

Disposal Status at the Nevada National Security Site

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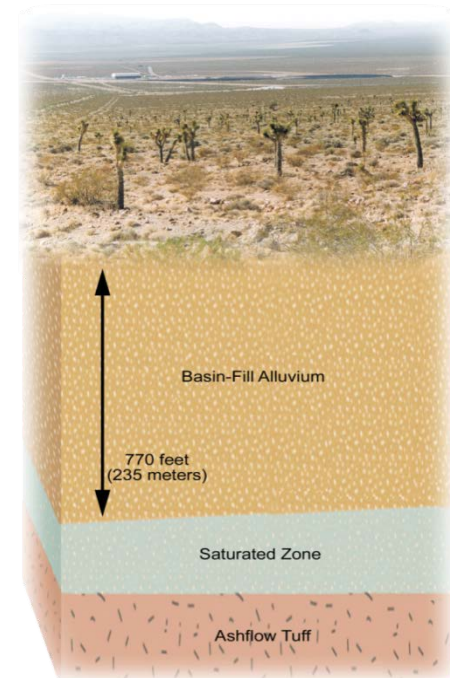
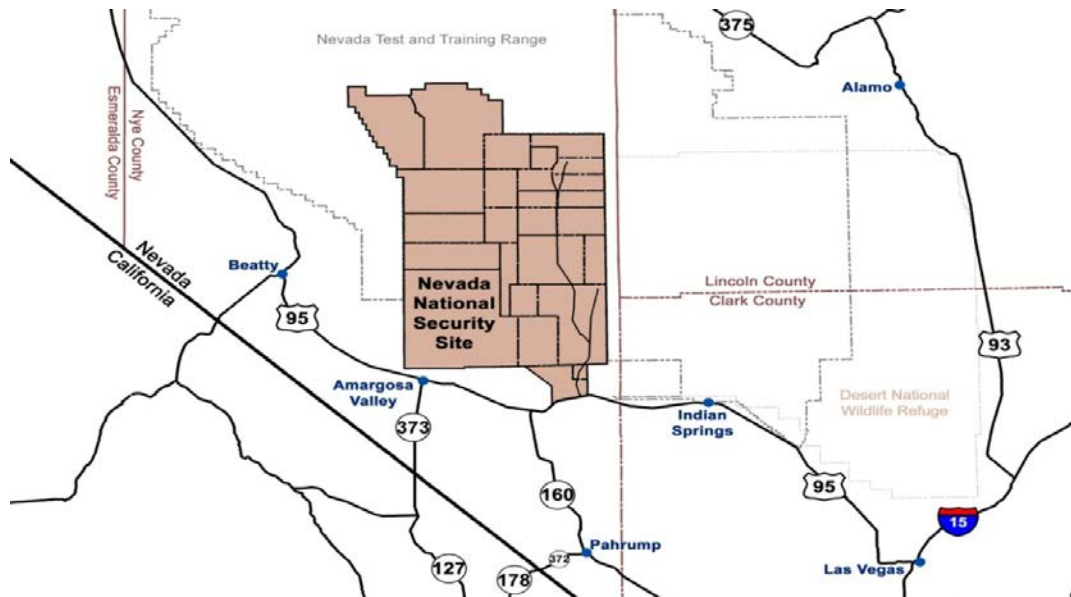
Nevada National Security Site

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DOE Commitment

- Safe shipment and disposal of waste at the NNSS to ensure protection of workers, the public, and the environment



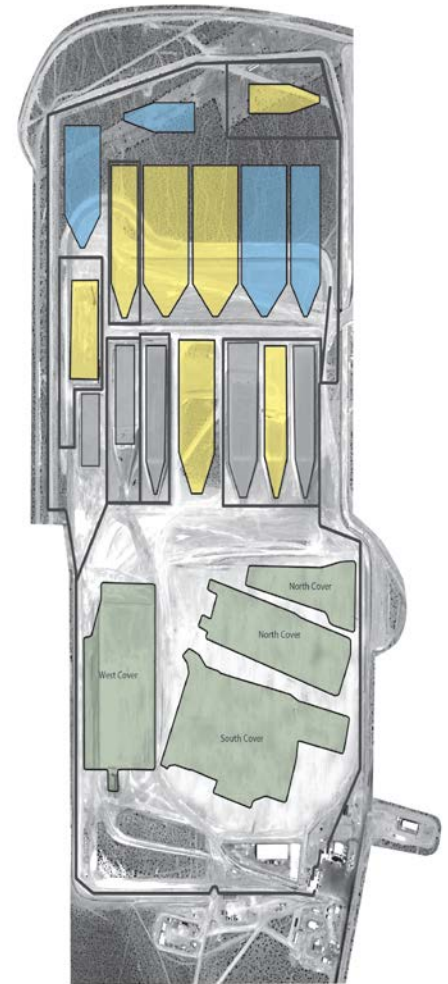
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NNSS Area 5 Disposal Facility

