ENVIRONMENTAL ASSESSMENT
for the
NEW WHOLE BODY COUNTER FACILITY
at the
SAVANNAH RIVER SITE

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MASTER

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1.0 INTRODUCTION

The U. S. Department of Energy (DOE) proposes to construct and operate a new *in-vivo* counting facility at the Savannah River Site (SRS), near Aiken, South Carolina for the monitoring of employees for internal radionuclides. The proposed facility, titled the new Whole Body Counter (WBC) facility, would house both the existing and additional new *in-vivo* counting equipment and facility support operations (e.g., electronics area, offices, reception/waiting area, change rooms, and storage area). The proposed facility would be sited and located in an area of the SRS in which background radiation levels are sufficiently low to assure accurate *in-vivo* counts and a location that would assure ease of access for occupational workers.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) of 1969, as amended, and the requirements of the Council on Environmental Quality Regulations for Implementing NEPA (40 CFR Parts 1500-1508). NEPA requires the assessment of environmental consequences of Federal actions that may affect the quality of the human environment.

The proposed action has independent utility to the Savannah River operations and will be necessary to support plant activities regardless of the makeup of the future mission at the site. As such, the proposed new WBC facility is treated as part of the preliminary Reconfiguration Programmatic Environmental Impact Statement (EIS) "No Action" alternative (DOE, 1991a).

2.0 PURPOSE AND NEED FOR ACTION

The purpose of the proposed action is to provide a new WBC facility for SRS. The *in-vivo* methods for detecting internally-deposited radionuclides (i.e., whole body and chest counting) together with the *in-vitro* bioassay program (i.e., fecal sampling and urinalysis) form the basis for an adequate internal dose evaluation program. Although SRS currently has whole body/chest counting capabilities, the existing equipment is sufficient to demonstrate compliance with DOE requirements for only a limited population. The facility in 735-A, which is over 30 years old, is insufficient to meet the current and expected future demands for counting the population of occupational workers who have the potential to be exposed to internally-deposited radionuclides.

At present, there is a site population of approximately 8900 workers who may be potentially exposed to transuranics (i.e., elements having an atomic number greater than 92) and/or uranium that should receive annual chest counts in addition to bioassay requirements. These same individuals participate in the *in-vitro* bioassay program. Of this population, approximately 1500 individuals are the highest potential risk occupational workers on the SRS who routinely work in areas where they may be exposed to uranium and transuranics, and for which an *in-vivo* count would be required under DOE Order 5480.11. These persons do receive a chest count annually. However, there is a much larger population of approximately 7400 additional radiological workers who require access to radiologically controlled areas (RCAs) in which transuranics may be present and where there is a potential for exposure. These individuals receive a FASTSCAN to screen for internally-deposited radionuclides, and there are administrative controls in place to assure that in the event of an incident these individuals would receive an *in-vivo* count, but they do not receive annual chest counts. The SRS is striving to have all 8900 workers, of which approximately 6600 work the day shift, receive chest counts on an annual basis to serve as back-up for the bioassay program.

This facility is required to assure that the site maintains compliance with DOE Order 5480.11, Radiation Protection for Occupational Workers, paragraph 9.g, Internal Dose Evaluation Programs. The proposed action was also recommended in a review of the SRS Health Physics Program performed in 1988 by the DOE Office of Environment, Safety and Health (Ferlic et al., 1988). In addition, it is a commitment made in the DOE-approved SRS Implementation Plan for DOE Order 5480.11. Further, DOE Tiger Team Concern Number Tritium/RP.7-1 states that a new whole body counting facility with sufficient capacity for the site is to be constructed at SRS.

The site needs to provide chest counting not only for the workers most at risk but also those who are potentially exposed to uranium and transuranic materials. Further, in the future, as facility decontamination and decommissioning and Comprehensive Environmental Response, Compensation and Liability Act/Resource Conservation and Recovery Act cleanup activities increase onsite, both the number of individuals requiring chest counts, and the frequencies of these required counts will increase. This would result from the increased access to contaminated areas by the decontamination and decommissioning workers and the resultant increased exposure to those workers. Such areas previously had limited or restricted access and associated lower numbers of workers exposed.

