

# Final Site-Wide Environmental Impact Statement for the Y-12 National Security Complex

February 2011



U.S. Department of Energy  
National Nuclear Security Administration  
Y-12 Site Office

## COVER SHEET

**RESPONSIBLE AGENCY:** United States (U.S.) Department of Energy (DOE), National Nuclear Security Administration (NNSA)

**TITLE:** Final Site-Wide Environmental Impact Statement for the Y-12 National Security Complex (DOE/EIS-0387) (Final Y-12 SWEIS)

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**Abstract:** NNSA, a separately organized agency within DOE, is responsible for maintaining the safety, reliability, and security of the U.S. nuclear weapons stockpile to meet national security requirements. NNSA manages nuclear weapons programs and facilities, including those at the Y-12 National Security Complex (Y-12) at Oak Ridge, Tennessee. This Final Y-12 SWEIS analyzes the potential environmental impacts of the reasonable alternatives for ongoing and foreseeable future operations and activities at Y-12, including alternatives for changes to site infrastructure and levels of operation (using production capacity as the key metric for comparison).

Five alternatives are analyzed in this Y-12 SWEIS: (1) No Action Alternative (maintain the status quo); (2) Uranium Processing Facility (UPF) Alternative; (3) Upgrade-in-Place Alternative; (4) Capability-sized UPF Alternative; and (5) No Net Production/Capability-sized UPF Alternative. This document assesses the potential environmental impacts of operations and applicable plans on land uses, socioeconomic characteristics and environmental justice, prehistoric and historic cultural resources, visual resources, geology and soils, biological resources, wetlands, water, air quality, noise, traffic and transportation, utilities and energy, waste management, human health and safety, intentional destructive acts, and accidents. The Capability-sized UPF Alternative is NNSA's preferred alternative.

**Public Involvement:** NNSA distributed the Draft Y-12 SWEIS in October 2009. The public comment period for the Draft Y-12 SWEIS began on October 30, 2009, with publication of the Environmental Protection Agency's Notice of Availability in the *Federal Register* (74 FR 56189). That notice invited public comment on the Draft Y-12 SWEIS through January 4, 2010, and provided for two public hearings to receive comments on the Draft Y-12 SWEIS. During the comment period, two public hearings were held in Oak Ridge, Tennessee, on November 17 and

18, 2009. At the first hearing, NNSA announced an extension of the comment period until January 29, 2010. That announcement was formalized with a notice in the *Federal Register* on December 28, 2009 (74 FR 68599).

All comments received during the comment period were considered during the preparation of the Final Y-12 SWEIS. All late comments were also considered. The Final SWEIS contains revisions and new information based in part on comments received on the Draft SWEIS. Following issuance of the Draft SWEIS, NNSA determined that a Haul Road was needed to support UPF construction. The Final SWEIS also includes information and analysis of a Haul Road extension corridor for the UPF, including a detailed Wetlands Assessment that was prepared in accordance with 10 Code of Federal Regulations (CFR) 1022, "Compliance with Floodplain and Wetlands Environmental Review Requirements" for the purpose of fulfilling NNSA's responsibilities under Executive Order 11990, "Protection of Wetlands." The Wetlands Assessment is contained in Appendix G. The comments received on that assessment, and NNSA's responses to those comments, are contained in Volume II of the Final SWEIS. In accordance with 40 CFR 1502.9(c)(1), NNSA determined, with respect to the Haul Road, that there were no substantial changes in the proposed action that are relevant to environmental concerns, nor significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. Consequently, NNSA determined that a Supplemental Draft Y-12 SWEIS was not required.

Vertical change bars in the margins of the Final SWEIS indicate the locations of revisions and new information (in the Summary, small changes are indicated by a double underline). Volume II contains the comments received on the Draft SWEIS and NNSA's responses to the comments. NNSA will use the analysis presented in this Final SWEIS, as well as other information, in preparing the Record(s) of Decision (RODs) regarding Y-12. NNSA will issue one or more RODs no sooner than 30 days after the U.S. Environmental Protection Agency publishes a Notice of Availability of this Final SWEIS in the *Federal Register*. This document and related information are available on the Internet at [www.y12sweis.com](http://www.y12sweis.com) and DOE's NEPA website at [www.nepa.energy.gov/DOE\\_NEPA\\_documents.htm](http://www.nepa.energy.gov/DOE_NEPA_documents.htm).

