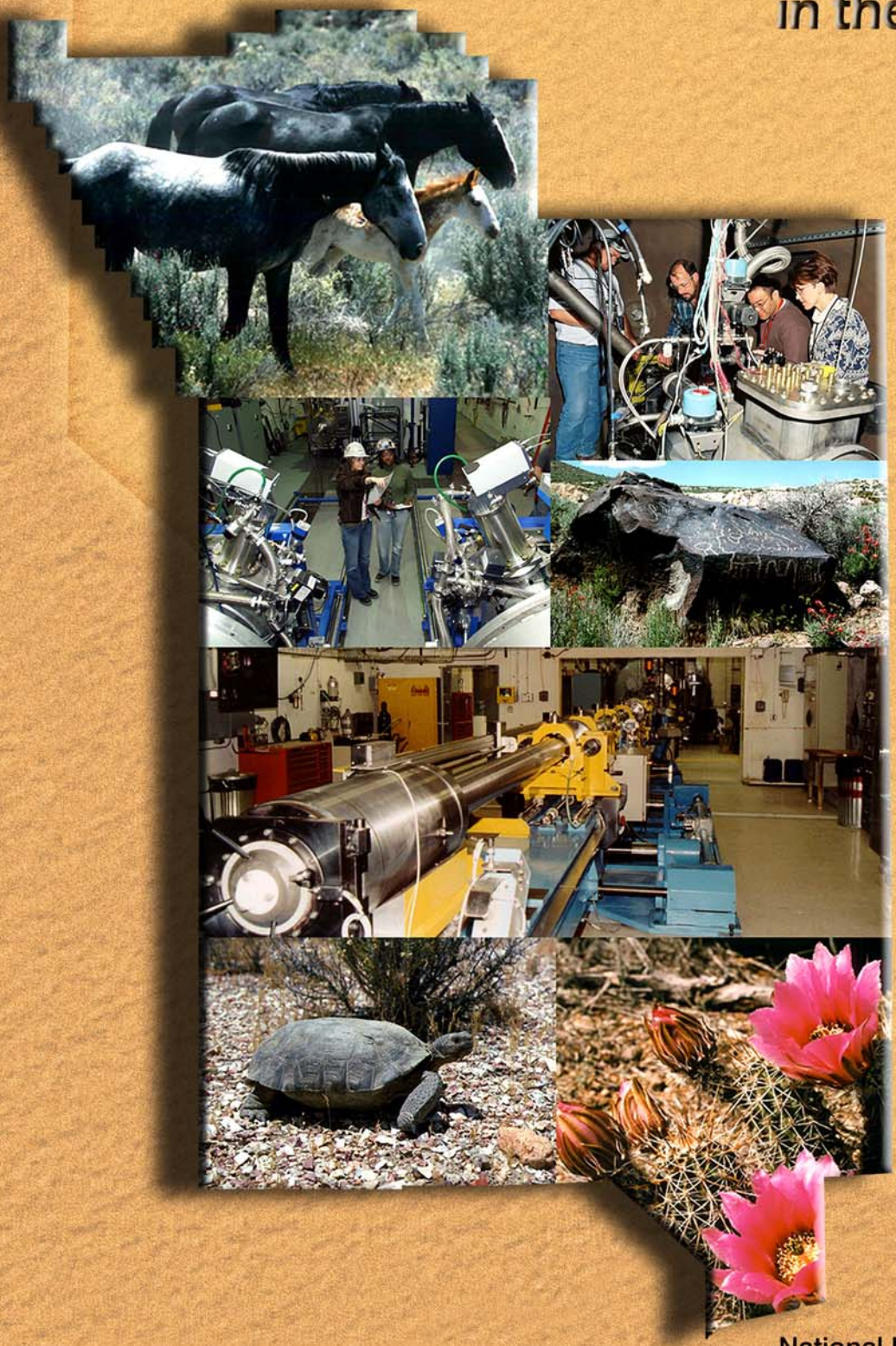
DOE/EIS-0426D

Draft Site-Wide Environmental Impact Statement for the Continued Operation of the Department of Energy/National Nuclear Security Administration Nevada National Security Site and Off-Site Locations in the State of Nevada

Volume 2

(Appendices A through I)



