

**United States Department of Energy**  
**Statement of Basis/Proposed Plan Fact Sheet**  
**for the B-Area Operable Unit**  
ERD-EN-2011-0104



**Savannah River Site, South Carolina**

**June 2012**

## INTRODUCTION

This fact sheet summarizes the Statement of Basis/Proposed Plan for the B-Area Operable Unit (BAOU) located at the Savannah River Site (SRS). The United States Department of Energy (USDOE) owns and operates the SRS. Hazardous substances that are regulated under the federal law requirements of the Resource Conservation and Recovery Act and the Comprehensive Environmental Response, Compensation, and Liability Act are managed at the SRS as part of a comprehensive cleanup program.

A remedial action is needed because residual contamination that may pose a threat to human health and the environment is still present below the ground surface in a portion of the BAOU. The Statement of Basis / Proposed Plan for the BAOU outlines the range of remedial alternatives evaluated to control access to the contaminated media that remains in the area. The document presents the proposed remedy and describes how the public can comment on the proposed action through written comments and by participating in public meetings.

## BAOU BACKGROUND

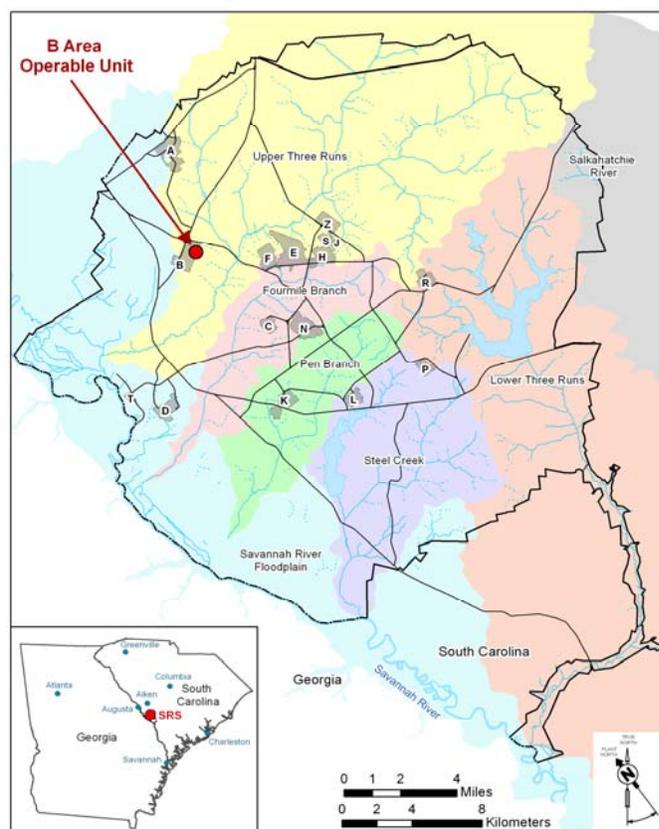
The BAOU is located in the northwest quadrant of the SRS in Aiken County, South Carolina. The BAOU consists of two subunits:

- Early Construction and Operational Disposal Sites (ECODS) B-3 and B-5
- Heavy Water Components Test Reactor (HWCTR), Building 770-U

Funding through the American Recovery and Reinvestment Act of 2009 supported acceleration of the original milestone dates for these subunits, and the USDOE has performed a non-time critical removal action at each subunit in order to achieve the accelerated schedule commitments.

### ECODS B-3 and B-5

The ECODS B-3 and B-5 were used to dispose of waste material associated with the construction of B-Area from 1951 to 1955. During that period, an abundance of construction waste was generated which required disposal. The construction waste was buried in shallow, elongated trenches. A risk assessment concluded that the waste posed an unacceptable threat to human health and the environment. The total cumulative risk for a hypothetical