- Approximately 6.4 million cubic feet of available capacity in existing cells
 - Seven (7) open cells
 - One (1) under construction
 - Three (3) planned for future construction
- Over 24.5 million cubic feet of LLW and mixed LLW disposed
 - 31 closed cells
- Comprehensive monitoring in place
 - Numerous monitoring locations
 - Results reported annually
 - (www.nv.energy.gov/library/publications/aser.aspx)



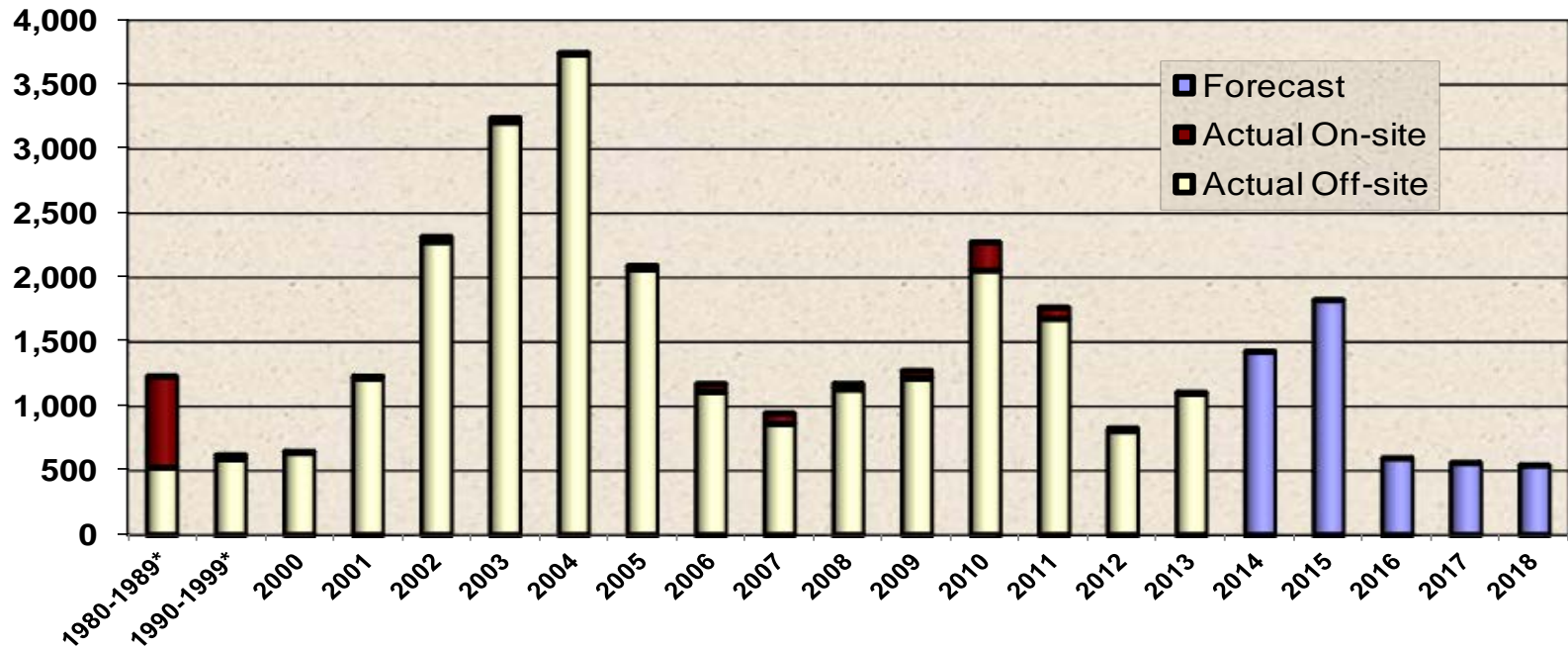
Disposal Operations Challenges

- Volumes lower than forecasts (CR and sequestration impacts)
- Expedited shipment campaigns (site/facility closure milestones)
- Special packaging (e.g., casks, profile-specific criticality safety considerations for package placement)
- Increased stakeholder scrutiny of packaging and transportation
- High winds or temperatures may restrict off-loading and package placement operations
- ALARA planning for higher-activity shipments and cask loads
- Frequent crane lifts
- Shipment scheduling issues
- Trailer staging utilization



