



WELCOME!

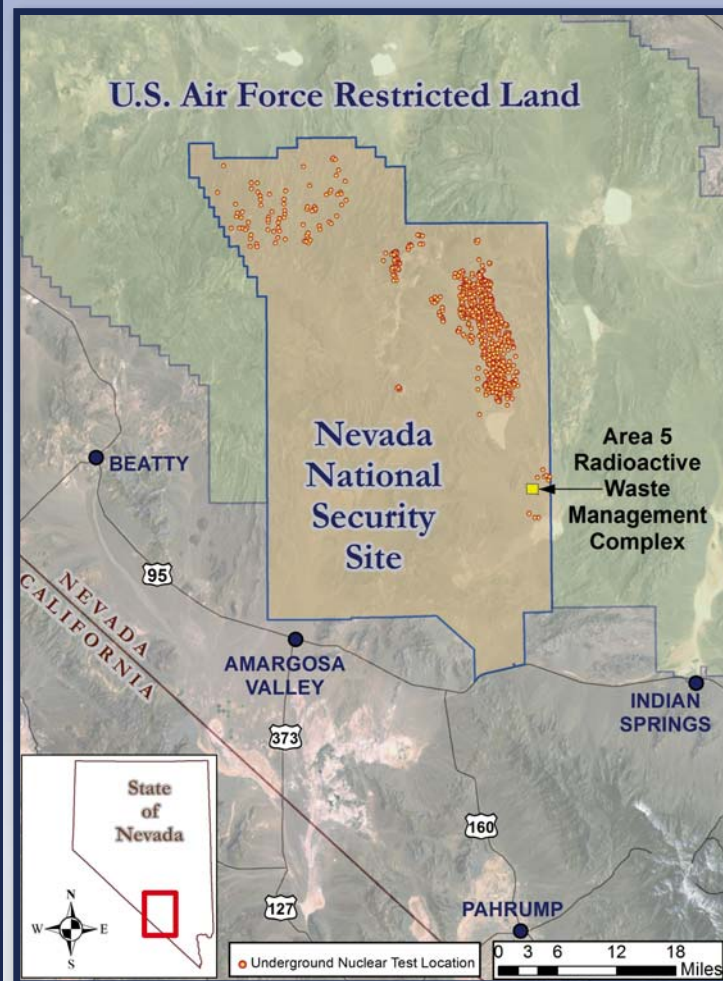
***U.S. Department of Energy
Public Meeting***

4pm - 7pm

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

Your Opportunity to Comment on a Proposed Disposal Cell

- 1 The Department of Energy (DOE) operates a radioactive waste disposal facility at the NNSS
- 2 An existing, permitted mixed low-level radioactive waste disposal cell is very close to reaching its capacity
- 3 DOE submitted a permit modification request to the State of Nevada to construct a new disposal cell



- NNSS disposal of mixed low-level radioactive waste has been ongoing safely for about 50 years
 - Waste is generated by DOE and Department of Defense sites across the U.S.
 - No commercial waste is disposed at the NNSS
- The proposed new cell construction will be similar to the existing cell, and will include a multi-layer liner system and leachate collection system
- The volume of waste received annually will not increase with the construction of the new mixed low-level radioactive waste disposal cell
 - Approximately 83,000 ft³ of waste is expected each year, a volume that would fill about seventy (70) 20-ft cargo containers