3.0 PROPOSED AND ALTERNATIVE ACTIONS

3.1 Proposed Action

The proposed new WBC facility would be located on a three-acre site in B-Area on the west side of SRS Road 2 (Figure 3-1). This facility would be located within a general site bounded by north coordinates N86525.23 to N88413.87 and east coordinates E38317.48 to E40360.84, which was approved in Site Use Permit (SU-89-54-C; Hill, 1992) for the 5-year footprint for the B-Area Engineering Center Campus (Zeigler, 1988). Amendment 4 of this site use permit, which specifically addressed the area to be used for the proposed WBC and other proposed facilities was approved on September 25, 1991, indicated no interferences with other land uses in the area. Conditions of this permit were that buildings must maintain a minimum 10-foot radius from monitoring wells; erosion control plans should be in place for construction; and a program plan must be prepared if a new water supply well is to be constructed. The proposed site in B-Area is centrally located to most of the site population.

This project is an approved FY91 line item. Pending review and approval of applicable NEPA documentation, the start of construction and physical completion of the proposed action are tentatively scheduled for 2QFY93 and 2QFY95, respectively. The facility is proposed to begin operation in 4QFY95. The current estimated cost for the proposed action is \$5,590,000.

Construction of the proposed action would include site clearing, grading/site drainage improvements, access road and parking lot construction, building construction, site landscaping, facility equipping/furnishing, and utility connections. Site clearing would encompass small-volume timber harvesting, grubbing, and logging/clearing debris removal or burning.

The proposed facility would consist of a single-story structure which would occupy approximately 3,200 ft². The facility would encompass three rooms shielded with pre-World War II steel, and various support areas including a laboratory, an ultrasound room, an electronics area, three change rooms with showers, two offices, reception/waiting

Figure 3-1. Location of the New Whole Body Counter Facility at the Savannah River Site, South Carolina.

facilities and a storage area. The shielded rooms, which would constitute a major portion of the facility, would be used for the whole body/chest counts. Instrumentation (i.e., six detectors and associated electronics) from the single shielded room in the existing facility would be moved and used in the new facility. Similar or better instrumentation for the other two shielded rooms would be purchased and installed. The existing FASTSCAN whole body counter would be relocated from the existing facility to the proposed WBC facility. All encapsulated calibration and check sources would be moved and used in the proposed facility. There are no plans to purchase any new sources for the proposed WBC facility at this time. The facility laboratory would be used for electronic maintenance and development, and detector and geometry experimentation. The ultrasound room would be used to measure the tissue thickness of the chest (chest tissue thickness is necessary data for quantitative *in-vivo* analysis, and ultrasound is the preferred way to obtain this information). The electronics area would house instrumentation for data collection and analysis, and report generation. The change rooms would be for personnel to shower and change into uncontaminated clothing prior to having the count conducted in one of the shielded rooms. Offices would be needed for the supervisor and technical support staff. The waiting/reception area would be designed to accommodate ten people to enable the most efficient use of the facility's counting capabilities. The storage area would be used for supplies, spare parts and equipment.

The ventilation system would be a critical part of the design to maintain a stable radiation background within the proposed facility. The proposed system would be a recirculating design with a maximum of 10 percent makeup air, and dioctyl phthalate-testable high-efficiency particulate air (HEPA) filters installed in the supply component of the system to filter incoming air to the facility. Ventilation for the shielded rooms would be supplied at the rear of the room and exhausted at the door.

Other than cleaning supplies, liquid nitrogen would be the only chemical used during the operation of this facility. The liquid nitrogen would be piped into the shielded rooms for use by the radiation detectors. The transfer system would be operated remotely with the offgas vented outside the facility. The transfer system would be deactivated when persons are in the counting room. A liquid nitrogen bulk storage tank would be placed on an exterior concrete pad measuring 10 feet by 10 feet. Facility liquid releases would be limited to the storm sewer for the building and sanitary sewers from the toilets, showers and sinks.

