NSSAB MEETING ATTENDANCE

Full Board Meetings

FY 2012

October 2011 through September 2012

Name	10/12/11	1/18/12	2/15/12	3/21/12	4/11/12	5/16/12	7/18/12	9/19/12	Maximum Terms Limit
MEMBERS									
Kathleen Bienenstein	✓	✓							2014
Matthew Clapp	✓	✓							2017
Daniel Coss	✓	✓							2017
Thomas Fisher	✓	✓							2017
Arthur Goldsmith	✓	✓							2017
Donna Hruska	✓	✓							2016
Robert Johnson	✓	✓							2012
John McGrail	✓	✓							2014
Barry LiMarzi	✓	✓							2017
Gregory Minden	✓	✓							2016
Michael Moore	✓	✓							2016
Michael Voegele	✓	✓							2016
James Weeks	✓	✓							2012
Walter Wegst	✓	✓							2012
Mitzie Wilson	✓								2017
LIAISONS									
Cielomina Gumabon	✓	½							2012
John Klenke		✓							
Phil Klevorick	✓	✓							
Justine Leavitt	✓	✓							2012
Tim Murphy	✓	✓							
Genne Nelson		✓							
Scott Wade	✓	✓							

Key:

√ = Present

E = Excused U = Unexcused

RM = Removed RS = Resigned

Term Limit

Meeting Format
February 15, 20112

- Briefings
- Question and Answer
- Identify recommendation topics
- Group Breakout
    - Designate scribe
    - Designate speaker/representative
    - Discuss and come up with draft recommendations on topic identified
    - Each group presents draft recommendation
- Full Board reviews master recommendation list and votes on each one
- Repeat group breakout and Full Board vote process for next topic
- NSSAB office to draft recommendation letter based on final recommendation list developed

Nevada National Security Site Waste Process

Jhon Carilli
Federal Sub-Project Director
Briefing to Nevada Site Specific Advisory Board (NSSAB)
February 15, 2012

What is Low-Level Waste?

Low-Level Waste (LLW) is defined by what it is not (Low-Level Radioactive Waste Policy Act of 1985)

- *It is not* High Level Waste as defined in the Atomic Energy Act (AEA) of 1954, as amended, Section 11.dd.
- *It is not* Transuranic Waste (AEA, Section 11.ee.)
- *It is not* Special Nuclear Material (AEA, Section 11.aa.)
- *It is not* source material (AEA, Section 11.z.)
- *It is not* byproduct material (AEA, Section 11.e.)

Low-Level Waste is everything else.

Regulations

- The Atomic Energy Act gives the Secretary of Energy the authority to manage radioactive material, including radioactive waste
- Department of Energy (DOE) owned and managed radioactive waste is regulated under DOE Order 435.1
- Nuclear Regulatory Commission regulates private industry radioactive waste
- Nuclear Regulatory Commission has no regulatory authority over Nevada Site Office disposal operations

DOE Order 435.1, Radioactive Waste Management

- The Order categorizes waste as High Level Waste, Transuranic Waste, or LLW (Note: DOE does not categorize its LLW into classes such as A, B, C, etc.)
- DOE waste disposal facilities must meet the Performance Objectives specified in the Order for LLW

DOE Order 435.1, Radioactive Waste Management

- Performance Objectives of DOE O 435.1

– Air Pathway	0.1 mSv/yr	10 mrem/yr
– All Pathway	0.25 mSv/yr	25 mrem/yr
– Radon Flux	0.74 Bq/(m^2 sec)	20 pCi/(m^2 sec)
– IHI (chronic)	1 mSv/yr	100 mrem/yr
– IHI (acute)	5 mSv/yr	500 mrem/yr

Bq/(m^2sec) – Becquerels per square meter per second
IHI – inadvertent human intruder
mrem/yr – millirem per year
mSv/yr – milliisievert per year
pCi /(m^2sec) – picoCuries per square meter per second

DOE Order 435.1, Radioactive Waste Management (continued)

- The disposal facility is issued a Disposal Authorization Statement (DAS) to dispose LLW
  - The DAS is actually five documents
    - Performance Assessment which models the site's ability to meet the Performance Objectives of the Order
    - Composite Analysis which models the site's impact using all the site sources of radionuclides
    - Maintenance Plan
    - Monitoring Plan
    - Closure Plan

DOE Order 435.1, Radioactive Waste Management (continued)

- Time components
  - 1,000-year compliance (regulatory requirements)
  - 10,000-year results (uncertainty/maintenance)
  - Peak dose (information only)
- Performance Assessment based on current conditions
  - Isolated location
  - Arid climate
  - Deep groundwater (~700 feet – 1,600 feet)

Radioactive Waste Acceptance Program (RWAP)

RWAP Functions:

- Generator certification
- Waste Acceptance Review Panel

Generator Certification

Conduct Facility Evaluations to verify:

- The generator is DOE
- The LLW belongs to DOE
- The waste will meet the Area 5 Radioactive Waste Management Sites Performance Assessment

Waste Acceptance Review Panel

The Waste Acceptance Review Panel:

- Consists of three State of Nevada Division of Environmental Protection (NDEP) staff members, three Nevada Site Office Waste Management Project personnel, a Performance Assessment team member, the entire RWAP team, NNSS Disposal Operations staff, Nuclear Safety Team members, and Criticality personnel
- Reviews every waste stream
  - All waste streams must first be accepted by all panel members before the waste stream is approved for disposal

How are the NNSS WAC and the Performance Assessment linked?

The Performance Assessment actually sets the waste concentration requirements in the NNSS WAC (Table E-1: Radionuclide Action Levels for Waste Characterization and Reporting)

- If a radionuclide is less than the action level – it is easier to be acceptable
- If a radionuclide is greater than the action level – the NNSS Performance Assessment team examines its acceptability (this examination is called a Special Analysis)

LLW Federal Review Group (LFRG) – DOE's Regulatory Panel

- DOE Order 435.1 requires an annual summary report of the Disposal Authorization Statement documents
- This report is reviewed by the LFRG and evaluates:
  - If the Performance Assessment assumptions are still valid
  - If the site still meets the Performance Objectives
  - Outlines the impacts of any changes or new information (operational or technical)

U-233 Shipments

NNSS Handling of Prior Shipments

NNSS Plans for Handling CEUSP

Prior U-233 Shipments to the NNSS

As of September 30, 2011, the NNSS has disposed 323 kilograms of U-233

- Idaho Un-irradiated Light Water Breeder Reactor Fuel Rods and Pellets with an unshielded container exposure rate of 0.232 roentgens per hour (R/hr)
- Idaho Research and Development Waste with a disposal package contact exposure rate of 0.13 R/hr

Note: These waste streams required no special handling

Prior U-233 Shipments to the NNSS
(continued)

- Idaho Un-irradiated Light Water Breeder Reactor Research and Development Material at CPP-749 with a disposal package contact exposure rate of 2.5 R/hr

Prior U-233 Shipments to the NNSS (continued)

Idaho Fuels Super Tiger arrives

Prior U-233 Shipments to the NNSS (continued)

Opening outer shield door

Prior U-233 Shipments to the NNSS (continued)

Opening inner door

Prior U-233 Shipments to the NNSS (continued)

Removing protective materials

Prior U-233 Shipments to the NNSS (continued)

Placing canister removal table

Prior U-233 Shipments to the NNSS (continued)

Relocating canister to burial trench

Prior U-233 Shipments to the NNSS (continued)

Placing canister into trench

Prior U-233 Shipments to the NNSS (continued)

Canister burial and rigging removal

Prior U-233 Shipments to the NNSS (continued)