DOE/EIS-0387

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Summary

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Prepared by:

U.S. Department of Energy  
National Nuclear Security Administration  
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## SUMMARY: TABLE OF CONTENTS

Cover Sheet	
List of Tables .....	S-iii
List of Figures .....	S-iii
Acronyms and Abbreviations .....	S-iv
Units of Measure and Abbreviations .....	S-vi
Conversion Chart .....	S-vii
S.1 Introduction .....	S-1
S.1.1 Background .....	S-2
S.1.2 Y-12 Today and the Vision for Tomorrow .....	S-4
S.1.3 Purpose and Need.....	S-9
S.1.4 Scope of this Y-12 SWEIS and Alternatives .....	S-11
S.1.4.1 Alternative 1 – No Action Alternative.....	S-11
S.1.4.2 Alternative 2 – Uranium Processing Facility ( <u>UPF</u> ) Alternative.....	S-11
S.1.4.2.1 Uranium Processing Facility.....	S-12
S.1.4.2.2 Complex Command Center ( <u>CCC</u> ).....	S-12
S.1.4.3 Alternative 3 – Upgrade in-Place Alternative.....	S-12
S.1.4.4 Alternative 4 – Capability-sized UPF Alternative .....	S-13
S.1.4.5 Alternative 5 – No Net Production/Capability-sized UPF Alternative.....	S-13
S.1.4.6 Capacity Alternatives for the Uranium Processing Facility .....	S-14
S.1.5 National Security Considerations .....	S-14
S.1.5.1 Nonproliferation and Treaty Compliance .....	S-14
S.1.5.2 National Security Policies and Relevant Reports .....	S-16
S.1.6 Laws and Regulations and <i>National Environmental Policy Act</i> Compliance Strategy.....	S-18
S.1.7 Public Involvement .....	S-18
S.1.7.1 Scoping Process .....	S-18
S.1.7.2 <u>Public Comment Period</u> .....	S-19
S.2 Operations Overview of Y-12 National Security Complex.....	S-22
S.2.1 National Nuclear Security Administration Activities Supported by Y-12 National Security Complex.....	S-22
S.2.1.1 Defense Programs .....	S-22
S.2.1.1.1 <u>Dismantlements</u> .....	S-24
S.2.1.2 National Security Programs .....	S-25
S.2.2 Non-NNSA Programs .....	S-25
S.2.3 Pollution Prevention, Conservation, and Recycling Programs.....	S-26
S.3. SWEIS Alternatives .....	S-26
S.3.1 Alternatives .....	S-26
S.3.1.1 Alternative 1 – No Action Alternative.....	S-26
S.3.1.2 Alternative 2 – Uranium Processing Facility Alternative.....	S-29
S.3.1.2.1 Uranium Processing Facility.....	S-29
S.3.1.2.2 Complex Command Center.....	S-31