The three counting rooms will be shielded with 8-inch-thick pre-World War II steel and no graded liner (Kirkham et al., 1992). The purpose of the shielding is to reduce the ambient background from natural sources such as the sun, cosmic rays, and ground sources. Lead and copper Background Radiation Shields (BRDs) may be used around the end of the detectors. Determination for this need will be made in the future should it be necessary to remove low energy photons created by scatter from objects inside the room. Detector arms will be built such that they are able to handle the added weight of BRDs should they ever be needed (Kirkham et al., 1992).

All applicable safety requirements of DOE Orders and SRS standards and specifications would be incorporated in the design of this facility. The proposed WBC facility is designed to meet applicable standards of the Uniform Building Code (UBC) regarding natural phenomena as detailed in Section 0111 (i.e., Structural Design Requirements) of DOE Order 6430.1A for wind, tornado and earthquake loads on new buildings. Fire protection systems would be installed in accordance with DOE requirements.

The utilities for the new WBC facility would be extended from existing systems for the Engineering Center located on the east side of SRS Road 2. Impacts to areas outside of the three acres designated for the WBC resulting from utility connections would be minimal.

These utilities would include electricity, domestic and fire water, and sanitary sewer. The electrical distribution upgrades for the new WBC facility would consist of 900 linear feet of 13.8 KV distribution line. The average annual yearly consumption for the proposed facility is estimated to be 237,000 kw-hr. The sanitary sewer system extension would consist of a sanitary lift station, 1000 linear feet of 8-inch pipe, 370 linear feet of 6-inch pipe, and two manholes. The average projected use of the sanitary sewer system is 30 people per shift, with a maximum of 45 people.

The proposed WBC facility would be located entirely within the planned boundaries of B-Area (north coordinates N84115.93 to N88624.83 and east coordinates E38317.48 to E43111.56). All existing security systems and programs for B-Area facilities would be extended to the proposed facility, including physical security. All additional safeguard and security measures required by the applicable DOE orders would be provided for the proposed WBC facility.

DOE has developed a series of emergency response plans with the cooperation of state and county agencies to comply with DOE Order 5500 series emergency preparedness orders to respond to any onsite incidents at SRS. This planning would apply to the proposed WBC facility.

The proposed facility would replace the existing facility which would be reconditioned and used for other, as-of-yet-unidentified, operations in the Savannah River Technology Center (SRTC) technical area. At the end of the new WBC facility lifetime, the facility would be decontaminated and decommissioned in accordance with decontamination methods and expertise in existence at that time. Equipment would be removed and either re-used or disposed of as required.

3.2 Alternatives

Alternatives to this proposed action include the following:

- No action
- Build a less comprehensive facility
- Alternate site at SRS

The alternative of expanding the size of the existing facility was also considered. However, due to the lack of available space in Building 735-A, no possibility for expansion is available in any direction. This alternative was therefore dismissed as unreasonable for this analysis.

The alternative of expanding the operating hours of the existing facility by adding a third shift and/or weekend operation was previously considered. The facility began twenty four hour a day, seven day a week operation in June 1992. However, with counting times ranging between thirty minutes and one hour per person, between eight and nine day-shift personnel can be accommodated per day for approximately 2300 day shift personnel per annum with the one counting room. The advantage of continual operation of the WBC facility is that personnel are present anytime that an emergency count, as a result of a contamination incident, is required. This alternative which has now been implemented is not sufficient to count the 6600 day-shift workers that currently should have chest counts.

3.2.1 No Action

The no action alternative is to not construct and operate the new WBC facility and to continue to rely on the existing facility. This alternative would not allow SRS to enhance site compliance in the future or meet current DOE expectations for improvement in radiological control programs (DOE Order 5480.11; Ferlic et al., 1988). With only one counting room, the existing facility is simply not adequate for the site on both a processing and technological basis. Any downtime of detection instrumentation in this facility would cause a cessation of all counting capabilities and increase the existing backlog of workers needing to be counted (Kirkham, 1992). More importantly, such downtime could prevent the necessary prompt measurement of employees who have been involved in contamination incidents.