Final radiological verification

NNSS Experience Handling High Dose Rate LLW Streams

The NNSS Area 5 has the experience to handle high dose rate waste shipments both safely and remotely

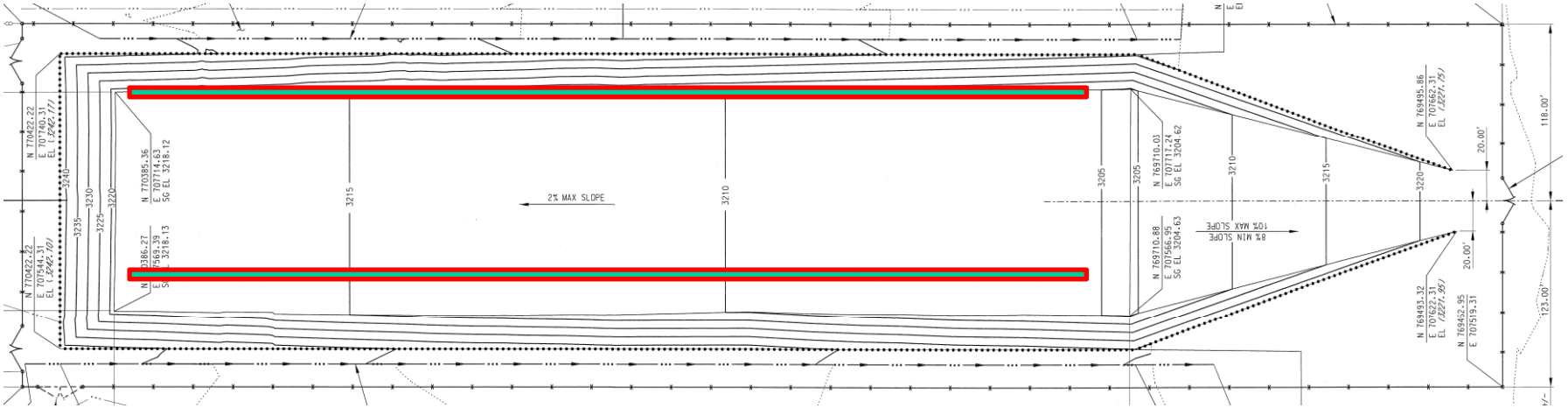
- Three shipments of Spallation Neutron Source waste have been received with contact dose rates estimated at 8 R/hr to 4900 R/hr on the inner liner contained within a Department of Transportation Type B certified cask
- The waste was shipped in full compliance with Department of Transportation regulations
- Total dose of the entire crew (average of 12 personnel) who off-loaded the cask contents into the disposal location was approximately 12-15 mrem (or less than 2 mrem per individual)

NNSS Plans for Handling CEUSP

Cell 19

NNSS Plans for Handling CEUSP (continued)

Cell 19



Slit trench to be excavated in cell floor near toe of sideslopes

NNSS Previous Remote-Handled Waste

Area 5 worker rigging Transnuclear (TN) Cask protective cover for removal

NNSS Previous Remote-Handled Waste
(continued)

Area 5 workers removing TN Cask impact limiters

NNSS Previous Remote-Handled Waste
(continued)

TN Cask being rotated for removal from trailer

NNSS Previous Remote-Handled Waste
(continued)

TN Cask in position for removal

NNSS Previous Remote-Handled Waste
(continued)

TN Cask placed on metal pad

NNSS Previous Remote-Handled Waste
(continued)

Workers wrapping cask for contamination control

NNSS Previous Remote-Handled Waste
(continued)

Workers using tools to retrieve inner canister rigging

NNSS Previous Remote-Handled Waste
(continued)

Canister removal from TN Cask

NNSS Previous Remote-Handled Waste
(continued)

Canister moving to disposal location

NNSS Previous Remote-Handled Waste
(continued)

Canister being covered with staged cover material

NNSS Previous Remote-Handled Waste
(continued)

Radiological Control Technician
verifying buried canister is <5 mrem/hr

Performance Assessment

Bruce Crowe
Navarro-Intera
Briefing to Nevada Site Specific Advisory Board (NSSAB)
February 15, 2012

What is a Performance Assessment?

A Performance Assessment is a –

- Quantitative assessment of radiological releases from a disposal system over time, with calculation of resultant doses
- Typically used to assess whether a facility meets its regulatory performance objectives
  - Performances assessments are completed by developing numerical model(s) of chemical and physical processes affecting a disposal facility over 1,000 years

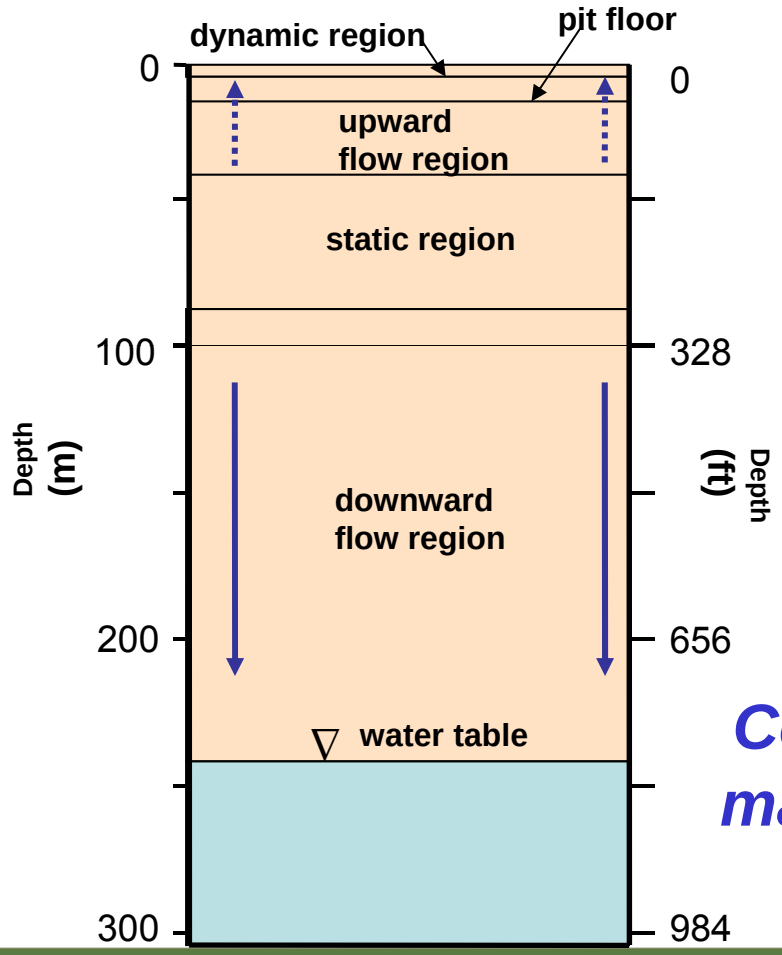
What is a Performance Assessment?
(continued)

- Performance Assessment history for the Area 5 Radioactive Waste Management Site
  - First accepted Performance Assessment: 1998 (DOE/NV/11718-176 UC-721)
  - Composite Analysis: 2001 (DOE/NV-594)
    - Study of interacting sources
  - Greater Confinement Disposal Boreholes (GCD) performance assessment: 2001 (SAND2001-2977)
    - Transuranic waste in GCD boreholes
    - Disposal 1984 to 1989
    - Regulation: 10 CFR 191

What is a Performance Assessment?
(continued)

- Addendum to the Area 5 Performance Assessment: 2006 (DOE/NV/11718—176-ADD2)
  - Transition to a fully probabilistic performance assessment
- Special Analysis of Transuranic (TRU) Waste in Trench TO4C: 2008 (DOE/NV/25946—470)
  - Regulation: 10 CFR 191