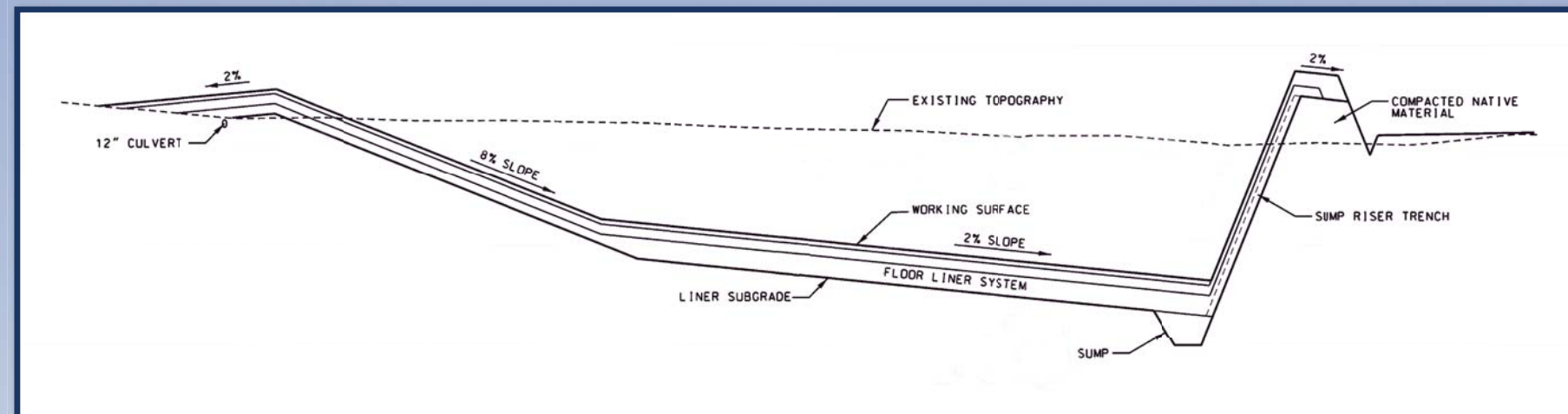


Area 5 Radioactive Waste Management Site (RWMS) Disposal Facility Attributes

The Area 5 RWMS is a safe disposal facility due to natural features combined with state-of-the-art design

Site Conditions

- Disposal cells located more than 700 ft above regional groundwater levels
- Site located in an isolated valley (basin)
- Arid environment (high evaporation rate)
- Very low precipitation (about 5 in./year)
- Not accessible by the public
- Under 24-hour security

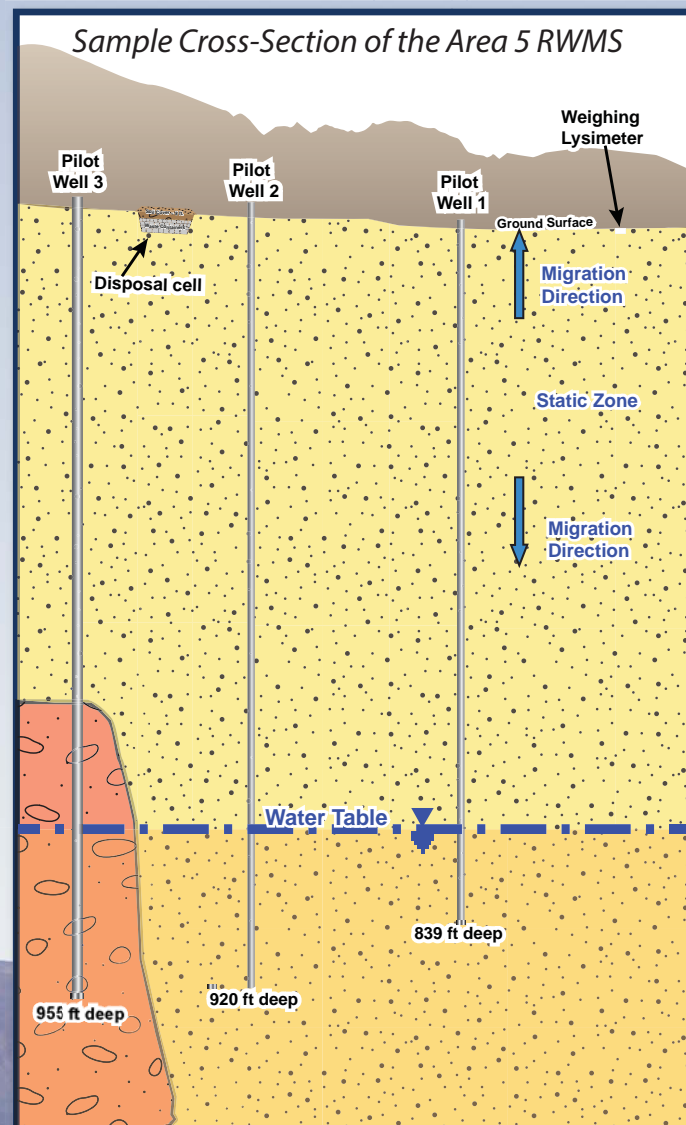


Engineered Design of the Proposed New Mixed Low-level Waste Disposal Cell

Facility Design

- Mixed low-level waste disposed in an engineered and lined cell
 - Multi-layer liner system and leachate collection system work together to drain and collect any accumulated water for sampling
 - Design prevents pathway to groundwater
- Waste packages are placed in a grid system to allow for long-term tracking and disposal cell performance
- Disposed waste is stacked to a height of four (4) ft below grade (surrounding ground surface)
 - Four (4) ft of soil covers waste as cell fills
 - Additional four (4) ft of cover soil will be placed when cell is closed
 - Final closure cover will be vegetated with native plants