U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office

AVAILABILITY OF THE DRAFT SITE-WIDE ENVIRONMENTAL IMPACT STATEMENT FOR THE CONTINUED OPERATION OF THE DEPARTMENT OF ENERGY/ NATIONAL NUCLEAR SECURITY ADMINISTRATION NEVADA NATIONAL SECURITY SITE AND OFF-SITE LOCATIONS IN THE STATE OF NEVADA (NNSS SWEIS)

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Location: Nye and Clark Counties, Nevada

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Abstract: This *Site-Wide Environmental Impact Statement for the Continued Operation of the Department of Energy/National Nuclear Security Administration Nevada National Security Site and Off-Site Locations in the State of Nevada (NNSS SWEIS)* analyzes the potential environmental impacts of proposed alternatives for continued management and operation of the Nevada National Security Site (NNSS) (formerly known as the Nevada Test Site) and other U.S. Department of Energy/National Nuclear Security Administration (DOE/NNSA)-managed sites in Nevada, including the Remote Sensing Laboratory (RSL) on Nellis Air Force Base in North Las Vegas, the North Las Vegas Facility (NLVF), the Tonopah Test Range (TTR), and environmental restoration areas on the U.S. Air Force Nevada Test and Training Range. The purpose and need for agency action is to provide support for meeting NNSA's core missions established by Congress and the President, and to satisfy the requirements of Executive orders and comply with congressional mandates to promote, expedite, and advance the production of environmentally sound energy resources, including renewable energy resources such as solar and geothermal energy systems.

The NNSS has a long history of supporting national security objectives by conducting underground nuclear tests and other nuclear and nonnuclear activities. Since the October 1992 moratorium on nuclear testing, NNSA's primary mission at the NNSS has evolved from an active nuclear testing program to maintaining readiness and the capability to conduct underground nuclear weapons tests, if so directed by the President. Resources have been reallocated to introduce and expand other mission activities/programs at the NNSS, RSL, NLVF, and the TTR to support three DOE/NNSA core missions: National Security/Defense, Environmental Management, and Nondefense. The National Security/Defense Mission includes the Stockpile Stewardship and Management, Nuclear Emergency Response, Nonproliferation and Counterterrorism, and Work for Others

Programs. The Work for Others Program supports other DOE programs and Federal agencies such as the U.S. Department of Defense, U.S. Department of Justice, and U.S. Department of Homeland Security. The Environmental Management Mission includes the Waste Management and Environmental Restoration Programs. The Nondefense Mission includes the General Site Support and Infrastructure, Conservation and Renewable Energy, and Other Research and Development Programs.

The NNSS, RSL, NLVF, and the TTR support DOE/NNSA's core missions by providing the capabilities to process and dispose of a damaged nuclear weapon or improvised nuclear device and to conduct high-hazard experiments involving special nuclear material and high explosives, non-nuclear experiments, and hydrodynamic testing. Nuclear stockpile stewardship activities at the NNSS include dynamic plutonium experiments that provide technical information to maintain the safety and reliability of the U.S. nuclear weapons stockpile and research and training in areas such as nuclear safeguards, criticality safety, and emergency response. Special Nuclear Materials are also stored at the NNSS. In addition, in accordance with the amended Record of Decision (ROD) (DOE/EIS-0243) for the *Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada (1996 NTS EIS*) , NNSA receives low-level and mixed low-level radioactive waste for disposal at the NNSS.

This *NNSS SWEIS* analyzes the environmental impacts of three reasonable alternatives for continued operations at the NNSS, RSL, NLVF, and the TTR during the 10-year period following the issuance of a ROD. These alternatives include a No Action Alternative and two action alternatives: Expanded Operations and Reduced Operations. The No Action Alternative, which is analyzed as a baseline for evaluating the two action alternatives, would continue implementation of the *1996 NTS EIS* ROD (DOE/EIS-0243) and subsequent amendments (61 FR 65551and 65 FR 10061), as well as other decisions supported by separate NEPA analyses completed since issuance of the final *1996 NTS EIS*. The No Action Alternative reflects activity levels consistent with those seen since 1996. The Expanded Operations Alternative would consider adding reasonably foreseeable new work at the NNSS in the areas of nonproliferation and counterterrorism, high-hazard and other experiments, research and development and testing. Such expanded operations could include developing test beds for concept testing of sensors, mitigation strategies, and weapons effectiveness. The Reduced Operations Alternative would reduce the overall level of operations and close specific buildings and structures. NNSA would also consider allowing the development of solar power generation facilities under each alternative.

