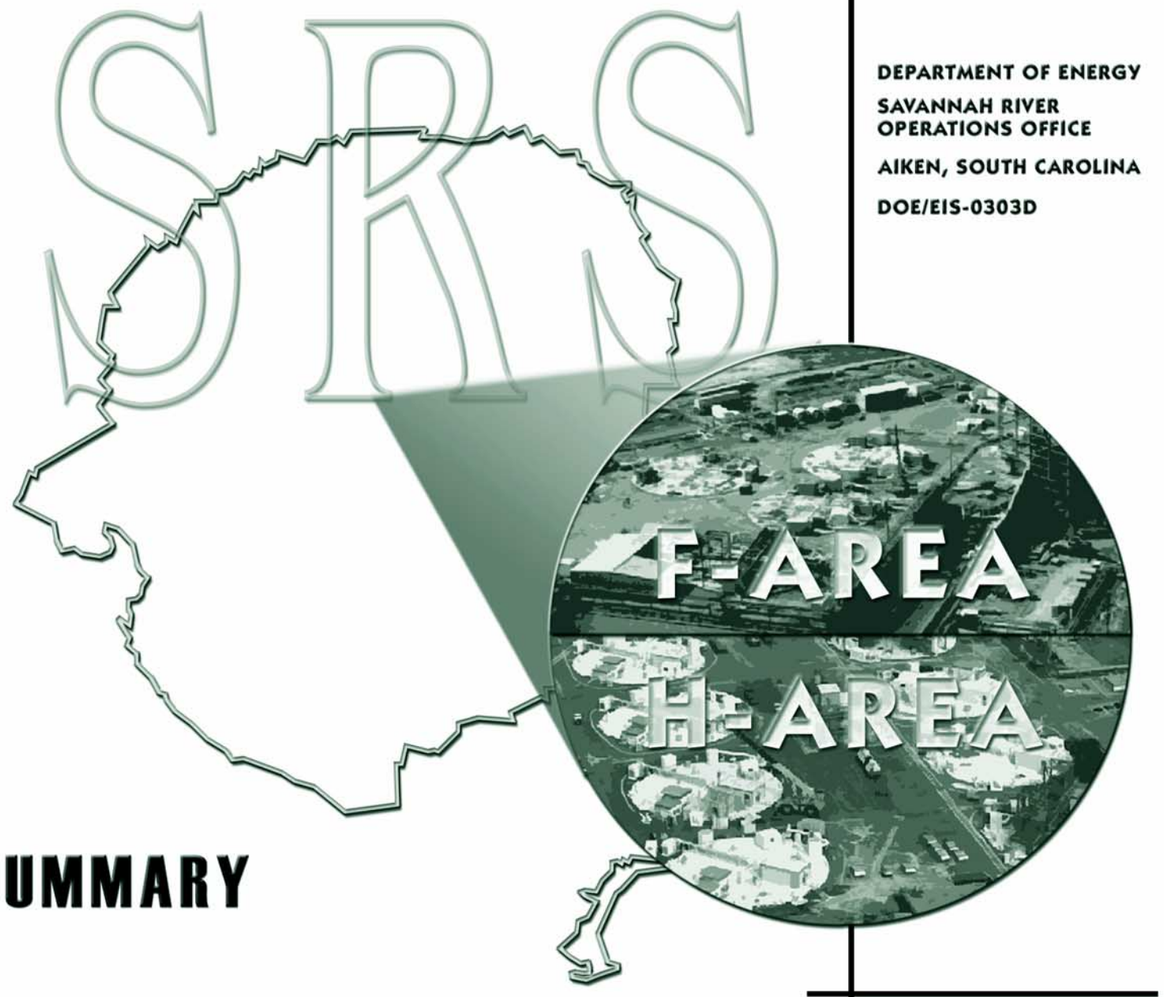
Savannah River Site

HIGH-LEVEL WASTE TANK CLOSURE

Draft Environmental Impact Statement



SUMMARY

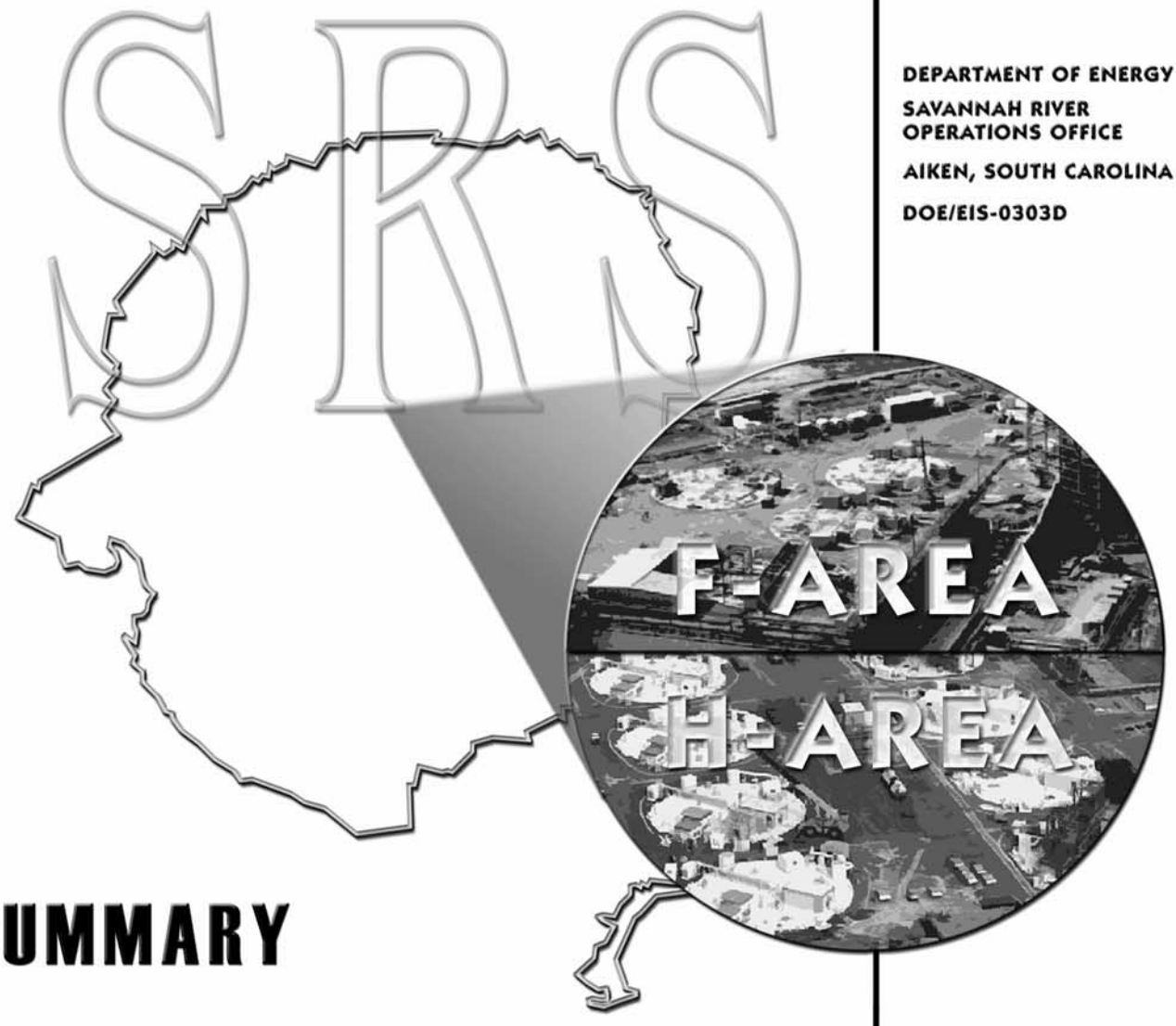
DEPARTMENT OF ENERGY
SAVANNAH RIVER OPERATIONS OFFICE
AIKEN, SOUTH CAROLINA

DOE/EIS-0303D

November 2000

Savannah River Site

HIGH- LEVEL WASTE
TANK CLOSURE
Draft Environmental Impact Statement



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SUMMARY

November 2000

COVER SHEET

RESPONSIBLE AGENCY: U.S. Department of Energy (DOE)

TITLE: Savannah River Site, High-Level Waste Tank Closure Draft Environmental Impact Statement (DOE/EIS-0303D), Aiken, SC.