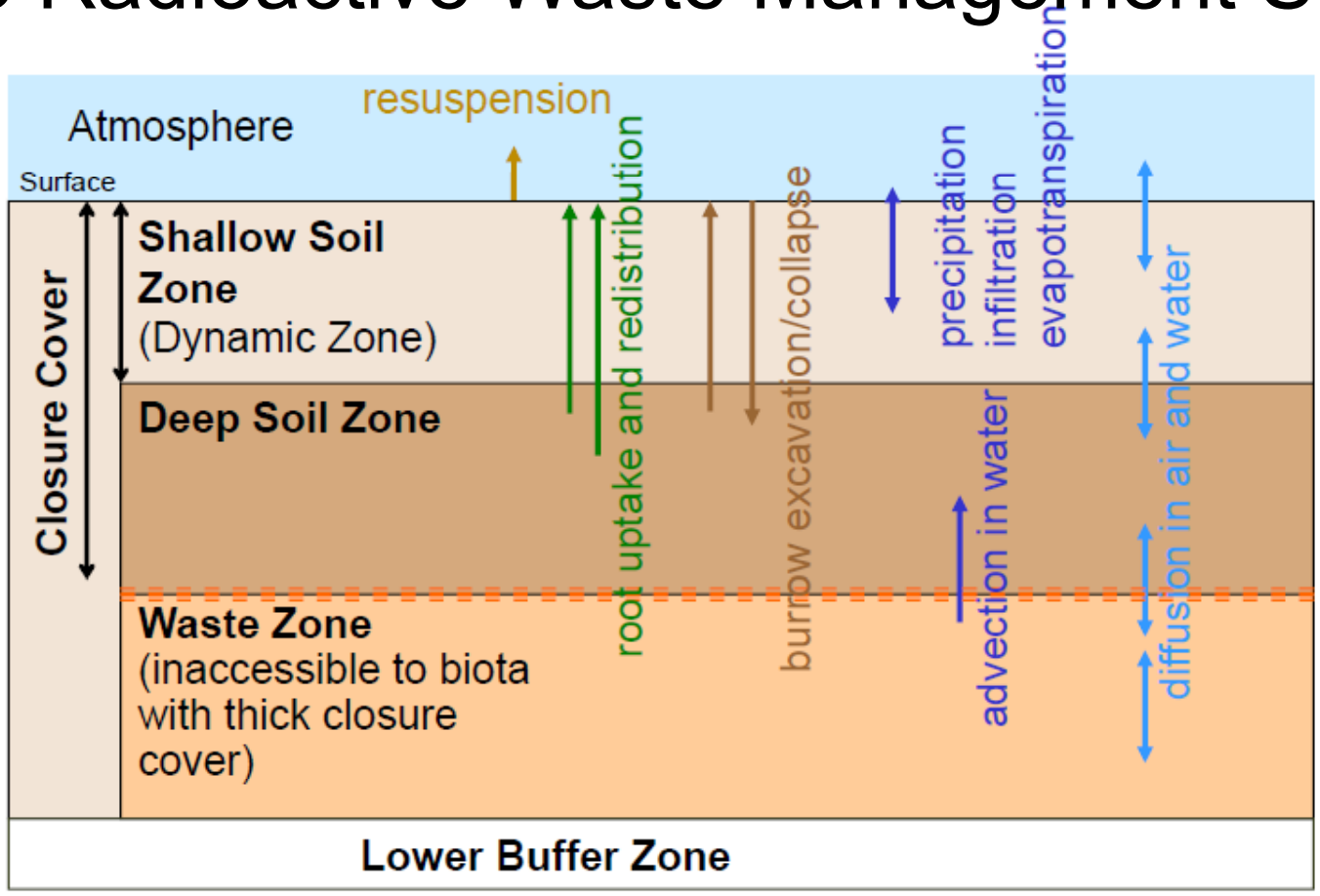
Conceptual Model of Hydrological Processes in the Unsaturated Zone of Frenchman Flat



- Arid desert setting
- Low precipitation, high evapotranspiration
- No groundwater pathway under current conditions
- Disposal trenches located in the region of upward flow

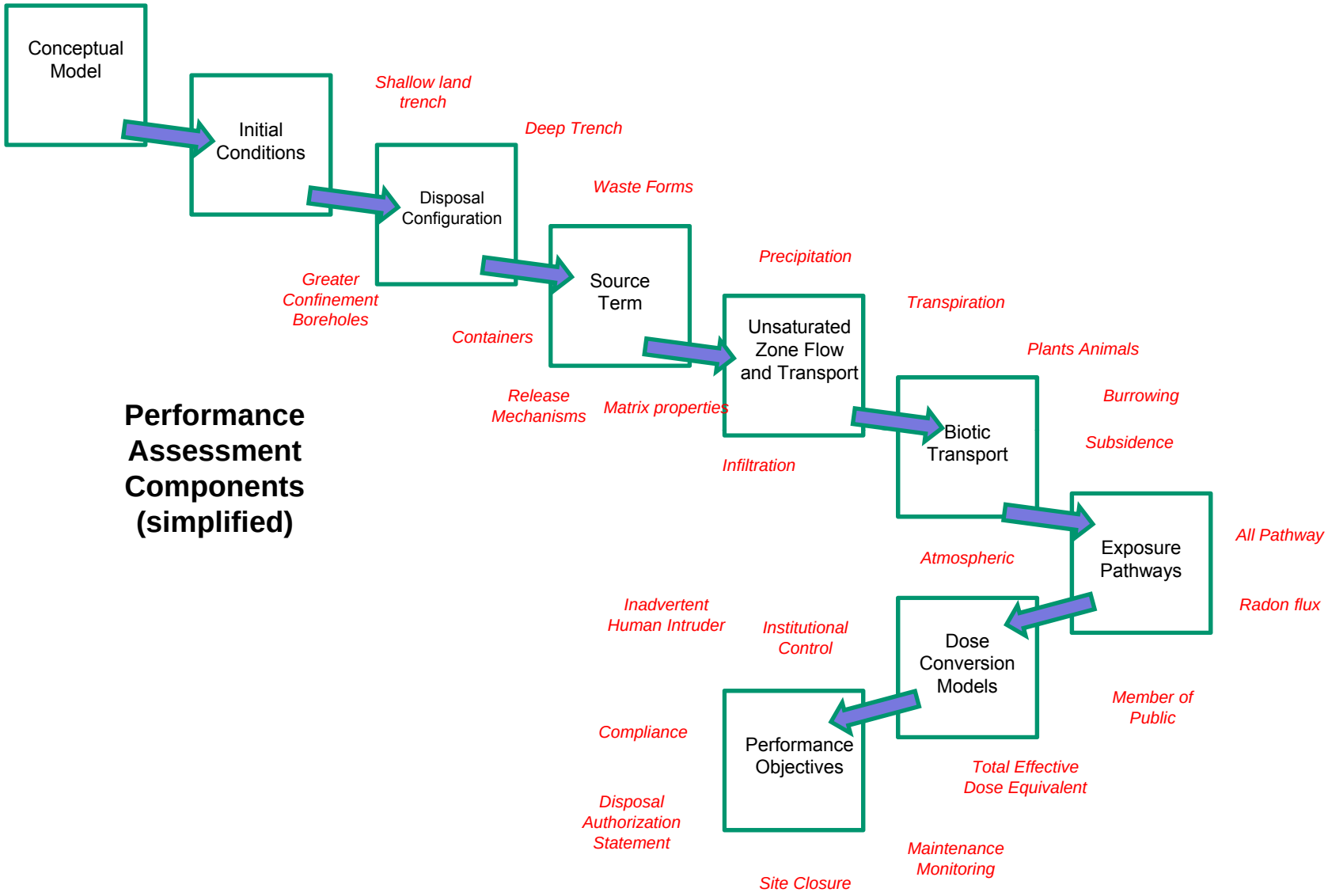
Conceptual model translated into mathematical/numerical model for the performance assessment