3.2.2 Build a Less Comprehensive Facility

The alternative of constructing a WBC facility with less than three counting rooms was evaluated. Such an alternative would not provide sufficient capability to meet projected short- and long-term site requirements for occupational exposure monitoring. On the SRS at present, an *in-vivo* counting operation needs to be able to accommodate approximately 6600 day-shift personnel from the potentially exposed population on an annual basis. One counting room can process eight people during a eight-hour work period, assuming a 15 percent downtime for maintenance, quality assurance, recounts, testing and troubleshooting systems problems. This enables the counting of approximately 2300 day-shift persons annually. Based on these figures, three counting rooms (6600 person counts/2300 person counts per room = 2.9 counting rooms) are needed to accommodate the present site day-shift population. A facility which included less than three counting rooms would not meet the need.

3.2.3 Alternate Site At SRS

Other sites were previously considered for locating the proposed WBC. In December 1988, a memorandum-to-file was approved for a new whole body counting facility to be located in the SRTC Technical Area. However, it was later determined that this location was too congested and offered higher background levels of radiation that might compromise the integrity of the counts. Locating the facility on the northern boundary of the site was also considered. This area offered low background radiation levels, however it was not located conveniently for the majority of the site population. In addition, due to site infrastructure the costs of extending utilities to the northern site boundary was considered prohibitive.

4.0 AFFECTED ENVIRONMENT

4.1 Geography, Demography and Socioeconomics

The SRS occupies an area of approximately 800 km² (198,737 acres) in Aiken, Barnwell and Allendale counties in southwestern South Carolina (Figure 4-1). The site borders the Savannah River for about 27 kilometers (17 mi) near Augusta, Georgia, and Aiken and Barnwell, South Carolina. Figure 4-1 also shows the six-county area of South Carolina and Georgia in which approximately 83 percent of the current SRS workforce resides. In 1988, the six-county population was 450,000, including a workforce of 191,364. In 1989, approximately 15,000 SRS workers resided in the six-county area. The Final Environmental Impact Statement for Continued Operation of K-, L-, and P-Reactors (DOE, 1990), and the most recent socioeconomic survey of the six-county area (NUS, 1990) contain additional general site information. SRS facilities include one operating nuclear

Figure 4-1. SRS location in relation to surrounding population centers and counties.

production reactor, a nuclear fuel and target fabrication facility, two chemical separations areas, tritium facilities, a defense waste processing facility, a saltstone waste facility, and various supporting facilities.

The new WBC facility would be located on a 1.2 hectare (3 acre) site immediately adjacent to one of the developed areas of the SRS approximately 4.4 km (2.75 mi) from the nearest site boundary. The construction workforce for the proposed action would consist of 50 individuals. In addition, it is expected that all of the construction workforce would be composed of existing SRS workers rather than new workers immigrating into the SRS area. Once operational, the new WBC facility would employ eight people, all of whom would be relocated from the existing facility.

4.2 Meteorology and Climatology

The SRS region has a temperate climate with mild winters and long summers. The average annual rainfall at SRS is about 122 cm (48 in) and the average wind speed in 1982-86 was 3.25 m/sec (10.66 ft/sec) (DOE, 1990). Tornadoes have been observed during every month of the year in the area encompassing SRS, but occur most frequently in the spring. No damage from a tornado has ever occurred to any production facility on SRS (DOE, 1990). Only a few instances of slight to moderate tornado damage to support facilities have been documented for the site to date (WSRC, 1989a). Volume III of the Reactor Operation Environmental Information Document (RO EID) contains additional information on SRS meteorology and climatology (WSRC, 1989a). The general meteorological and climatological data for SRS would be representative of that for the proposed WBC facility location.