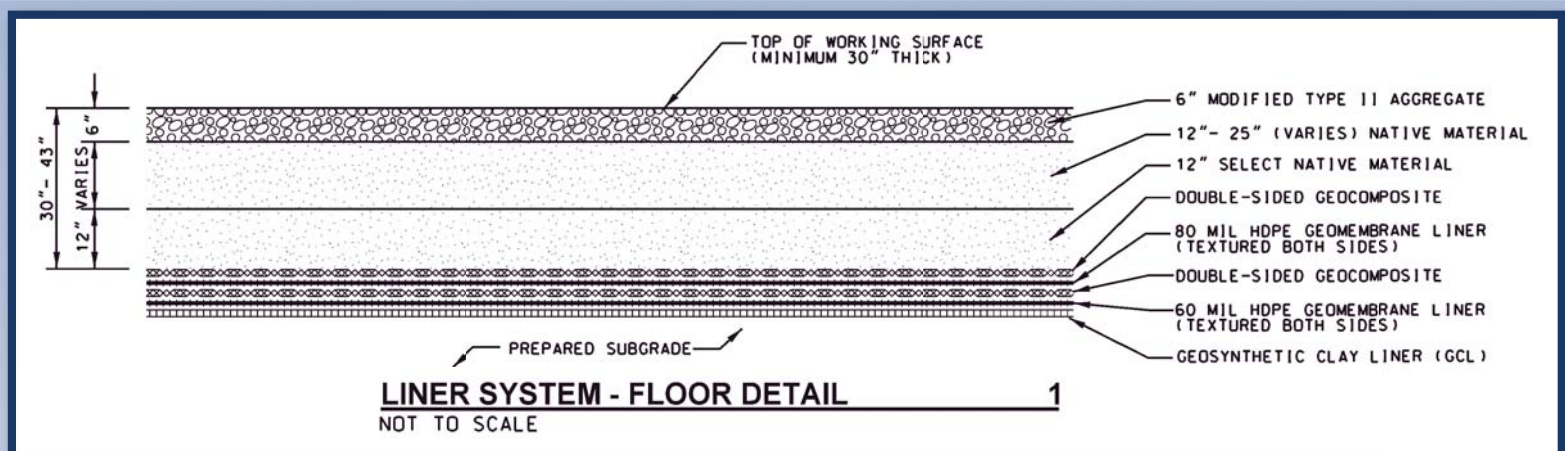
Waste Packages in a Grid System at Area 5 RWMS





Constructing a Resource Conservation and Recovery Act (RCRA) Compliant Disposal Cell

The proposed mixed waste disposal cell will be constructed similar to the existing cell which is comprised of two (2) liners with multiple layers, covered with native alluvial soil and an integrated moisture collection system



Primary Liner

- Double-sided geocomposite layer
- 80 mil high-density polyethylene (HDPE)

Secondary Liner

- Double-sided geocomposite layer with inner mesh
- 60 mil HDPE geomembrane
- Geosynthetic clay liner

View this video on our YouTube Channel at <https://www.youtube.com/watch?v=xnwp6Qnvels>



November 2010 Construction Activities for the Mixed Low-level Waste Disposal Unit Currently in Use

Ensuring Facility Safety through Performance Modeling and Environmental Monitoring

The safety of NNSS waste management operations is reflected through compliance with regulations, ongoing sampling activities, and analyses of results that are presented annually in Chapter 10 of the *NNSS Environmental Report*

Groundwater

Three wells sampled semiannually

- Results indicate there is no contamination from waste disposal activities
- Groundwater velocity is less than 10 cm/year (less than 4 in./year)

Meteorology

One station taking hourly and daily measurements of temperature, relative humidity, precipitation, and wind speed - provides valuable environmental data confirming safe disposal site performance