Conceptual Model - Shallow Land Burial at the Area 5 Radioactive Waste Management Site

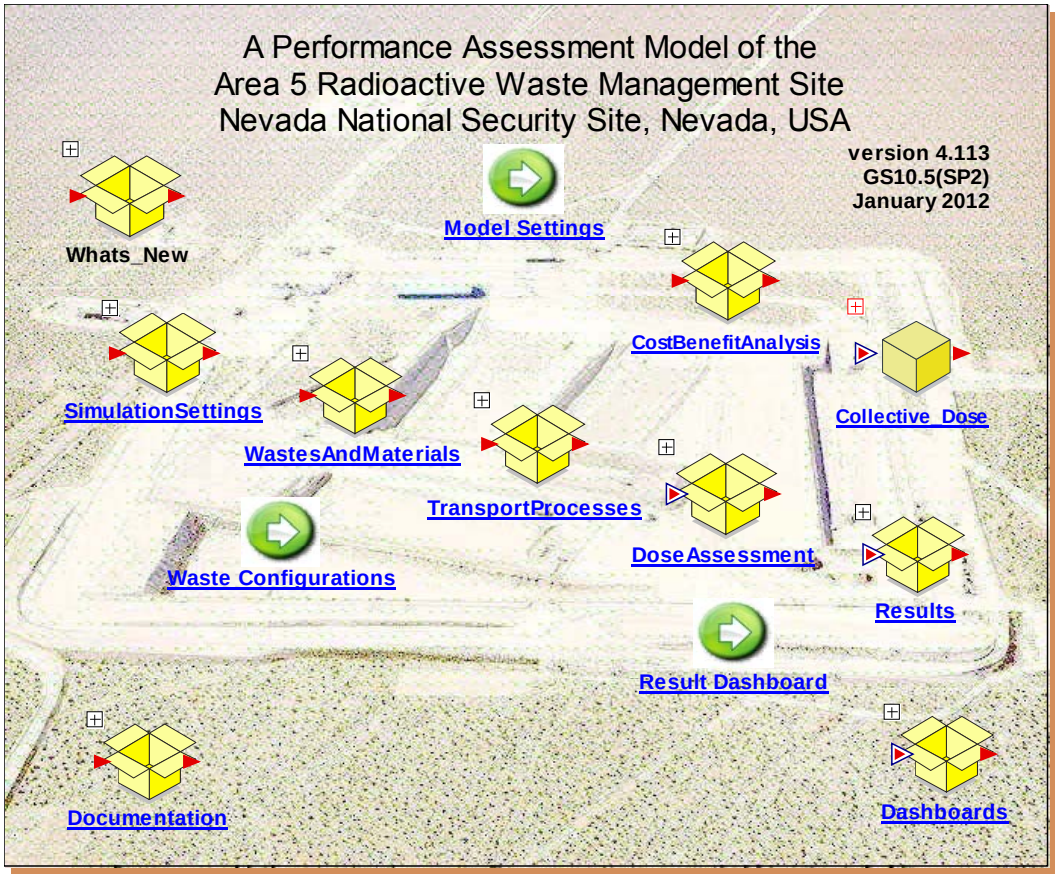


Not to scale

Figure denotes the upper ~10 m of the disposal unit



Performance Assessment Components (simplified)



Screen Shot Opening Screen of the Area 5 Performance Assessment Model Using the GoldSim Simulation Platform

Performance Results

- Performance Objectives of DOE O 435.1
  - Air Pathway 0.1 mSv/yr 10 mrem/yr
  - All Pathway 0.25 mSv/yr 25 mrem/yr
  - Radon Flux 0.74 Bq/(m^2 sec) 20 pCi/(m^2 sec)
  - IHI (chronic) 1 mSv/yr 100 mrem/yr
  - IHI (acute) 5 mSv/yr 500 mrem/yr

Bq/(m^2sec) – Becquerels per square meter per second
IHI – inadvertent human intruder
mrem/yr – millirem per year
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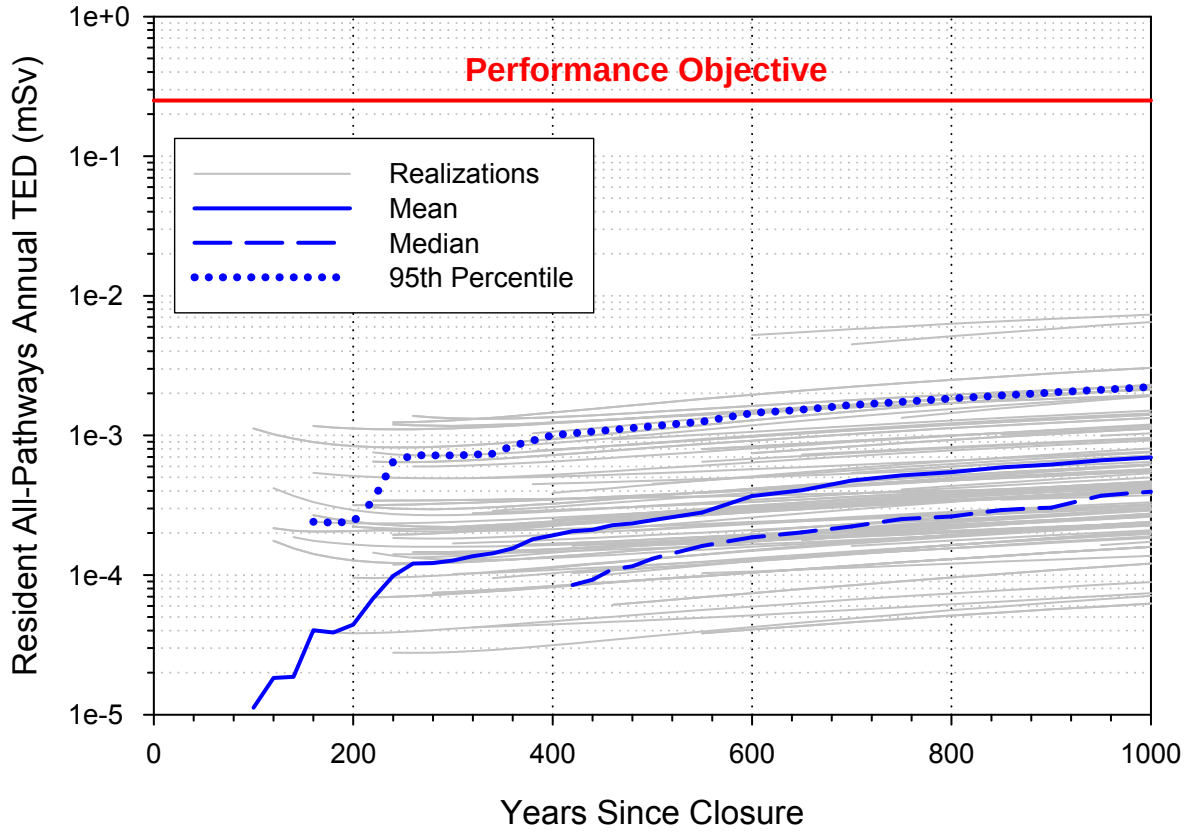
pCi /(m^2sec) – picoCuries per square meter per second