Public Comments: DOE issued a Notice of Intent (NOI) in the *Federal Register* (74 FR 36691) on July 24, 2009, to solicit public input on the preparation of this Draft SWEIS. Comments received from the public during the scoping period (July 24, 2009 to October 16, 2009) have been considered in the preparation of this Draft SWEIS. Comments received after the close of the comment period also have been considered. Comments on this Draft SWEIS will be accepted following publication of the U.S. Environmental Protection Agency's Notice of Availability (NOA) in the *Federal Register* for a period of 90 days, and will be considered in the preparation of the Final SWEIS. Any comments received after the comment period will be considered to the extent practicable. Public meetings and locations will be identified at a later date.

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ACRONYMS, ABBREVIATIONS, AND CONVERSION CHARTS

ACRONYMS, ABBREVIATIONS, AND CONVERSION CHARTS

AEGL	Acute Exposure Guideline Level
ARF	airborne release fraction
BEEF	Big Explosives Experimental Facility
CAS	corrective action site
CAU	corrective action unit
CEMP	Community Environmental Monitoring Program
CFR	*Code of Federal Regulations*
CH	contact-handled
D&D	decontamination and decommissioning
DAF	Device Assembly Facility
DAQEM	Department of Air Quality and Environmental Management
DART	days away from work, restricted duty, or transferred
DHS	U.S. Department of Homeland Security
DoD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOE/NNSA	U.S. Department of Energy and the National Nuclear Security Administration
DOT	U.S. Department of Transportation
DPFF	Dense Plasma Focus Facility
DR	damage ratio
EA	Environmental Assessment
EDE	effective dose equivalent
EDMS	Emissions and dispersion Modeling System
EIS	environmental impact statement
EMAD	Engine Maintenance Assembly and Disassembly Facility
EODU	Explosives Ordnance Disposal Unit
EPA	U.S. Environmental Protection Agency
ERPGs	Emergency Response Planning Guidelines
FFACO	Federal Facility Agreement and Consent Order
FR	*Federal Register*
FRMAC	Federal Radiological Monitoring and Assessment Center
FY	fiscal year
GIS	geographic information system
HAP	hazardous air pollutant
HEST	High Explosive Simulation Technique
ICRP	International Commission on radiological Protection
IDLH	Immediately Dangerous to Life or Health
ISCORS	Interagency Steering Committee on Radiation Standards
ISO	International Organization for Standardization
JASPER	Joint Actinide Shock Physics Experimental Research
LANL	Los Alamos National Laboratory
LLNL	Lawrence Livermore National Laboratory
LCF	latent cancer fatality

LLW	low-level radioactive waste
LPF	leak path factor
MAR	material at risk
MEI	maximally exposed individual
MLLW	mixed low-level radioactive waste
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NASA	U.S. National Aeronautics and Space Administration
NDEP	Nevada Division of Environmental Protection
NEPA	National Environmental Policy Act of 1969
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NLVF	North Las Vegas Facility
NNSA	National Nuclear Security Administration
NNSA/NSO	National Nuclear Security Administration Nevada Site Office
NNSS	Nevada National Security Site
NPTEC	Nonproliferation Test and Evaluation Complex
NRC	U.S. Nuclear Regulatory Commission
NRF	National Response Framework
NSO	Nevada Site Office
NTTR	Nevada Test and Training Range
NTS	Nevada Test Site
NNSS SWEIS	*Site-Wide Environmental Impact Statement for the Continued Operation of the Department of Energy/National Nuclear Security Administration Nevada Test Site and Off-Site Locations in the State of Nevada*
OBODM	Open Burn/Open Detonation Model
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PM	particulate matter
rad	radiation absorbed dose
RCRA	Resource Conservation and Recovery Act
rem	roentgen equivalent man
RF	respirable fraction
RH	remote-handled
RNCTEC	Radiological/Nuclear Countermeasures Test and Evaluation Complex
ROD	Record of Decision
RSL	Remote Sensing Laboratory
RTG	radioisotope thermoelectric generator
RWMC	Radioactive Waste Management Complex
RWMS	Radioactive Waste Management Site
SGTs	safeguards transporters
SNM	special nuclear materials
STEL	Short-Term Exposure Limit
SWEIS	Site-Wide Environmental Impact Statement
TEELs	Temporary Emergency Exposure Limits