CONTACT: For additional information or to submit comments on this environmental impact statement (EIS), write or call:

Andrew R. Grainger, NEPA Compliance Officer
U.S. Department of Energy, Savannah River Operations Office
Building 742A, Room 183
Aiken, South Carolina 29802
Attention: Tank Closure EIS
Local and Nationwide Telephone: (800) 881-7292 Email: nepa@srs.gov

The EIS is also available on the internet at: http://tis.eh.doe.gov/nepa/docs/docs.htm

For general information on the process that DOE follows in complying with the National Environmental Policy Act, write or call:

Ms. Carol M. Borgstrom, Director
Office of NEPA Policy and Compliance, EH-42
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585
Telephone: (202) 586-4600, or leave a message at (800) 472-2756.

ABSTRACT: DOE proposes to close the high-level waste (HLW) tanks at the Savannah River Site (SRS) in accordance with applicable laws and regulations, DOE Orders, and the *Industrial Wastewater Closure Plan for F- and H-Area High-Level Waste Tank Systems* (approved by the South Carolina Department of Health and Environmental Control), which specifies the management of residuals as waste incidental to reprocessing. The proposed action would begin after bulk waste removal has been completed. This EIS evaluates three alternatives regarding the HLW tanks at the SRS. The three alternatives are the Clean and Stabilize Tanks Alternative, the Clean and Remove Tanks Alternative, and the No Action Alternative. The EIS considers three options for tank stabilization: Fill with Grout (Preferred Alternative); Fill with Sand; and Fill with Saltstone.

Under each alternative (except No Action), DOE would close 49 HLW tanks and associated waste handling equipment including evaporators, pumps, diversion boxes, and transfer lines. Impacts are assessed primarily in the areas of water resources, air resources, public and worker health, waste management, socioeconomic impacts, and cumulative impacts.

PUBLIC INVOLVEMENT: In preparing this Draft EIS, DOE considered comments received by letter and voice mail and formal statements made at public scoping meetings in North Augusta, South Carolina, on January 14, 1999, and in Columbia, South Carolina, on January 19, 1999.

A 45-day comment period on the Draft High-Level Waste Tank Closure EIS begins with the U.S. Environmental Protection Agency's publication of a Notice of Availability in the *Federal Register*. Public meetings to discuss and receive comments on the Draft EIS will be held on December 11, 2000 at the North Augusta Community Center, North Augusta, South Carolina, and on December 12, 2000 at the Adams Mark Hotel, Columbia, South Carolina. Comments may be submitted at the public meeting and by voice mail, e-mail, and regular mail to the first address above. Comments received or postmarked by the end of the comment period will be considered in the preparation of the final EIS. Comments received or postmarked after the close of the comment period will be considered to the extent practicable.

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ACRONYMS, ABBREVIATIONS, AND USE OF SCIENTIFIC NOTATION

Acronyms

AAQS	ambient air quality standard
AEA	Atomic Energy Act of 1954
ALARA	as low as reasonably achievable
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CLSM	controlled low-strength material
CO	carbon monoxide
D&D	decontamination and decommissioning
DBE	design basis event
DOE	U.S. Department of Energy
DWPF	Defense Waste Processing Facility
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
FR	Federal Register
HEPA	high-efficiency particulate air (filter)
HLW	high-level waste
IMNM	Interim Management of Nuclear Material
INEEL	Idaho National Engineering and Environmental Laboratory
ISO	International Organization for Standardization
LCF	latent cancer fatality
LEU	low enriched uranium
LWC	lost workday cases

MCL	maximum contaminant level
MEI	maximally exposed (offsite) individual
NAAQS	National Ambient Air Quality Standards
NAS	National Academy of Sciences
NCRP	National Council on Radiation Protection and Measurements
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_X	nitrogen oxides
NRC	U.S. Nuclear Regulatory Commission
O_3	ozone
OSHA	Occupational Safety and Health Administration
PM_{10}	particulate matter less than 10 microns in diameter
PSD	Prevention of Significant Deterioration
ROD	Record of Decision
ROI	Region of Influence
SCDHEC	South Carolina Department of Health and Environmental Control
SO_2	sulfur dioxide
SRS	Savannah River Site
TRC	total recordable cases
TSP	total suspended particulates
WSRC	Westinghouse Savannah River Company