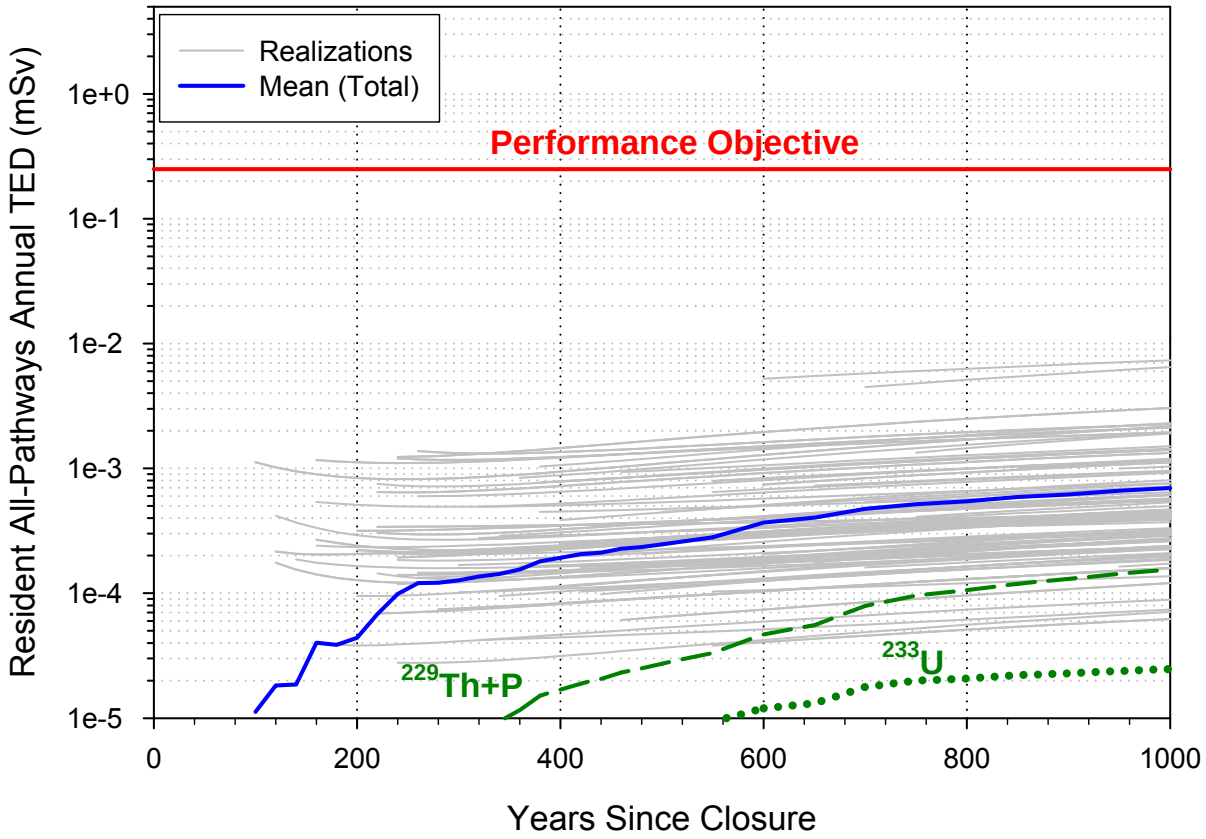
Performance Results
(continued)

- Time components
  - 1,000-year compliance (regulatory requirements)
  - 10,000-year results (uncertainty/maintenance)
  - Peak dose (information only)
- Performance Assessment based on current conditions
  - Earthquake Question

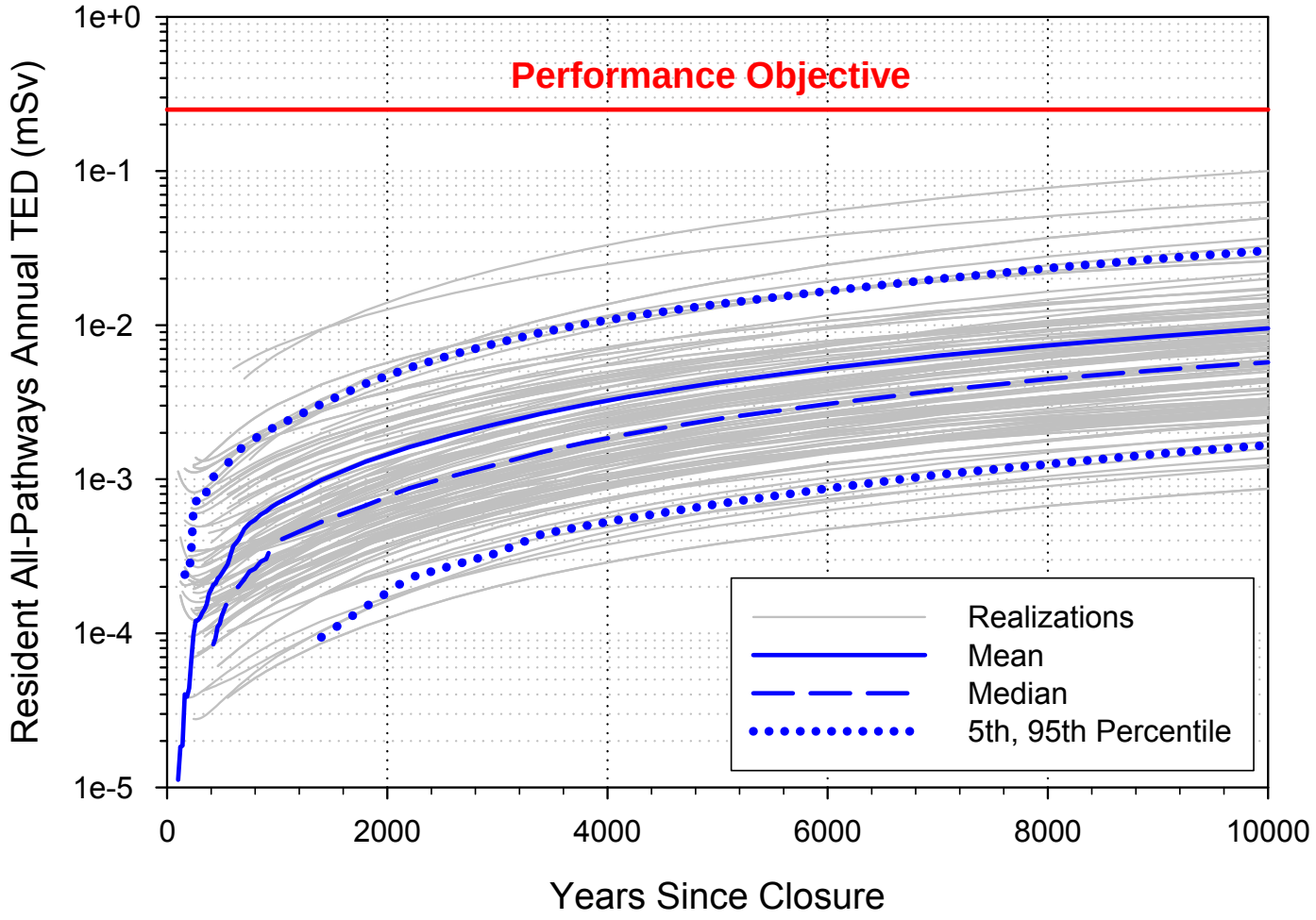
FY2010 Inventory Plus CEUSP 1,000-year Compliance Period