Approved Waste Profiles = NNSS Disposal Volumes

NNSS Disposal Volume (1,000 ft³)



Forecast vs. Actual Volume for FY 2014 (through Dec)

<u>Generator/Site</u>	<u>Forecast (ft³)</u>	<u>Volume (ft³)</u>	<u>FY Total (ft³)</u>
Argonne NL	2,100	1,095 (52%)	12,063 (9%)
Brookhaven NL	1,800	0	1,800
INL/BEA	3,839	1,456 (38%)	25,038 (6%)
ICP/CWI	5,510	5,474 (99%)	17,450 (31%)
INL/AMWTP	12,729	9,827 (77%)	50,920 (19%)
Paducah	13,792	11,683 (85%)	56,224 (21%)
Portsmouth	108,761	59,887 (55%)	439,476 (14%)
Livermore NL	3,250	11,305 (348%)	23,099 (49%)
Los Alamos NL	60,031	4,297 (7%)	250,714 (2%)
NNSS/NNSA	4,254	48 (1%)	23,347 (0.2%)
Pantex	0	93	6,150 (1.5%)
Sandia NL	0	2,359	9,100 (26%)
DoD/Aberdeen	704	0	27,431
Y-12/NNSA	32,670	27,361 (84%)	142,200 (19%)
Nuclear Fuel Services	20,700	17,268 (83%)	70,175 (25%)
ORNL/UT-Battelle	1,116	1,804 (162%)	4,983 (36%)
UCOR/ETTP	31,958	36,546 (114%)	174,565 (21%)
WAI/TRU Project	16,287	7,281 (45%)	65,148 (11%)
Savannah River	7,935	1,481 (19%)	8,655 (17%)
TOTAL (incl. misc. other)	331,811	199,569 (60%)	1,423,494 (14%)



Waste Acceptance Challenges

- Increased stakeholder and regulatory scrutiny
- Resistance to high-profile streams (CEUSP, HEU)
- Sensitivity screening prior to WARP reviews
 - Non-traditional waste stream source/composition
 - Higher-activity wastes requiring special packaging
 - Wastes from other than DOE sites (FUSRAP, DoD)
 - Wastes requiring treatment variances from EPA
 - Wastes requiring NNSS WAC deviations/revisions
- Resulting delays in finalizing profile approvals
- Working Group listing and extended discussions



List of Affected Waste Streams

- Con. Edison Uranium Solidification Project – CEUSP
 - initial concerns regarding commercial fuel & TRU
 - historical position paper with negative impacts
 - higher-activity and terrorist theft concerns
 - special transportation management scenario
- CEUSP–driven concerns applied to other streams
 - ULWBR fuel-related wastes from INL (going to WCS)
 - Portsmouth U Mgmt Center Lot 14 LEUO₃ powder
 - SPRU solidified sludge (transuranic history)
- Non-traditional sources (GTRI/OSRP, Sturgis)



Ongoing Challenges – Beyond FY 2014

- Continued inability/delay to get waste profile approvals
- Increased resistance during Working Group deliberations
- Application of stakeholder criteria to traditional wastes
- Increased desirability of commercial disposal options
- Ability to justify/maintain viable support levels at NNSS
- Increased disposal operations and transportation costs
- Perceived impediments may affect disposal decisions
- Continued resistance to change will inhibit process improvements (route selection and transload options)
- Potential for erosion of regulator confidence level



NNSS Strengths for Future Operations

- Worked through Performance Assessment and safety basis challenges to dispose higher-activity waste streams
- Experienced in safe handling of high-dose, remote-handled wastes
 - Idaho un-irradiated light water breeder reactor fuel rods
 - High-activity waste from the Spallation Neutron Source Facility and Tennessee Valley Authority (TVA) Watts Bar reactor
 - Radioisotope Thermoelectric Generators
 - Calorimeter assemblies containing depleted uranium recovered from the Hadron-Electron Ring Accelerator
 - Criticality-impacted uranium streams from Portsmouth
 - Sealed sources from DOE and GTRI/OSRP recovery sites