	S.3.1.3	Alternative 3 – Upgrade in-Place Alternative.....	S-33
	S.3.1.4	Alternative 4 – Capability-sized UPF Alternative .....	S-34
	S.3.1.5	Alternative 5 – No Net Production/Capability-sized UPF Alternative.....	S-36
	S.3.1.6	Capacity Alternatives for the Uranium Processing Facility .....	S-36
S.3.2		Alternatives Considered but Eliminated from Detailed Consideration .....	S-38
S.3.3		Comparison of Potential Environmental Impacts .....	S-40
	S.3.3.1	Land Use .....	S-40
	S.3.3.2	Visual Resources.....	S-41
	S.3.3.3	Site Infrastructure.....	S-41
	S.3.3.4	Traffic and Transportation .....	S-42
	S.3.3.5	Geology and Soils .....	S-43
	S.3.3.6	Air Quality and Noise .....	S-44
		S.3.3.6.1 Air Quality .....	S-44
		S.3.3.6.2 Noise .....	S-45
	S.3.3.7	Water Resources .....	S-46
		S.3.3.7.1 Surface Water <u>and Wetlands</u> .....	S-46
		S.3.3.7.2 Groundwater .....	S-47
	S.3.3.8	Ecological Resources .....	S-48
	S.3.3.9	Cultural Resources .....	S-48
	S.3.3.10	Socioeconomics .....	S-49
	S.3.3.11	Environmental Justice.....	S-50
	S.3.3.12	Health and Safety .....	S-50
	S.3.3.13	Waste Management.....	S-51
	S.3.3.14	Facility Accidents .....	S-51
	S.3.3.15	Intentional Destructive Acts .....	S-52
S.3.4		Preferred Alternative.....	S-53
S.4		References .....	S-67

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**LIST OF TABLES**

Table S.1.7-1	Category Distribution of Scoping Comments.....	S-19
Table S.1.7-2	Public Hearing Attendance and Number of Commentors .....	S-20
Table S.3.1.6-1	Operational Differences Among Alternatives .....	S-37
Table S.3.3-1	Comparison of Environmental Impacts and Parameters Among Alternatives .....	S-55

**LIST OF FIGURES**

Figure S.1-1	Location of Oak Ridge Reservation, Principal Facilities, and Surrounding Area .....	S-2
Figure S.1.2-1	Major <u>Operating</u> Facilities Currently Supporting Y-12 Missions.....	S-5
Figure S.1.2-2	The Proposed End State for the Modernization of Y-12.....	S-6
Figure S.2-1	Programmatic Responsibility for Y-12 Facilities.....	S-23
Figure S.2-2	Dismantlement Throughput at Y-12, 2002-2009 .....	S-25
Figure S.3.1.2-1	Artist's Rendering of the Proposed UPF Adjacent to the <u>Highly</u> <u>Enriched Uranium Materials Facility</u> .....	S-31
Figure S.3.1.2-2	Location of the Proposed UPF and <u>Complex Command Center</u> Relative to Other Buildings at Y-12 .....	S-32

## ACRONYMS AND ABBREVIATIONS

ASER	Annual Site Environmental Report
B&W	Babcock & Wilcox Technical Services Y-12, LLC
Cat I/II	Category I/II
CAUP	Compressed Air Upgrades Project
CCC	Complex Command Center
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	United States Code of Federal Regulations
CMC	Consolidated Manufacturing Complex
CO <sub>2</sub>	carbon dioxide
CX	categorical exclusion
D&D	decontamination and decommissioning
DNFSB	Defense Nuclear Facilities Safety Board
DoD	United States Department of Defense
DOE	United States Department of Energy
DOE-NE	Department of Energy Office of Nuclear Energy
DOE-SC	Department of Energy Office of Science
DU	depleted uranium
EA	Environmental Assessment
ED	effective dose
EFPC	East Fork Poplar Creek
EIS	Environmental Impact Statement
EM	Environmental Management
EOC	Emergency Operations Center
EPA	United States Environmental Protection Agency
ETTP	East Tennessee Technology Park
EU	enriched uranium
FIRP	Facilities and Infrastructure Recapitalization Program
FONSI	Finding of No Significant Impact
FR	Federal Register
HAP	hazardous air pollutant
HEPA	high efficiency particulate air
HEU	highly enriched uranium
HEUMF	Highly Enriched Uranium Materials Facility
HVAC	heating, ventilation, and air conditioning
IFDP	Integrated Facilities Disposition <u>Program</u>
LCF	latent cancer fatality
LEP	Life Extension Program
LLW	low-level radioactive waste
LOS	Level-of-Service
MAA	Material Access Area
MEI	maximally exposed individual
NAAQS	National Ambient Air Quality Standard
NEPA	National Environmental Policy Act

