CPBR	ROD	17.94	No action ROD
15-Sep-98 1/	54	F-Area CPBR	ROD	17.94	No action ROD
15-Sep-98 1/	42	C-Area CPBR	ROD	17.94	No action ROD
15-Sep-98 1/	52	K-Area CPBR	ROD	17.94	No action ROD
19-Oct-98	27	D-Area Oil SB	ROD	2.7	No action ROD
29-Dec-98	31	C-Area BRP	IROD	17.94	
20-May-99	57	Ford Bldg Waste	ROD	2.96	No action ROD
28-Sep-99	24	CMP Pits	IROD	33.55	
15-Mar-00	47	SRL SB	ROD	21.9	
01-Aug-00	73	Georgia Fields Site	ROD	1.08	No action ROD
03-Aug-00	19	A-Area BRP	IROD	31.89	
31-Aug-00 2/	39	P-Area BPOP	ROD	21	IC/soil. GW/no action
31-Aug-00 2/	26	L-Area BPOP	ROD	21	IC/soil. GW/no action
31-Aug-00	60	C-Area Reactor SB	ROD	26.88	
07-Dec-00	28	Misc Chemical Basin/Metals BP	IROD	4.26	
22-Jun-01	40	K-Area BRP/RP	ROD	10.86	

14-Sep-01                    32    ORWBG (Solvent Tanks)                    IROD                    76.88

**Footnotes:**

- 1/ One ROD issued on 09/15/98 for five operable units.
- 2/ One ROD issued on 08/31/00 for two operable units.

**Abbreviations:**

BPOP	Bingham Pump Outage Pit
BRP	Burning/Rubble Pit
CPBR	Coal Pile Burning Runoff Basin
IC	Institutional Controls
HWMF	Hazardous Waste Management Facility
MWMF	Mixed Waste Management Facility
ORWBG	Old Radioactive Waste Burial Ground
RP	Rubble Pile
SB	Seepage Basin

# Agency Response



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**REGION 4**  
 ATLANTA FEDERAL CENTER  
 61 FORSYTH STREET  
 ATLANTA, GEORGIA 30303-8960

SEP 10 2002

## MEMORANDUM

**SUBJECT:** EPA Region 4 Responses to EPA Office of Inspector General  
 Draft Report  
 Federal Facility Cleanups: Improvement Needed  
 In EPA Oversight of Cleanup Actions at the  
 Savannah River Nuclear Facility  
 Assignment No. 2001-0001522

**FROM:** J. I. Palmer, Jr.  
 Regional Administrator  
 Region 4

**TO:** John A. Price  
 Project Manager  
 EPA OIG

This memorandum provides EPA Region 4's responses to recommendations presented in the EPA's Office of Inspector General (OIG) evaluation of the EPA Region 4 Oversight of Department of Energy Cleanup Activities at the Savannah River Site. It is my understanding that the draft report reviewed by my staff is subject to revision by OIG and, therefore, does not represent the final position of the OIG on the subjects reported.

In accordance with EPA Order 2750, EPA Region 4 is providing these comments to you within 30 days of the draft report date. These comments address the factual accuracy of the draft report, the policy implications of the recommendations, and plans for taking corrective action as recommended. EPA Region 4 has consulted with the EPA Office of Solid Waste and Emergency Response, Federal Facilities Restoration and Reuse Office, and the EPA Office of Enforcement and Compliance, Federal Facilities Enforcement Office, in preparing these comments. At this time, EPA Region 4 plans to implement corrective actions, as acknowledged in our individual responses, by September 30, 2003. Please feel free to contact Jon Johnston, Federal Facilities Branch Chief, at 404/562-8527 or at [johnston.jon@epa.gov](mailto:johnston.jon@epa.gov) regarding any questions you may have regarding EPA Region 4's responses.

**OIG RECOMMENDATIONS AND EPA RESPONSES**

- 2-1. Evaluate potential benefits of using the SRS primary document protocols and core team process for oversight of cleanups at other federal facilities.