NNSS Strengths for Future Operations (cont'd)

- Maintain ability for transporters to drop trailers during off-hours
- Coordinate arrival scheduling with generators to level-load shipments (maximize efficiency and minimize delays)
- Complete new disposal cells without additional costs
- Ensure continued capability to receive multiple types of special packaging and certified containers
- Coordinate waste forecasting and disposal planning to maximize use of available resources



Potential Future Waste Streams

- Depleted uranium hexafluoride (DUF_6) conversion product – subject to final NEPA determination
- West Valley vitrification process equipment – authorized for disposal as LLW under WIR guidelines (now to WCS)
- Air Force RTGs from remote Alaska locations
- AEC 91(b) reactor waste from Army Reactor Program
- University reactor D&D components and related LLW
- Non-rad classified components from DOE & DOD sites
- Selected GTCC waste streams - NEPA and Congress



Radioisotope Thermoelectric Generators (RTGs) and Sealed Sources

- DOE responsible for recovery and management of orphan radioactive sources, other Federal agency material, LLW generated by non-proliferation efforts
- NNSS currently receives and disposes of RTGs and sealed sources that meet the NNSS WAC
- Includes cesium and strontium sources that have original lead shielding - national security related for disposal as classified waste
- Over the next ten years, NNSS could receive up to an additional 3,000 cubic feet of these unique wastes



Greater-than-Class-C (GTCC) LLW & Similar DOE Waste

- DOE is evaluating disposal options for GTCC LLW and similar DOE LLW which does not have a current disposal option
- Represents relatively small volume (~400,000 ft³) but with high activity
- Three Waste Types included in GTCC EIS analysis:
 - Activated metals : 71,000 ft³ with 160 MCi
 - Sealed sources: 102,000 ft³ with 2.0 MCi
 - Other waste: 237,000 ft³ with 1.3 MCi
- NNSS is one of seven potential sites evaluated in the draft EIS
- Final EIS is due for completion in 2014 – with a preferred alternative
 - May be a combination of two or more alternatives- based on waste type, availability for disposal, and other factors
- Before selecting an alternative(s), DOE must first submit report to Congress and await legislative direction



Classified Components

- The NNSS is supporting the disposition of classified components recovered from dismantlement of nuclear weapons
 - Approximately 400,000 ft³ of components require classified disposition
 - Of this, approximately 78,000 ft³ require RCRA macroencapsulation treatment prior to disposition
 - Treatment required by generator, subcontractor, or through a RCRA Treatment Permit at the NNSS
- The NNSS Site-Wide Environmental Impact Statement (SWEIS) considers treatment in the Expanded Operations alternative.
 - Current schedule anticipates a Record of Decision in FY2014
 - Only following SWEIS decision-making could NNSS submit a Part B treatment permit application to the state of Nevada
 - Part B permit application would be submitted under implementation of Expanded Operations Alternative for the NNSS



Long-Term Plans for NNSS

- EM's current life-cycle plans assume continued operations of LLW disposal facilities at NNSS through 2027, subject to change; operations may continue beyond this date under NNSA ownership
- NNSS Site-Wide EIS completed – Record of Decision pending
 - Includes analysis of bounding ten-year LLW/MLLW disposal operations (Expanded Operations Alternative)
- GTCC EIS evaluates NNSS as possible location of GTCC LLW disposal facility for selected waste streams



Path Forward for LLW Disposal at the NNSS

- Continue to support critical DOE cleanup and operational missions with reliable LLW/MLLW disposal options
- Continue rigorous disposal planning and robust waste acceptance and certification program to maintain stakeholder confidence
- Continue partnership with NDEP to meet national Complex needs while protecting Nevada citizens and the environment
- Expand and configure disposal operations capabilities to handle a wide range of waste activity levels and unique packaging
- Recognize increased needs for stakeholder sensitivity analyses



Conclusion

- NNSS ideally suited for Complex-wide radioactive waste and classified matter disposal
- Comprehensive and rigorous waste acceptance review and approval process ensures future NNSS access
- NNSS WAC compliance ensures safe, secure, and transparent disposal of critical waste streams