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NFRR	Nuclear Facility Risk Reduction
NNSA	National Nuclear Security Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPR	Nuclear Posture Review
NPT	Nuclear Nonproliferation Treaty
NSP	National Security Program
NWC	Nuclear Weapons Council
ORNL	Oak Ridge National Laboratory
ORR	Oak Ridge Reservation
PC	Performance Category
PCB	polychlorinated biphenyls
PEIS	Programmatic Environmental Impact Statement
PIDAS	Perimeter Intrusion Detection and Assessment System
R&D	research and development
ROD	Record of Decision
ROI	region of influence
SEAB	Secretary of Energy Advisory Board
SIP	Security Improvements Project
SMC	Special Materials Complex
SNM	special nuclear material
SRS	Savannah River Site
SSM	Stockpile Stewardship and Management
SPEIS	Supplemental Programmatic Environmental Impact Statement
START	Strategic Arms Reduction Talks
SWEIS	Site-Wide Environmental Impact Statement
TDEC	Tennessee Department of Environment and Conservation
T&E	threatened and endangered
TYSP	Ten-Year Site Plan
UEFPC	Upper East Fork Poplar Creek
UPF	Uranium Processing Facility
U.S.	United States
VRM	Visual Resource Management
Y-12	Y-12 National Security Complex
YSO	Y-12 Site Office

## UNITS OF MEASURE AND ABBREVIATIONS

A-weighted decibel	dB <sub>A</sub>
cubic meters	m <sup>3</sup>
cubic meters per year	m <sup>3</sup> /yr
cubic yards	yd <sup>3</sup>
decibel	dB
gallons per day	gal/day
gallons per year	gal/yr
kilowatt hour	kWh
kilowatt hours per year	kWh/yr
megawatt	MW
million	M
million gallons per day	M gal/day
million gallons per year	M gal/yr
millirem	mrem
millirem per year	mrem/yr
particulate matter of aerodynamic diameter less than <u>or equal to</u> 10 micrometers	PM <sub>10</sub>
particulate matter of aerodynamic diameter less than or equal to 2.5 micrometers	PM <sub>2.5</sub>
ppm	parts per million
rem per year	rem/yr
square feet/foot	ft <sup>2</sup>
tons per year	tons/yr

## CONVERSION CHART

TO CONVERT FROM U.S. CUSTOMARY INTO METRIC			TO CONVERT FROM METRIC INTO U.S. CUSTOMARY		
If you know	Multiply by	To get	If you know	Multiply by	To get
<b>Length</b>					
inches	2.540	centimeters	centimeters	0.3937	inches
feet	30.48	centimeters	centimeters	0.03281	feet
feet	0.3048	meters	meters	3.281	feet
yards	0.9144	meters	meters	1.094	yards
miles	1.609	kilometers	kilometers	0.6214	miles
<b>Area</b>					
square inches	6.452	square centimeters	square centimeters	0.1550	square inches
square feet	0.09290	square meters	square meters	10.76	square feet
square yards	0.8361	square meters	square meters	1.196	square yards
acres	0.4047	hectares	hectares	2.471	acres
square miles	2.590	square kilometers	square kilometers	0.3861	square miles
<b>Volume</b>					
fluid ounces	29.57	milliliters	milliliters	0.03381	fluid ounces
gallons	3.785	liters	liters	0.2642	gallons
cubic feet	0.02832	cubic meters	cubic meters	35.31	cubic feet
cubic yards	0.7646	cubic meters	cubic meters	1.308	cubic yards
<b>Weight</b>					
ounces	28.35	grams	grams	0.03527	ounces
pounds	0.4536	kilograms	kilograms	2.205	pounds
short tons	0.9072	metric tons	metric tons	1.102	short tons
<b>Temperature</b>					
Fahrenheit (°F)	subtract 32, then multiply by 5/9	Celsius (°C)	Celsius (°C)	multiply by 9/5, then add 32	Fahrenheit (°F)
Kelvin (K)	subtract 273.15	Celsius (°C)	Celsius (°C)	add 273.15	Kelvin (K)

*Note: 1 sievert = 100 rem*