**Figure 1:** Location of B-Area Operable Unit at the Savannah River Site

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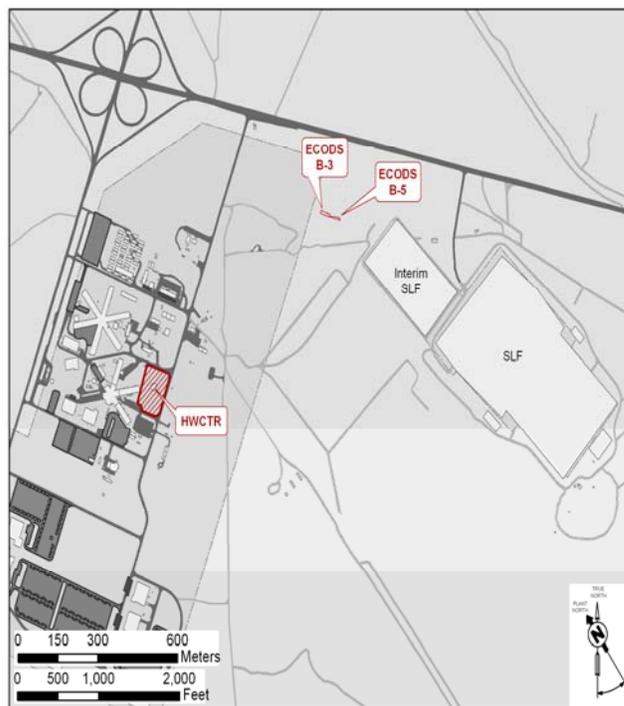
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future resident was 1.6E-04 (1.6 chances in 10,000 of an individual developing cancer), and for a hypothetical future industrial worker the risk was 4.2E-05 (4.2 chances in 100,000 of an individual developing cancer).

The USDOE completed a non-time critical removal action in 2010 to address contaminants in soil (arsenic and seven pesticides) and construction waste (potential exposure to buried asbestos). The removal action consisted of excavation and off-site disposal of impacted soil and construction debris totaling approximately 8,550 yd<sup>3</sup>. Currently there are no surficial exposure issues at ECODS B-3 and B-5 and the potential for exposure to asbestos in the subsurface has been eliminated by virtue of the removal action. The removal action met residential cleanup goals. In the current state, the ECODS B-3 and B-5 subunit poses no risk to human health and the environment and supports unrestricted (i.e., residential) land use. Therefore, the preferred remedial alternative for the ECODS B-3 and B-5 subunit is **No Further Action**.

**HWCTR**

The HWCTR facility was a pressurized heavy water reactor designed to test fuel designs for heavy water power reactors. The test reactor was not a defense-related facility like the five production reactors at SRS. The HWCTR facility operated from March 1962 until December 1964 when operations were terminated and the facility was placed in a standby condition, including the removal of fuel and heavy water. The radiation levels in the most accessible area of the HWCTR containment building were low and the residual radioactivity and contamination from operation and maintenance of the reactor and its associated components remained inside the containment building. In 2009, the total amount of radioactivity in the facility was estimated to be approximately 2,100 curies. More than 99 percent of the radioactivity in the HWCTR was associated with activated metal in the internal structure of the reactor vessel and associated steam generators. The HWCTR facility contained principal threat source material, described as highly toxic materials that would represent a significant risk to human health or the environment should exposure occur (i.e., risk greater than 1E-03, or greater than 1 chance in 1,000 of an individual developing cancer).



**Figure 2:** Location of ECODs B-3 and B-5 and HWCTR in B Area

The USDOE determined that a non-time critical removal action was warranted to decommission the HWCTR to address the potential threat of contaminant releases which could impact both human health and the environment. The purpose of the removal action was to protect workers from exposure to radionuclides and hazardous constituents in the reactor vessel, steam generators and associated equipment in the HWCTR and to prevent potential migration of radionuclides and hazardous

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constituents from the HWCTR so they would not contribute contamination to the groundwater above groundwater protection standards.

The USDOE completed the removal action for HWCTR in 2011 to remove the reactor vessel, steam generators, steel containment dome, and all above grade components of the facility (with the exception of the transfer coffin refueling machine), and put these components in the appropriate disposal facilities. Following removal of these items, the transfer coffin refueling machine was placed in the reactor facility void space and the below-grade portions of the facility were sealed in place with a grout material to form a stabilized structure. The area was then covered with concrete at the ground surface to prevent infiltration and eliminate direct exposure to contaminants left in place for future industrial workers. Four groundwater monitoring wells were installed in 2009 to confirm that there was no impact to groundwater from historical releases and to provide a future monitoring network. Because some residual contamination is still present below the ground surface at this facility, the preferred remedial alternative for the HWCTR portion of the BAOU is **Land Use Controls with Groundwater Monitoring**.



*Figure 3: HWCTR Prior to Removal Action (2009)*



*Figure 4: HWCTR After Removal Action (2011)*

## **CLEANUP GOALS**

### ECODS B-3 and B-5

The removal action at ECODS B-3 and B-5 met residential cleanup goals. In the current state, the ECODS B-3 and B-5 subunit of the BAOU poses no risk to human health and the environment.