4.3 Geology and Seismology

The SRS is located in the Aiken Plateau physiographic region of the upper Atlantic Coastal Plain approximately 40 km (25 mi) southeast of the Fall Line which separates the Piedmont Plateau from the Atlantic Coastal Plain. The topographic surface of the coastal plain slopes gently seaward and is underlain by a wedge of seaward-dipping unconsolidated and semiconsolidated sediments from the Fall Line to the coast of South Carolina. A recent EIS (DOE, 1990) contains information on SRS fault location and earthquake occurrences.

The proposed project site is located at an elevation of approximately 300 feet above mean sea level (USGS, 1987). The soil type of the proposed WBC facility location is Orangeburg loamy sand. The Orangeburg soil association consists of well drained, moderately permeable soils that typically have a 0 to 2 percent slope (SCS, 1990). The proposed site does not overlap any of the known geologic faults on SRS (WSRC, 1989b).

4.4 Hydrology

The Savannah River forms the western boundary of the SRS and receives drainage from five major tributaries on the site: Upper Three Runs Creek, Fourmile Branch, Pen Branch, Steel Creek, and Lower Three Runs Creek. These tributaries receive varying types of wastewater discharges from plant processes and sanitary treatment systems, all of which are permitted through the National Pollutant Discharge Elimination System (NPDES). On the SRS, various plant processes also require the pumping of Savannah River water and/or onsite groundwater. A recent EIS (DOE, 1990) contains information on groundwater systems on SRS and in the surrounding region.

The proposed WBC facility site is located on a ridgetop draining to the east and west into the Upper Three Runs Creek basin (USGS, 1987). No wetlands or streams are found

within the immediate area of the location for the siting of this facility (Gladden, 1992). The depth to the groundwater is approximately 40 meters or 130 feet (WSRC, 1989b).

4.5 Ecological and Cultural Resources

Since 1951, when the U.S. Government acquired the SRS, natural resource management practices and natural succession outside of the construction and operation areas at SRS have resulted in increased ecological complexity and diversity of the site. Forested areas support a diversity of wildlife habitats that are restricted from public use. Forest management practices include controlled burning, harvesting of mature trees, and reforestation. Wildlife management includes control of SRS white-tailed deer (Odocoileous virginianus) and wild swine (Sus scrofa) populations through supervised hunts. The SRS, which was designated as the first National Environmental Research Park in 1972, is one of the most extensively-studied environments in this country. Volume II of the RO EID (WSRC, 1989c) contains additional information on the biotic characteristics of the SRS.

Of the diverse number of floral and faunal species found on the SRS, five are afforded protection by the Federal government under the Endangered Species Act of 1973. These species include the following: bald eagle (Haliaeetus leucocephalus); wood stork (Mycteria americana); red-cockaded woodpecker (Picoides borealis); American alligator (Alligator mississippiensis); and shortnose sturgeon (Acipenser brevirostrum). None of these species have been documented on or near the proposed facility site (WSRC, 1989c; Gaines, 1992).

The proposed location for this facility is on a site which is undeveloped. Currently, the site is composed entirely of a 38-year old planted slash pine (Pinus elliottii) plantation, interspersed with long-leaf pine (P. palustris), and with a thick mid-story hardwood component. Dominant woody species within the mid-story and shrub layers include post oak (Quercus stellata), southern red oak (Q. falcata), sassafras (Sassafras albidum), water oak (Q. nigra), and laurel oak (Q. laurifolia). The ground is covered by moderately thick layer of pine needle litter, with very little herbaceous cover. Historically, this site has been used for only timber production by the Savannah River Forest Station (SRFS) since the acquisition of the property by the Federal government in the early 1950s.

The management and utilization of forests, soils, watersheds, and wildlife at SRS are described in the SRS Natural Resources Management Plan (DOE, 1991b) and defined under the terms of a Memorandum of Agreement (MOA) among DOE-SR, SRFS, the Soil Conservation Service, and Westinghouse Savannah River Company (WSRC). DOE-SR uses this MOA to define the roles and responsibilities of the various agencies and organizations in the management of natural resources on SRS.

No known archaeological or cultural resources have been documented for the proposed project location. The location is situated within the lowest or Type III archaeological sensitivity zone for SRS (SRARP, 1989). Therefore, no complex archaeological or potential National Register of Historic Places eligible sites would be expected within the proposed project location.