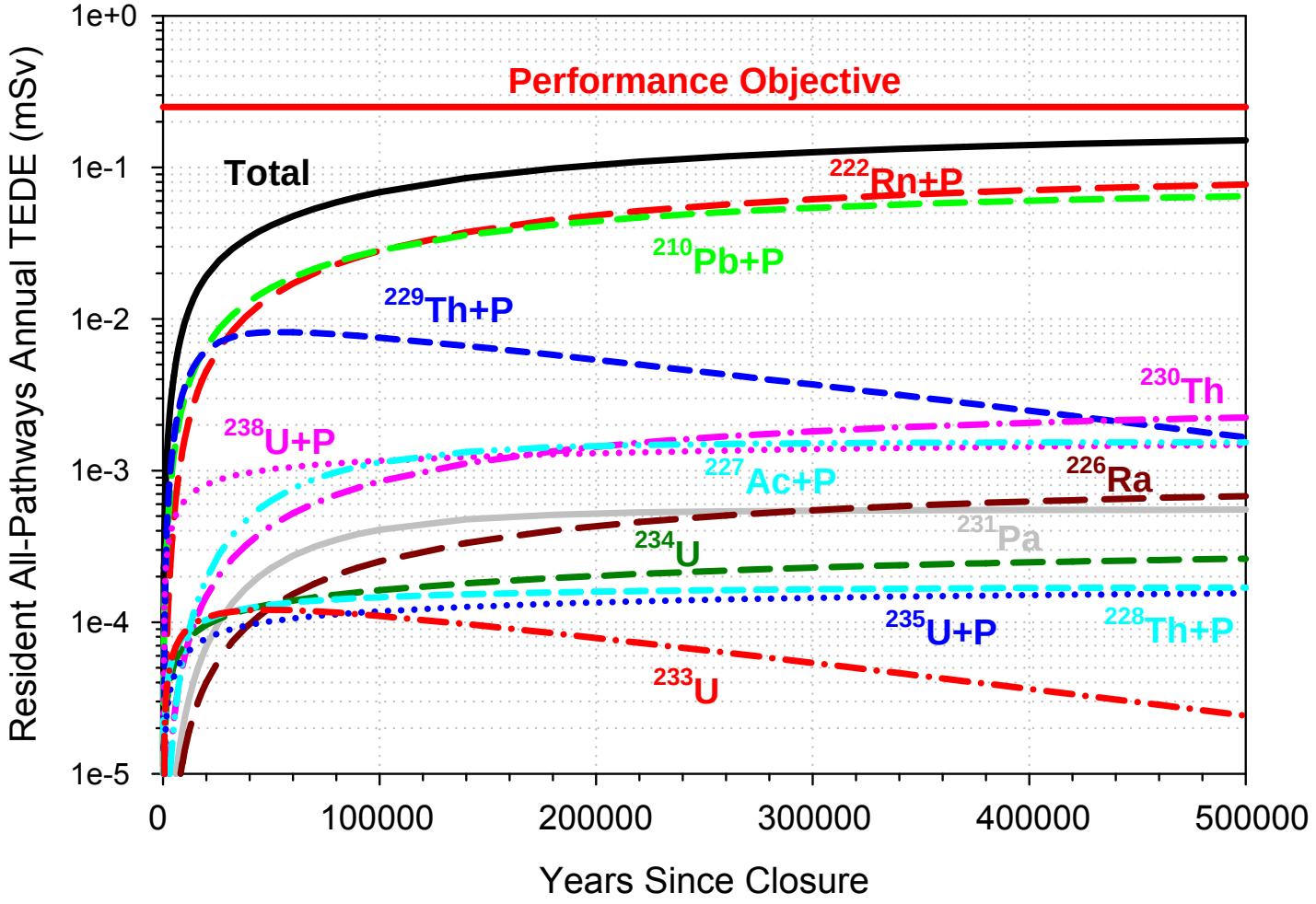
1,000 Year Compliance



10,000-year Assessment



Dose by Radionuclide 500,000-year Assessment



Performance Assessment Conclusions

- Assessments are preliminary and revised results will be completed when waste stream profile is formally processed
- Performance assessment impacts are minimal
  - Not a problematic waste stream for disposal at Area 5

U.S. DEPARTMENT OF ENERGY

U-233 Disposition Program

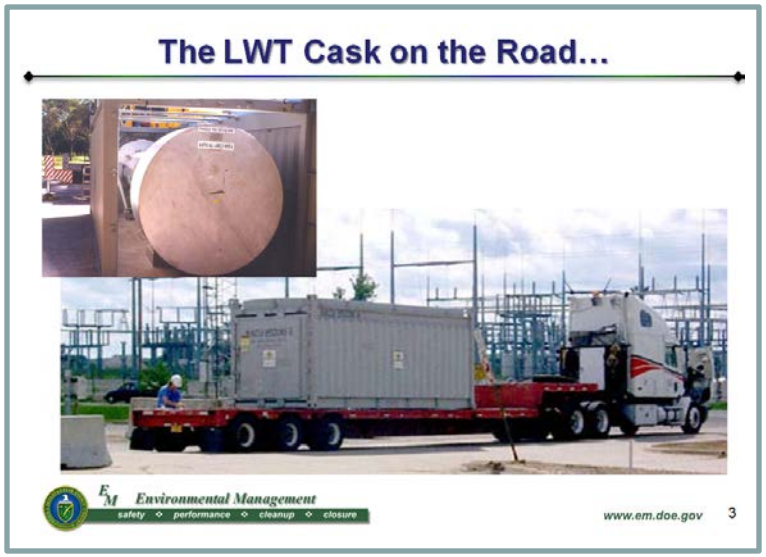
Follow-up to January Briefing

Presented to
Nevada Site Specific Advisory Board

By
John W. Krueger
Federal Project Director
DOE Oak Ridge Operations
February 15, 2012

Questions Related to Transportation Safety and Security

Why use the LWT?



- Working with NAC International to modify the "Legal Weight Truck" (LWT) Type B shipping container for CEUSP use
  - The LWT cask is 19' long (including impact limiters), weighing 48K lbs empty; shielding is 6" lead (Pb) equivalent
  - NAC will design/fab a new internal reusable liner as a single sleeve that will hold a disposable lifting basket (which NAC will also design/fab) containing 7 CEUSP canisters
  - NAC will modify the LWT Safety Analysis Report for Packaging (SARP) for U-233 content and sleeve re-design

- The LWT Type B container was chosen because:
  - Other Type B containers either lacked sufficient shielding, did not cover U-233 in their SARP, or were the wrong size or shape for CEUSP canisters
    - LWT shielding is 5.75" Pb and 2.19" steel, with a surrounding tank containing 5" of borated water for neutron shielding
  - Large size and robust seal affords additional security

Transportation Safety

- Detailed transportation planning still needed
- Transportation will comply with all U.S. Department of Transportation (DOT) regulations

- Dose rate to any member of the public will be significantly less than 1 millirem/hr (LWT cask will be ~5 mR/hr on contact)
  - Based on an ***anticipated*** 2-meter dose rate from an LWT cask containing 7 CEUSP canisters
  - Maximally exposed member of the public would likely receive a total dose that is less than a few hours worth of exposure to naturally-occurring, ambient (background) radiation

This assertion will be confirmed through actual dose modeling

- Per agreement with the State of NV for low-level waste (LLW) shipments, the route will avoid the following areas (enforced through transportation vendor subcontract):
  - The I-15/U.S.-95 interchange within Las Vegas (the Spaghetti Bowl)
  - Hoover Dam (including the O'Callaghan-Tillman Bridge)
  - Additional mileage will not substantially affect the security threat