Ambient Radiation

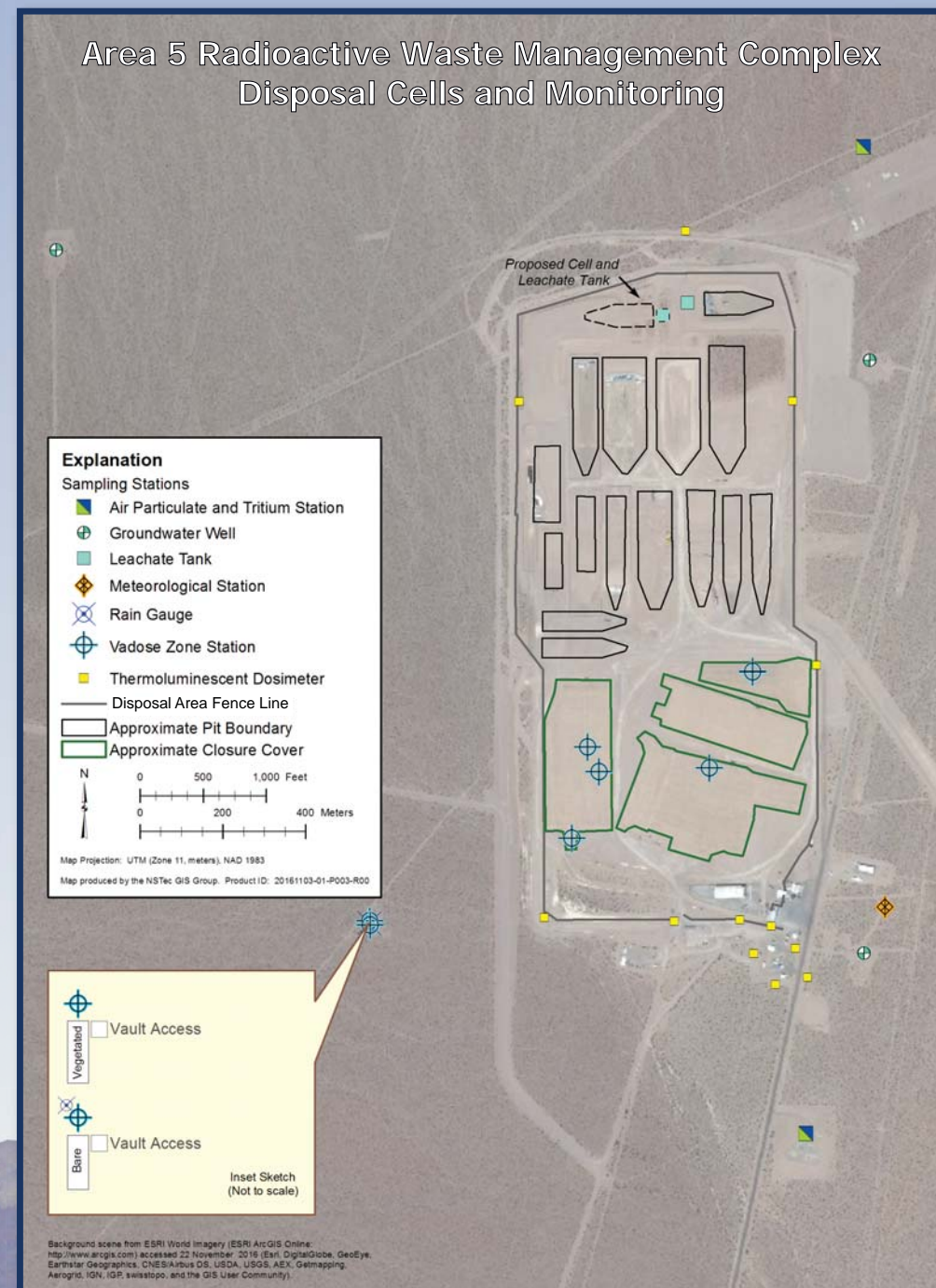
12 stations analyzed quarterly with results comparable to background radiation levels

Soil Moisture

Two stations - moisture content changes not detected below the disposed waste

Air

Two locations sampled quarterly - detected contaminants do not exceed *Clean Air Act* limits



Performance of Disposal Facility

- Computer modeling used to evaluate the potential short-term and long-term risks associated with disposal
- Various events and processes considered for evaluating performance
 - Natural geologic, hydrologic and biological processes
 - Natural events, such as floods and earthquakes
 - Waste volumes
 - Facility design
- Disposal facility performance modeled for a 1,000 year-period in compliance with all regulatory requirements



Understanding Mixed Low-level Waste (MLLW)

In accordance with federal laws*

- ✦ **Department of Energy (DOE) manages low-level radioactive waste**
- ✦ **State of Nevada regulates and oversees DOE management of MLLW**

- MLLW contains both low-level radioactive and hazardous components
- MLLW disposed at the NNSS contains material that is specifically identified by the U.S. Environmental Protection Agency (EPA) as "hazardous"
 - For example, circuit boards are disposed of as MLLW because they contain lead solder and sometimes chromium
 - Heavy metals are the primary hazardous component in MLLW disposed at the NNSS
- EPA Land Disposal Restrictions require hazardous wastes be treated to
 - Meet concentration levels
 - Reduce hazards
 - Immobilize contaminants
- Only MLLW that meets the standards of EPA Land Disposal Restrictions can be disposed at the NNSS