Cultural resources at SRS are managed under the terms of a Programmatic Memorandum of Agreement (PMOA) among DOE-SR, the South Carolina State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation. DOE-SR uses this PMOA to identify cultural resources, assess these in terms of National Register eligibility, and develop mitigation plans for affected resources in consultation with the SHPO. DOE-SR would comply with the stipulations of the PMOA for all activities related to the new WBC facility project.

4.6 Radiation Environment

A person residing in the Central Savannah River Area (within 80 km or 50 mi of SRS; see Figure 4-1) receives an average annual radiation dose of about 379 mrem; the SRS contributes less than one percent of the total. Natural radiation sources contribute about 315 mrem, medical exposures contribute about 54 mrem, and consumer products contribute about 10 mrem. The SRS Environmental Report (WSRC, 1991) contains more information on the radiation environment. Previous work at the proposed project site did not involve either the production of or exposure from radioactive materials.

5.0 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

5.1 Construction and Normal Operation

5.1.1 Land

The proposed new WBC facility would be constructed and operated immediately adjacent to an existing developed area. The area to be cleared for the proposed facility would not exceed 1.2 hectares (3 acres) of a planted pine plantation. Currently, 93 percent (74,672 hectares or 184,512 acres) of the SRS is undeveloped (WSRC, 1989c). The proposed project site represents less than 0.002 percent of the site's undeveloped land area. Therefore, the amount of land utilized for this proposed project would be minimal.

5.1.2 Socioeconomics

Direct and indirect socioeconomic impacts of the proposed new WBC facility construction workforce of 50 individuals would be negligible when compared to the present total SRS employment of approximately 25,400 people. All of the construction workforce and the eight operational staff would be derived from the existing ranks of SRS personnel. Therefore, no measurable impact on the local economy would be expected from the proposed action.

5.1.3 Ecology and Cultural Resources

The proposed site has been assessed by both WSRC/SRTC and SRFS for any potential environmental concerns (e.g., sensitive resources such as wetlands, endangered species, critical habitats). No impacts to sensitive ecological resources or known cultural resources would result from new WBC facility construction and operation (SRARP, 1989; Gladden, 1992; Gaines, 1992). The approval of the Site Use Permit given by the Savannah River Archaeological Research Program (SRARP) in 1991 further corroborates the lack of any expected impacts to known cultural resources at the proposed site.

No endangered species have been identified in the vicinity of the proposed WBC facility site from previous surveys at SRS (WSRC, 1989c). The habitats in the vicinity of the project site are not suitable for any of the federally-protected species that have been identified for the SRS except for the red-cockaded woodpecker. The distances to the nearest active and inactive colonies for the red-cockaded woodpecker from the proposed facility are 15.8 km (9.8 mi) and 4.8 km (3.0 mi), respectively. The proposed site is beyond the typical foraging distance for this species as reported on SRS. Therefore, the proposed action would not have any effect on endangered species or their habitats (Gaines, 1992). This determination of no impact on federally-protected species was concurred with by the U. S. Fish and Wildlife Service (USFWS) after reviewing the SRFS report (Banks, 1992).

The site is scheduled for a thinning treatment in 1992 as part of the SRFS prescription for that timber compartment. The selling of some merchantable timber would be involved in the clear cutting of the proposed site. Approximately 5000 board feet of timber per acre (15,000 board feet total) is expected to be harvested from this site. Clearcutting of the proposed WBC site would represent the loss of less than 0.003 percent of that habitat type (i.e., planted pine forest) on the SRS and would be expected to result in only a minimal impact.

No wetland impacts would be expected as a result of the proposed action. To prevent any potential impacts to the Upper Three Runs Creek drainage basin, standard erosion and sedimentation control measures would be used during construction of the proposed facility. An approved Erosion and Sedimentation Control Plan would be completed with Aiken County prior to the construction startup.