Transportation Security

- DOE will conduct a Vulnerability Assessment to determine the proper level of security during canister retrieval/loading in Oak Ridge, during transportation, and during off-loading at NNSS
- In addition to physical protection, the security strategy may ultimately involve “compartmentalization of information”
  - Communication regarding times, quantities, vulnerabilities and associated protection strategies, etc. may become restricted and info shared with a very limited community (“need to know”)
- Emergency Management:
  - Carrier is required to have an emergency response plan
  - Current proposal is to ship less than a “Highway Route Controlled Quantity” (HRCQ)
  - States notified via the Prospective Shipment Report for < HRCQ
  - Shipments will be tracked electronically

Waste Acceptance Questions

Waste Acceptance

- How do CEUSP canisters compare to the 300 Pu-equivalent gram limitation in Section 3.2.2 of the WAC?
  - ➢ All 403 CEUSP canisters are below this limit, but DSA modification may still be needed
  - ➢ 2000 PE-g limit for shipments is met with 8 or less canisters
- As previously discussed, package-based fissile gram limits are exceeded by the CEUSP canisters
  - ➢ The adoption of waste stream specific controls dictated by a nuclear criticality safety evaluation (NCSE) still allows for waste stream acceptance

TOPIC	COMMENT	AUTHOR	NOTES
acceptance	Does U233 qualify for transport and storage under the RWAP? Yes it is Uranium, and Uranium is accepted by the RWAP, and the NNSS has accepted this same material previously (Uranium 233), thus setting a precedent for acceptance.	Daniel Coss	
acceptance	Does the acceptance meet the PA Models? Yet to be seen, may want more information on this, but since the previous shipments of Uranium 233 from other site did not violate this model, I am unsure how this shipment would?	Daniel Coss	
acceptance	What is best for Nevada? As the NSSAB we should be making recommendations on, not what is best for the DOE but what is best for the citizens of the State of Nevada. The State of Nevada has decided to permit a LLRW Disposal at the NNSS. This shipment falls within the scope and regulations of this authority. The State of Nevada gains jobs, money, and fees within this movement process and the environmental impact remains the same. That is good for the State of Nevada. The DOE is allowed to remove this waste to a more secure, less populated, and longer life facility, this is good for the DOE, so if the waste does not change the PA, or long range modeling I do not see an issue with the acceptance of U233 from Oak Ride, TN.	Daniel Coss	
acceptance	A review of the current NNSS Waste Acceptance Criteria that apply to this waste stream would be helpful for the NSSAB to understand the nature of the risk.	Genne Nelson	
acceptance	Section 3.1.14 states that sealed sources with activity levels > 3.7 MBq must be treated separately from other sources. How does this waste stream compare to this radiation threshold?	Genne Nelson	
acceptance	Further study needs to “confirm” that the canisters to be buried at NNSS do in fact meet existing criteria for LLW disposal.	Thomas Fisher	

acceptance	I have an additional thoughts and comments as the result of reading the paper on U232 and U233. - I understand that there is a “legal” difference between TRU waste, high level waste, and low level waste that dictates for how long it must be demonstrated to be “safe” as permanently disposed. And I know that stuff that is very radioactive, ie high activity can be buried as low level waste. That is ok because highly radioactive means it decays away fast, and “soon” most is gone. - However, as a radionuclide (cross section for fission, activity, long half life, etc) scientifically it appears to be a very similar substance to Pu, with all the same technical (and socio-political) risks. Thus it should be made clear, that even though this stuff is more similar to Pu239 than say U238, what the technical basis is for disposing of it as if it was U238 (ie low level disposal). - Some examples; if high level waste must be kept away from possible public for thousands of years, why not this stuff? It’s not buried very deep, so it should not be hard to physically dig up and get to it. - Will this stuff be safe from intentional bad acts for centuries? Could someone do something very bad with this stuff in say 500 years?	John McGrail	
background	Attached is a document that discusses the difficulty of dealing with U233 because of the U232 contamination. Although it is focused on using U233 as a nuclear fuel, I think it might be useful to NSSAB members for scientific background on some of the issues faced in disposal.	Robert Johnson	
containers	A. Was the NAC LWT cask selected for any reason other than it was available? Why aren’t the containers used now for remote handled wastes suitable. And how are the wastes removed from those shipping containers. I am probably wrong on this but it looked to me from what I saw on some tours that the entire container was being buried.	Michael Voegele	

containers	E.7 Fissile Material Limits item 2 states that the quantity of fissile material may not exceed 350 grams Fissile Gram Equivalent for ^{235}U. We were told the individual canisters contain 2600 grams of material, 76% of which is ^{235}U. So how does the GFE limit relate to 1976 grams of ^{235}U? Section 3.2.1, which deals with Nuclear Criticality Safety restates that waste packages shall comply with the fissile material limits.	Genne Nelson	
containers	How does this waste fit against the package limit of 300 PE-g total? How many containers could be shipped and remain below the 2000 PE-g shipment limit? (section 3.2.2)	Genne Nelson	
disposal	In general, how does this waste stream compare to other high intensity LLW already emplaced at NNSS, if there is a comparison?	Genne Nelson	
disposal	My only comment on the U233 waste disposal at the site, is that I am concerned if the outside of the canisters is "hot", how much contamination to the soil will be taking place? If someone has to have protective clothing and stand well away from the disposal process, how can this NOT be bad for the site?	Kathy Bienenstein	
disposal - transport	As long as the requirements for safe disposal and transport around population centers are met, I am satisfied with that aspect. *(also under transport)*	Art Goldsmith	
disposal - unloading	A. I am having a difficult time envisioning how the LWT container will be unloaded remotely by crane from a position in the waste disposal trench. Even taking off the impact limiters, and somehow balancing the container on the trunion pins, I have a difficult time understanding how a crane will pick the seven small U233 containers out of the LWT Cask. Will the entire basket assembly be lifted out? How will the canisters be placed in the trench? Has there been any consideration for the potential of a magnitude 6 earthquake and the effect it would have on an upright LWT canister? *(also under disposal)*	Michael Voegele	

general	After looking at these *(my comments),* and remembering the reaction of the remainder of the group to the presentation, I guess the issues are probably mine alone and not of too much interest to the other members. I don't see much value in wasting the group's time with this. Still, I'd like to talk to someone about them if it's not too much trouble. I can do it outside the meeting if that works better.	Michael Voegele	
general	I have no "questions". Seems they've covered all the bases already and the decision is in the basket that the NNSS will be receiving the U233 waste.	Barry LiMarzi	
general	Conclusion: I recommend accepting the U233 shipments from Oak Ridge, TN for storage at the LLRW Disposal Site, pending the final clarification from DOE that this act will not change the PA or long range models currently being used to protect the Citizens of Nevada.	Daniel Coss	
general	I believe the NSSAB appreciates notification of this issue to the board. However, much of the detail about this waste stream and the special requirements that may be necessary for safe handling and emplacement have not yet been determined—this subject is still in the evaluation phase. It is difficult for the board to make any specific comments about a project that is, at the present time, unspecified. Issues related to high-level radiation risk during handling, the potential risk from theft or accident and the unknown nature of containment of long-lived radionuclides are cause for concern. These may be easily and safely addressed, or may not be resolved.	Genne Nelson	
general	Many of these questions may have no answer at this time. It was clearly presented that much additional work is necessary before this waste could be emplaced at the NNSS. Any comments made by the NSSAB will have to be conditional on work that has not yet been done. It is important that the NSSAB be kept informed as evaluation of this proposal moves forward. Perspective could be changed by additional information.	Genne Nelson	