TLV	Threshold Limit Value
TNT	2,4,6-trinitrotoluene
TRC	total recordable cases
TRU	transuranic waste
TRUPACT	transuranic waste package transporter
TTR	Tonopah Test Range
UCVS	ultrafast closure valve system
UGTA	Underground Test Area
USAF	U.S. Air Force
VMT	vehicle miles traveled
VOC	volatile organic compound
Y-12	Y-12 National Security Complex
ZPPR	zero power plutonium reactor
ºC	degrees Centigrade
ºF	degrees Fahrenheit

CONVERSIONS

METRIC TO ENGLISH			ENGLISH TO METRIC		
Multiply	**by**	**To get**	**Multiply**	**by**	**To get**
Area					
Square meters	10.764	Square feet	Square feet	0.092903	Square meters
Square kilometers	247.1	Acres	Acres	0.0040469	Square kilometers
Square kilometers	0.3861	Square miles	Square miles	2.59	Square kilometers
Hectares	2.471	Acres	Acres	0.40469	Hectares
Concentration					
Kilograms/square meter	0.16667	Tons/acre	Tons/acre	0.5999	Kilograms/square meter
Milligrams/liter	1 [a]	Parts/million	Parts/million	1 [a]	Milligrams/liter
Micrograms/liter	1 [a]	Parts/billion	Parts/billion	1 [a]	Micrograms/liter
Micrograms/cubic meter	1 [a]	Parts/trillion	Parts/trillion	1 [a]	Micrograms/cubic meter
Density					
Grams/cubic centimeter	62.428	Pounds/cubic feet	Pounds/cubic feet	0.016018	Grams/cubic centimeter
Grams/cubic meter	0.0000624	Pounds/cubic feet	Pounds/cubic feet	16,025.6	Grams/cubic meter
Length					
Centimeters	0.3937	Inches	Inches	2.54	Centimeters
Meters	3.2808	Feet	Feet	0.3048	Meters
Kilometers	0.62137	Miles	Miles	1.6093	Kilometers
Temperature					
Absolute					
Degrees C + 17.78	1.8	Degrees F	Degrees F - 32	0.55556	Degrees C
Relative					
Degrees C	1.8	Degrees F	Degrees F	0.55556	Degrees C
Velocity/Rate					
Cubic meters/second	2118.9	Cubic feet/minute	Cubic feet/minute	0.00047195	Cubic meters/second
Grams/second	7.9366	Pounds/hour	Pounds/hour	0.126	Grams/second
Meters/second	2.237	Miles/hour	Miles/hour	0.44704	Meters/second
Volume					
Liters	0.26418	Gallons	Gallons	3.78533	Liters
Liters	0.035316	Cubic feet	Cubic feet	28.316	Liters
Liters	0.001308	Cubic yards	Cubic yards	764.54	Liters
Cubic meters	264.17	Gallons	Gallons	0.0037854	Cubic meters
Cubic meters	35.315	Cubic feet	Cubic feet	0.028317	Cubic meters
Cubic meters	1.3079	Cubic yards	Cubic yards	0.76456	Cubic meters
Cubic meters	0.0008107	Acre-feet	Acre-feet	1233.49	Cubic meters
Weight/Mass					
Grams	0.035274	Ounces	Ounces	28.35	Grams
Kilograms	2.2046	Pounds	Pounds	0.45359	Kilograms
Kilograms	0.0011023	Tons (short)	Tons (short)	907.18	Kilograms
Metric tons	1.1023	Tons (short)	Tons (short)	0.90718	Metric tons
ENGLISH TO ENGLISH					
Acre-feet	325,850.7	Gallons	Gallons	0.000003046	Acre-feet
Acres	43,560	Square feet	Square feet	0.000022957	Acres
Square miles	640	Acres	Acres	0.0015625	Square miles

a. This conversion is only valid for concentrations of contaminants (or other materials) in water.

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}
deca-	D	10 = 10^{1}
deci-	d	0.1 = 10^{-1}
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}