5.1.4 Radiation Occupational Safety

The radioactive materials used in the operation of this proposed facility would be limited to check and calibration sources. All sources would be brought from the existing facility to the new WBC resulting in no incremental increase in the number of sources over what is currently utilized for the *in vivo* counting program. Because of the low quantities (i.e., between 0.2-20.5 mCi for each source) and fixed containment (i.e., encapsulation) of these radionuclides, no measurable occupational exposure or offsite exposure is expected to result from normal operation.

5.1.5 Waste Management

Construction of the proposed new WBC facility would generate some building material debris and rubble. Depending upon composition, these waste streams would either be deposited in the SRS Sanitary Landfill or Erosion Control Pit. Because the proposed project location is previously undeveloped, no contaminated soils or waste sites are expected to be encountered during construction. Aside from small amounts of domestic sanitary waste, no waste streams would be generated after the installation and operational startup of the proposed facility. In general, project activities are expected to have only a minimal impact on site waste management operations.

5.1.6 Hydrology

No surface water would be used during operation of the proposed new WBC facility. All domestic and fire water needed would be obtained from existing B-Area water wells and distribution system. The new WBC facility domestic water needs would include only toilets, showers, and sinks. The withdrawal of groundwater for new WBC facility activities would be approximately 26 gpm and should not affect water levels in the aquifers. The average fire water use is estimated to be zero gpm. Adequate water supply and pressure would be available, however, should a fire-fighting need arise.

5.1.7 Air Quality

Only minimal air quality impacts are expected from the heavy equipment used during the construction at the site. The operation of this type of equipment does not fall within SCDHEC's requirements for air permitting requirements. Burning of slash piles may occur, if it is not feasible to haul the logging debris to the Burma Road landfill, and will be coordinated with SRFS fire management personnel. No air emissions are expected from the operation of the proposed facility. Air quality within the facility will be maintained

through use of HEPA filters which would filter incoming air to insure there are no airborne contaminants that would compromise accuracy of counts.

5.1.8 Transportation

Construction and operation of the proposed facility should not result in the rerouting of either pedestrian or vehicular traffic. Construction of a larger B-Area facility (i.e., SRS Engineering Buildings) on the opposite side of SRS Road 2 has not resulted in any traffic problems. Based on the size of the facility staff (i.e., eight employees) and capacity to handle personnel being monitored or waiting to be monitored (i.e., approximately 10 to 15 people at any given time), vehicular traffic associated with the operation of the new WBC facility should not create local traffic congestion.

5.2 Accident Analysis

The maximum reasonably foreseeable accident associated from the proposed action would be facility destruction resulting from either natural phenomena (i.e., wind, tornado or earthquake) or fire. There will be no increase in the number of sources, above what is currently used in 735-A, associated with the proposed WBC and therefore no increase in risk. Since all radioactive sources are at any given time either being stored in fireproof cabinets or used in the steel-shielded counting rooms, the possibility of a radiation leak, even in the event of total facility destruction, would be minimal. Even if a leak from a source should occur no measurable release would be expected. Since the proposed facility would be located in a lower population area of the site as opposed to the existing facility located in the SRTC technical area, potential for exposures would be reduced.

Because of the use of wooden construction materials (e.g., plywood sheathing and timber support trusses in the roof), the proposed new WBC facility building and associated offices and control room would be somewhat vulnerable to fire; however, the facility would be protected by a preaction sprinkler system and have fire detectors connected to the site's alarm system. The distance to the nearest SRS Fire Station (in F-Area) is 3.1 miles. The facility's shielded counting rooms would be all steel and therefore not vulnerable to fire. Based on the design of the proposed structure and the compounds to be used during normal operation, explosions associated with the proposed new WBC facility would not be reasonably foreseeable. Since fissile material would not be included in any phase of the proposed action, there is no concern for nuclear criticality associated with this facility.