### HWCTR

The removal action at HWCTR eliminated or controlled all routes of exposure to residual below grade radioactive and chemical contamination. It also minimized the potential of stabilized contaminants to

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migrate to groundwater. Although the residual contamination was stabilized in place, land use controls will be necessary to control all future routes of exposure to below grade contamination. Groundwater monitoring is necessary to monitor for any future impact to groundwater.

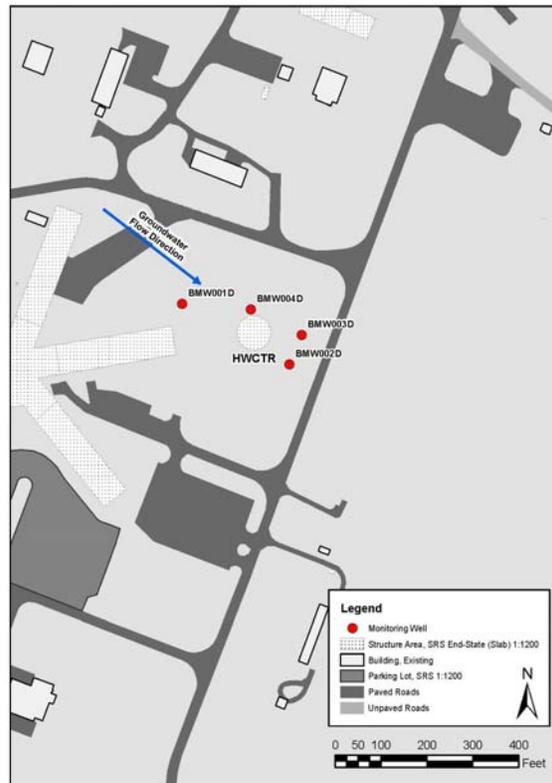
**PROPOSED REMEDY**

*ECODS B-3 and B-5*

The proposed remedy for the ECODS B-3 and B-5 subunit of the BAOU is **No Further Action**. There are no problems warranting action, no waste to treat, and no land use controls are required. The ECODS B-3 and B-5 subunit poses no risk to human health and the environment and warrants unrestricted land use.

*HWCTR*

Because residual contamination is present, the HWCTR is not available for unrestricted land use. The proposed remedy for the HWCTR portion of the BAOU is **Land Use Controls with Groundwater Monitoring**. Under this remedy, land use controls would be used to restrict access or activities that can be performed at HWCTR. Groundwater monitoring of the existing well network will continue to provide additional assurance that the groundwater protection standards are maintained.



*Figure 5: Location of HWCTR Groundwater Monitoring Wells*

The United States Environmental Protection Agency and South Carolina Department of Health and Environmental Control concur with the proposed remedy for each of these BAOU subunits.

**FOR MORE INFORMATION**

The Administrative Record File, which contains the information pertaining to the selection of the response action, is available at the following locations:

US Department of Energy  
Public Reading Room  
Gregg-Graniteville Library  
University of South Carolina-Aiken  
171 University Parkway  
Aiken, South Carolina 29801  
(803) 641-3465

Thomas Cooper Library  
Government Documents Department  
University of South Carolina  
Columbia, South Carolina 29208  
(803) 777-4866

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Hard copies of the BAOU Statement of Basis/Proposed Plan are available at the following locations:

Reese Library  
Government Information Section  
Augusta State University  
2500 Walton Way  
Augusta, Georgia 30910  
(706) 737-1744

Asa H. Gordon Library  
Savannah State University  
Tompkins Road  
Savannah, Georgia 31404  
(912) 356-2183

### **HOW TO SUBMIT COMMENTS**

The public comment period for the BAOU Statement of Basis/Proposed Plan begins September 17, 2012 and ends November 1, 2012. To request a public meeting during the public comment period, to obtain more information concerning this document, or to submit written comments, contact one of the following:

Paul Sauerborn  
Savannah River Nuclear Solutions, LLC  
Public Involvement  
Savannah River Site  
Building 730-1B  
Aiken, South Carolina 29808  
(803) 952-6658  
paul.sauerborn@srs.gov

The South Carolina Department of Health and  
Environmental Control  
Attn: Richard Haynes, P.E., Director  
Division of Waste Management  
Bureau of Land and Waste Management  
2600 Bull Street  
Columbia, South Carolina 29201  
(803) 896-4000

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