We agree, and in fact, EPA Region 4 Federal Facilities Branch (FFB) has previously implemented a similar core team approach for the Region's Base Realignment and Closure (BRAC) and active DOD bases and facilities, which was the basis from which the SRS core team process was derived. These management alliances, initially formed in 1994 in the State of Florida, consist of facility (project) teams, state specific management teams and a regional program management team. Additionally, in June 2002, Region 4 signed an agreement with DOE and Tennessee Department of Environment and Conservation (TDEC) executives to develop streamlining processes that, in part, includes the implementation of this process at DOE's Oak Ridge Reservation (ORR).

- 3-1. Require that DOE SRS develop a work planning process that ranks and schedules sites for cleanup based on a priority system that is clear and easily understood by all stakeholders and provides the greatest risk reduction.

EPA will work directly with DOE SRS and the South Carolina Department of Health and Environmental Control (SCDHEC) to improve the clarity of the existing work planning process to the extent possible in absence of a national standard method for risk-based prioritization.

- 3-2. While PREScore continues to be the process for prioritizing cleanup actions, evaluate the use of PREScore by DOE SRS staff to ensure that sites have been properly ranked as to relative risk to human health and the environment, and require that the rankings be considered in annual and future work plans.

EPA Region 4 will evaluate the use of PREScore and will require that the rankings be considered in annual and future work plans. Based on existing work planning and evaluation protocols, it is anticipated that the PREScore process may be formally replaced with an alternative method. EPA will ensure that the alternative method will properly rank sites relative to human health and the environment.

- 3-3. Establish Regional oversight procedures that ensure SRS sites are ranked and cleanup projects are planned in compliance with the agreed upon work prioritization methodology.

EPA Region 4 will review and update oversight procedures to ensure sites are ranked and cleanup projects are planned in compliance with the agreed upon methodology.

- 3-4. Require DOE to obtain input from all stakeholders on the scheduling of sites for cleanups, the methodology used for prioritizing cleanup activities, and how the methodology relates to site risks.

In cooperation with EPA and SCDHEC, DOE SRS has an extensive stakeholder (public) participation program in place based on the national consensus recommendations of the April 1996 Final Report of the Federal Facilities Environmental Restoration Dialogue Committee. DOE SRS works diligently to inform and obtain input from as many stakeholders as possible on the scheduling of sites for cleanups, the methodology used for prioritizing cleanup activities, and how the methodology relates to site risks. EPA Region 4 will discuss with DOE SRS and SCDHEC the possibilities for improvement in this area.

- 4-1. Evaluate the workload analyses prepared for the SRS and other DOE FFAs to determine the number of Remedial Project Managers needed to effectively oversee these agreements and obtain and/or allocate resources necessary to properly staff and support the oversight of these FFAs.

EPA Region 4 Federal Facilities Branch, in consultation with the EPA HQ Federal Facilities Restoration and Reuse Office, has evaluated the current and planned workload for the SRS, other DOE, and DOD facilities to determine the number of Remedial Project Managers needed to effectively oversee these agreements. FFRRO's analysis is that the Branch is estimated to be six FTE below the number of RPMs needed for effective oversight of DOE facilities in the Region. The Branch has already deferred facility oversight to states for eleven major DOD facilities formerly overseen by FFB, and reassigned staff from DOD to DOE oversight to the maximum extent possible. The Waste Management Division continues to review its priorities and available work force to determine if staff need to be and are available to be reassigned. The Region will diligently work to obtain and/or allocate resources necessary to properly staff and support the Region's oversight responsibilities.

- 4-2. If resources cannot be provided to ensure effective oversight, evaluate whether the deficient staffing and related oversight should be reported as a material management weakness in the annual Federal Managers' Financial Integrity Act report.

EPA Region 4 will ensure that if resources cannot be provided to ensure effective oversight, the Region in coordination with EPA national program offices, will evaluate whether the deficient staffing and related oversight should be reported as a material management weakness in the annual Federal Managers' Financial Integrity Act report.