5.3 Cumulative Impacts

A summary of the potential environmental consequences of the new WBC facility is presented in Table 5-1. The primary impact of the proposed project would be the loss of approximately 1.2 hectares (3 acres) of planted pine habitat. Based on the SRFS timber management practices over the last five years (1987-1991), the area to be cleared for the proposed action represents a loss of approximately 0.2 percent of the 729 hectares (1800 acres) of planted pine habitat harvested on the site annually, and less than 0.003 percent of the total planted pine habitat on SRS. The quantity of waste generated would only add a small increment to the waste generated at SRS. There would be no increase in the number of radioactive check and calibration sources over what is currently used in the existing facility. The withdrawal of water should not affect the water level of the aquifer. No other cumulative impacts to the environment are expected from the operation of the proposed facility.

Table 5-1. Summary of the potential impacts from the construction and operation of the new WBC facility.

Impact Subject	Environmental Consequence
Land	Minimal; the proposed action would be constructed adjacent to an existing developed area on a 3-acre site and would comprise less than 0.002 percent of undeveloped land on SRS. The proposed project would be compatible with other land uses in B-Area.
Socioeconomics	Direct and indirect socioeconomic impacts of the proposed action would be negligible.
Ecology and Cultural Resources	No impacts on sensitive ecological (e.g., threatened and endangered species, fish/wildlife habitat, and wetlands) or known archaeological/cultural resources would be realized.
Radiation Occupational Safety	Only low activity, encapsulated (i.e., fixed containment) sources would be used in the facility. No exposure or environmental impacts would be expected.
Waste Management	Impacts on SRS waste management operations as a result of the proposed action would be minimal.
Hydrology	Water use by new WBC facility activities would be minimal and would tie into existing groundwater wells and distribution system. No impacts would be realized on surface water systems.
Air Quality	No air emissions would be expected from new WBC facility operation. Air emissions from construction of the proposed facility would be minimal.
Transportation	Impacts from onsite transportation for the new WBC facility construction and operation would be minimal.
Accident Analysis	Radioactive releases would not be anticipated and there would be no construction or operational worker exposure in the event of facility destruction. Because of the use of combustible construction materials, the proposed facility would be somewhat vulnerable to fire. However, this potential impact would be mitigated with the installation of a fire suppression system. No liquid or solid chemical releases would be expected from the construction and operation of the proposed facility. There would be no concern for nuclear criticality associated with this facility.
Cumulative Impacts	The principal cumulative impact would be the loss of less than 0.003 percent of pine plantation habitat on SRS.

6.0 REGULATORY AND PERMITTING PROVISIONS CONSIDERED

DOE policy is to carry out its operations in compliance with all applicable Federal, State and local laws and regulations, as well as all DOE orders. This section provides a discussion of the major regulatory permit programs that might be applicable to the proposed action.

6.1 National Environmental Policy Act of 1969, as amended (42 USC 4321 et seq.)

This EA has been prepared in accordance with the NEPA of 1969, as amended, and with the requirements of the Council of Environmental Quality Regulations for Implementing NEPA (40 CFR Parts 1500-1508), and DOE Regulations for Implementation of NEPA (10 CFR Part 1021), Secretary of Energy Notice (SEN) 15-90, and DOE Order 5440.1D. This EA has been written to comply with NEPA and assess the significance of the environmental effects of the construction and operation of the proposed new WBC facility.

6.2 Solid Waste Regulations

Small amounts of nonradioactive, nonhazardous waste materials (e.g., building material debris, construction rubble and office waste) would be deposited in the SRS Sanitary Landfill or Erosion Control Pit during construction and operation of the proposed new WBC facility.

6.3 Domestic Water Regulations

The domestic water tie-in for the toilets, showers, and sinks would require a Public Water Works permit from the State of South Carolina (SCDHEC Regulation R61-58).

6.4 Liquid Discharge Regulations

Both a Sanitary Sewer Construction Permit (SCDHEC Regulation R61-67) and a Sanitary Sewer Operation NPDES Permit (SCDHEC Regulation R61-68) would be needed from the State of South Carolina for construction and operation of the proposed facility.

7.0 AGENCIES CONSULTED

The U. S. Forest Service SRFS and the USFWS were consulted in the preparation of this EA.

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