Abbreviations for Measurements

cfm	cubic feet per minute
cfs	cubic feet per second = 448.8 gallons per minute = 0.02832 cubic meter per second
cm	centimeter
gpm	gallons per minute
kg	kilogram
L	liter = 0.2642 gallon
lb	pound = 0.4536 kilogram
mg	milligram
µCi	microcurie
µg	microgram
pCi	picocurie
°C	degrees Celsius = 5/9 (degrees Fahrenheit – 32)
°F	degrees Fahrenheit = 32 + 9/5 (degrees Celsius)

Use of Scientific Notation

Very small and very large numbers are sometimes written using "scientific notation" or "E-notation" rather than as decimals or fractions. Both types of notation use exponents to indicate the power of 10 as a multiplier (i.e., 10^n, or the number 10 multiplied by itself "n" times; 10^{-n}, or the reciprocal of the number 10 multiplied by itself "n" times).

For example: $10^3 = 10 \times 10 \times 10 = 1{,}000$

$$10^{-3} = \frac{1}{10 \times 10 \times 10} = 0.001$$

In scientific notation, large numbers are written as a decimal between 1 and 10 multiplied by the appropriate power of 10:

4,900 is written $4.9 \times 10^3 = 4.9 \times 10 \times 10 \times 10 = 4.9 \times 1{,}000 = 4{,}900$
0.049 is written 4.9×10^{-2}
1,490,000 or 1.49 million is written 1.49×10^6

A positive exponent indicates a number larger than or equal to one; a negative exponent indicates a number less than one.

In some cases, a slightly different notation ("E-notation") is used, where "× 10" is replaced by "E" and the exponent is not superscripted. Using the above examples

$4{,}900 = 4.9 \times 10^3 = 4.9\text{E+}03$
$0.049 = 4.9 \times 10^{-2} = 4.9\text{E-}02$
$1{,}490{,}000 = 1.49 \times 10^6 = 1.49\text{E+}06$

Metric Conversion Chart

To convert into metric			To convert out of metric		
If you know	**Multiply by**	**To get**	**If you know**	**Multiply by**	**To get**
Length					
inches	2.54	centimeters	centimeters	0.3937	inches
feet	30.48	centimeters	centimeters	0.0328	feet
feet	0.3048	meters	meters	3.281	feet
yards	0.9144	meters	meters	1.0936	yards
miles	1.60934	kilometers	kilometers	0.6214	miles
Area					
sq. inches	6.4516	sq. centimeters	sq. centimeters	0.155	sq. inches
sq. feet	0.092903	sq. meters	sq. meters	10.7639	sq. feet
sq. yards	0.8361	sq. meters	sq. meters	1.196	sq. yards
acres	0.0040469	sq. kilometers	sq. kilometers	247.1	acres
sq. miles	2.58999	sq. kilometers	sq. kilometers	0.3861	sq. miles
Volume					
fluid ounces	29.574	milliliters	milliliters	0.0338	fluid ounces
gallons	3.7854	liters	liters	0.26417	gallons
cubic feet	0.028317	cubic meters	cubic meters	35.315	cubic feet
cubic yards	0.76455	cubic meters	cubic meters	1.308	cubic yards
Weight					
ounces	28.3495	grams	grams	0.03527	ounces
pounds	0.4536	kilograms	kilograms	2.2046	pounds
short tons	0.90718	metric tons	metric tons	1.1023	short tons
Temperature					
Fahrenheit	Subtract 32 then multiply by 5/9ths	Celsius	Celsius	Multiply by 9/5ths, then add 32	Fahrenheit

Metric Prefixes

Prefix	Symbol	Multiplication Factor
exa-	E	1 000 000 000 000 000 000 = 10^{18}
peta-	P	1 000 000 000 000 000 = 10^{15}
tera-	T	1 000 000 000 000 = 10^{12}
giga-	G	1 000 000 000 = 10^{9}
mega-	M	1 000 000 = 10^{6}
kilo-	k	1 000 = 10^{3}
centi-	c	0.01 = 10^{-2}
milli	m	0.001 = 10^{-3}
micro-	μ	0.000 001 = 10^{-6}
nano-	n	0.000 000 001 = 10^{-9}
pico-	p	0.000 000 000 001 = 10^{-12}
femto-	f	0.000 000 000 000 001 = 10^{-15}
atto-	a	0.000 000 000 000 000 001 = 10^{-18}