- 5-1. Require DOE SRS to perform five-year reviews for RCRA corrective actions that are also included in CERCLA RODs.

EPA Region 4 will require DOE SRS to perform five-year reviews for RCRA corrective actions that are also included in CERCLA RODs

- 5-2. Establish procedures to ensure that SRS five-year review reports are properly reviewed by appropriate Region 4 personnel and concurrence or nonconcurrence is provided for each report.

EPA Region 4 will establish procedures to ensure that SRS five-year review reports are properly reviewed by appropriate Region 4 personnel and concurrence or nonconcurrence is provided for each report.

- 5-3. Negotiate modifications to the SRS FFA to provide that:

- P DOE perform the five-year reviews of remedial actions at SRS and that EPA will review the DOE five-year review reports and provide concurrence or nonconcurrence as currently required in EPA guidance.
- P Five-year review reports and site evaluations are primary documents subject to the FFA dispute resolution and enforcement procedures.

EPA Region 4 will initiate negotiations to modify the SRS FFA to provide that five-year reviews of remedial actions at SRS will be performed by DOE, and that EPA will provide the concurrence or nonconcurrence as currently required in the EPA guidance. Further, EPA Region 4, will propose FFA modifications making the five-year review report a primary document subject to the FFA dispute resolution and enforcement process. The Region, in consultation with the Federal Facility Enforcement Office, will evaluate whether or not site evaluations should be primary documents subject to the FFA dispute resolution and enforcement process. Historically, site evaluations have been used as an effective method to quickly evaluate, screen, and rank sites, according to potential and/or actual risk, and establish the need to continue further remedial response actions. DOE SRS, in response to concerns raised by the region and the State of South Carolina, submitted in August 2002, a draft Site Evaluation Protocol that will provide an agreement on consistent methods for conducting site evaluations and provide for EPA's review and approval of the Site Evaluation Reports.

- 6-1. Obtain DOE cost estimates for long-term response actions and final CERCLA cleanup at SRS to determine whether the current funding level is sufficient to (1) maintain the current level of remedial cleanup activities and (2) provide adequate protection to human health and the environment within a reasonable time frame. If not, negotiate an adjustment in the funding level with DOE to ensure that, at a minimum, the current annual level of remedial actions are maintained.

EPA Region 4 receives DOE cost estimates on an annual basis for long-term response actions and final CERCLA cleanups at SRS and its other DOE sites. The existing terms of the FFAs, agreed to by the Region, the Office of Enforcement and Compliance Assistance (OECA), and DOE's national program office, requires that DOE and EPA agree on planned actions and budget for the current fiscal year, the subsequent two fiscal years, and more general planning information (including budget) for the remaining years of cleanup work. The Region has, and will continue to ensure that adequate protection of human health and the environment can be met within the plan and scope of the FFAs. This approach is outlined in the Federal Facilities Environmental Restoration Dialogue Committee Report as noted in the EPA OIG Draft Report. The Region has, and will continue to negotiate for an adequate funding level with DOE to ensure that, at a minimum, the current annual level of response actions are maintained consistent with nationally agreed upon FFA budget and funding language. Additionally, as part of DOE's Top to Bottom Review initiative, EPA and the State of South Carolina have signed a letter of intent with DOE to accelerate cleanup, making additional FY 03 cleanup funding available.





## Distribution

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### **EPA Headquarters Offices**

Assistant Administrator for Solid Waste and Emergency Response  
Assistant Administrator for Enforcement and Compliance Assurance  
Director, Federal Facilities Restoration and Reuse Office  
Director, Federal Facilities Enforcement Office  
Comptroller (2731A)  
Agency Followup Official (2710A)  
Agency Followup Coordinator (2724A)  
Associate Administrator for Congressional and Intergovernmental Affairs (1301A)  
Director, Office of Regional Operations (1108A)

### **EPA Region 4**

Regional Administrator  
Director, Waste Management Division  
Chief, Federal Facilities Branch  
Audit Followup Coordinator/Liaison

### **EPA Office of Inspector General**

Inspector General (2410)