MLLW Shipment Inspections Prior to NNSS Disposal



MLLW Disposal Cell at the NNSS Area 5 Radioactive Waste Management Complex (partially filled in October 2015)

***Atomic Energy Act and the Resource Conservation and Recovery Act**

**U.S. Department of Energy,
National Nuclear Security Administration
Nevada Field Office**



Mixed Low-level Waste Acceptance Requirements

All waste disposed at the NNSS undergoes a rigorous, technical review to ensure compliance with Waste Acceptance Criteria

1 Waste Acceptance Criteria

- A document detailing requirements and guidelines designed to protect workers, the public, and environment
- Waste information includes origin and eligibility, hazardous material content and concentration, characterization methods, prohibited items, packaging and transportation
- Available online at www.nnss.gov/docs/docs_RWM/NNSSWAC_Nov%202016.pdf

2 Waste Acceptance Review Panel

- Reviews technical details of all waste proposed for disposal
- Comprised of Department of Energy (DOE) federal and contractor staff, and State of Nevada Division of Environmental Protection (NDEP) staff
- Experts in regulatory compliance, quality assurance, waste traceability, radiological characterization, nuclear material safety and hazardous characterization
- Entire panel must agree waste is acceptable for NNSS disposal before DOE grants approval

Radioactive Waste Acceptance Program (RWAP)

A team of technical experts responsible for reviewing documentation and conducting inspections at generator sites to ensure compliance with NNSS waste acceptance criteria

3 Waste Approval and Disposal Process

- Upon DOE approval, generators may ship to the NNSS
- A portion of the waste is visually verified at the generator site by NNSS personnel prior to shipment
- Upon arrival at the NNSS, shipping documentation is verified against the waste information pre-approved through the RWAP process (which includes NDEP)
- Each truck, trailer and waste container is surveyed - some of the waste is visually verified using on-site x-ray technology



Resource Conservation and Recovery Act (RCRA) Permit Process

The Department of Energy (DOE) submitted a Class 3 Permit Modification Request to the State of Nevada Division of Environmental Protection (NDEP) to allow for the construction and use of a second RCRA-compliant mixed low-level waste disposal cell at the NNSS

1

Permit Modification Request

- DOE published a public notice **November 29, 2016**, that initiated a 60-day public comment period
- DOE submitted the permit modification request to NDEP on **December 5, 2016**, and posted it to www.nnss.gov/pages/PublicAffairsOutreach/PublicNotices.html
- DOE hosts a public meeting to inform the public and receive their comments on **December 14, 2016**
- The end of the 60-day period for the public to provide comments to DOE is **January 28, 2017**

2

Permit Modification Request Review

- NDEP conducts an Administrative Completeness review within 30 days of the permit modification request submittal
- NDEP then conducts a technical review to include regulatory compliance and environmental impact
- DOE must satisfactorily resolve NDEP review comments

What is RCRA

RCRA is a federal law regulating the management of hazardous waste from generation to disposal. Mixed low-level radioactive waste contains a hazardous component and is subject to RCRA. RCRA applies to all private, public, and governmental entities.

3

NDEP Public and Permitting Actions

- Upon completion of the technical review, NDEP issues a public notice for an additional 45-day comment period
- NDEP determines if there is a need to host a public meeting based on public comments
- Public comments are addressed
- NDEP issues Notice of Decision
- If the permit modification is approved and no written appeal is received within 10 days, then the permit becomes effective immediately
- If the permit modification is issued by NDEP, then DOE commences with cell construction

4

Permit Compliance

- DOE conducts routine inspections to ensure compliance
- NDEP conducts required RCRA inspections
- DOE is required to correct any deficiencies/violations that may be identified during inspections
- NDEP may modify, revoke, or terminate permit with just cause
- DOE must request a permit renewal every five years



Comment and Learn More!

- 1 Provide a verbal comment to the stenographer tonight
- 2 E-mail a comment to the Department of Energy at envmgt@nnsa.doe.gov by January 28, 2017
- 3 E-mail a comment to the State of Nevada Division of Environmental Protection at jcostarica@ndep.nv.gov
- 4 Visit the NNSS website at www.nnss.gov to view meeting posters, download the permit modification request, access reports and fact sheets, subscribe to news and more

NNSS website www.nnss.gov

- Sign up to receive news sent via e-mail
- Link to NNSS social media sites such as Flickr (photos) and YouTube (videos)
- Get more information on radioactive waste management operations and other NNSS programs



Thank You for Your Participation!