performance assessment	B. There are regulations for disposing other types of enriched uranium, specifically, spent nuclear fuel (granted, these would be significant quantities). Performance assessments for these wastes are required to look at 10,000 years for transuranics and 1,000,000 years for spent nuclear fuel. That 1,000,000 requirement is for a region with the same climate as the Area 5 Low Level Waste facility, but with the wastes placed in extremely robust metallic containers. (and the waste form is a ceramic, as is the U233 being looked at). I expect that the draft preliminary or whatever it was called performance assessment was a 1000 year calculation. I'd really like to understand the assumptions behind the performance assessment, what barriers were relied on for performance, and how well the system would perform if projected farther into the future.	Michael Voegele	
R/hr release	The question arises over the R/hr release. Is the release calculated from the tubes themselves? Or is the minor release of. 01r just from the casks?	Art Goldsmith	
R/hr release	… I too am curious how such high R/hr material with such a long half-life can be classified as low level waste. Several other board members mentioned past situations in which other high R/hr materials had already been placed in the site. It might be good to have this waste definition/classification explained to the board so we all, especially new members, can gain a better understanding.	Barry LiMarzi	
R/hr release	Section 3.1.2 of the NNSS Waste Acceptance Criteria states that Radionuclide limits for disposal are listed in Table E-1. Limits for ^{232}U and ^{235}U are listed as 4.3E+10 and 8.2E+10 respectively. The units are in Bq. How does that radiation level relate to the information presented that 300 R/hr are released from unshielded CEUSP containers?	Genne Nelson	
transport	…our comments should reiterate that: transport must not go through the LV spaghetti bowl or across the Hoover Dam or the O'Callaghan-Tillman Bridge.	Barry LiMarzi	

transport	Is it safe to transport the material through the State of Nevada Tourist Corridor? The obvious answer is; it's not about safety, but about risk? The risk certainly increases by transporting any radioactive material through Clark County, however if we decide to recommend sending them around through Pahrump the extra mileage also increases the risk of attack or accident with the convoy, by leaving it on the highway system, longer than required. The Nuclear Materials Couriers are well versed in this aspect of the movement, and I am inclined to allow the transportation experts make the decisions on this.	Daniel Coss	
transport	It was stated that the I-15/US-95 corridor would not be used. Is it safe to assume that the CA-127/NV-373 corridor would be used? If so, what requirements cover protection of the environment in case of a vehicular accident? A theft / terrorist attack?	Genne Nelson	
transport	The transportation scheme needs to be much more completely modeled and developed. Shipping one cask per week for approximately 16-17 months from TN to NV leaves open the possibility for any number of transportation issues. I can think of several scenarios where mechanical breakdowns could cause severe "backlog" issues. Can the loading/unloading processes be halted at any point should a problem occur with a vehicle in transit? What would be the exposure risk to the general public or repair crews should a cask be immobilized for a significant period of time? What "backup" measures are in place to handle breakdowns, weather, etc.?	Thomas Fisher	
transport - disposal	As long as the requirements for safe disposal and transport around population centers are met, I am satisfied with that aspect. *(also under disposal)*	Art Goldsmith	
transport - security	…our comments should reiterate that: additional security must accompany the transport	Barry LiMarzi	
transport - security	…our comments should reiterate that: safety/security of the transport and drivers (shielding/training) must be considered and enforced so that they are not overexposed or leave the truck unattended at any time	Barry LiMarzi	

transport - security	Assuming the following: 1) the proposed disposal can be demonstrated to meet the appropriate Waste Acceptance Criteria, and 2) demonstrated to meet Landfill Performance Assessment requirements, and 3) the transportation plan is shown to comply with all DOT requirements, and 4) the appropriate safety analysis (HA or SAR as required) of the specific processes and materials quantities is performed to ensure local worker, NNSS worker, and public safety… I have only one remaining concern: Intentional bad acts during transportation. In my opinion a shipment of U233 as proposed, although robustly packaged and protected from all reasonable transportation accidents, is a desirable terrorist threat for either hijacking of the entire vehicle, or deliberate destruction and explosive penetration of packaging. I understand the physical properties of the material make it difficult to actually disperse, but the relatively long half-life and high activity and fissionability make it at least a perceived threat. I would recommend assurance of proper security risk assessment, by both DOE/NNSA and perhaps another federal agency, with implementation of all requirements that come from analysis. In other words, the material should be meet same security standards during transport, on the ground at NNSS, and in the ground at NNSS as it is required to meet in building 3019 at ORNL.	John McGrail	
unloading	safety during the loading and unloading operations must be maintained. (my understanding is that only the loading operation will be a "newer" process (i.e., not done at all or too often), not the unloading operation)	Barry LiMarzi	
unloading	What measures are in place to protect NNSS workers operating the equipment used to bury the canisters? What happens if “remotely operated” equipment breaks down in the middle of the operation? What is the exposure risk to repair the remote equipment etc.? What are the risks of covering the slit trenches with dirt and then placing larger containers on top?	Thomas Fisher	

unloading – disposal	C. I am having a difficult time envisioning how the LWT container will be unloaded remotely by crane from a position in the waste disposal trench. Even taking off the impact limiters, and somehow balancing the container on the trunion pins, I have a difficult time understanding how a crane will pick the seven small U233 containers out of the LWT Cask. Will the entire basket assembly be lifted out? How will the canisters be placed in the trench? Has there been any consideration for the potential of a magnitude 6 earthquake and the effect it would have on an upright LWT canister? *(also under disposal)*	Michael Voegele	
uranium as low-level waste	D. I've spent a bit of time looking into the uranium as Low Level Waste issue and trying to understand why it bothers me. While 10 CFR 61.555(a1) notes that "consideration must be given to the concentration of long-lived radionuclides ….. whose potential hazard will persist long after such precautions as institutional controls, improved waste form, and deeper disposal have ceased to be effective," uranium is not listed in the tables of nuclides to be considered. I don't understand why. So I looked for and found the Environmental Impact Statement on Low Level Waste Disposal and found:	Michael Voegele	

6.2 Isotopes Considered for Waste Classification Purposes

In the draft EIS, a total of 23 different radionuclides were considered in the numerical analysis. These nuclides were nearly all moderately or long-lived radionuclides. Based upon these 23 radionuclides, concentration limits were proposed in the draft EIS for 11 individual radionuclides plus alpha-emitting transuranics, enriched uranium and depleted uranium. In response to public comments, limits for ^{135}Cs, enriched uranium, and depleted uranium have been eliminated, as have been limits for ^{59}Ni and ^{94}Nb except as contained in activated metal. A separate limit is provided for ^{242}Cm, a transuranic nuclide with a 162.9 day half-life.

These changes are principally in response to comments on proposed Part 61 regarding the costs and impacts of compliance with the waste classification requirements. In particular, many commenters were concerned that they would have to directly measure every isotope in every waste package. This would be difficult since measurement of many of the listed isotopes--which would usually be present only in trace quantities--could not be performed except by complex radiochemical separation techniques by laboratories. Commenters were concerned that costs and personnel radiation exposures would be significantly increased.

Thus to ease the burden of compliance, the number of isotopes treated generically in the waste classification table was reduced to those judged to be needed on a generic basis for waste classification purposes. Other isotopes may be added later either generically or in specific waste streams.

In other words, uranium is not regulated either because no one thought they would be disposing meaningful quantities of uranium as low level waste, or it was not thought to be low level waste . Nothing I can do about that, but I would like to hear a professional's take on this and ask a few questions.

The Nuclear Regulatory Commission is looking at "unique waste streams" that would include primarily large quantities of depleted uranium from uranium enrichment operations. They could also include wastes from future spent-fuel reprocessing facilities or *other fuel cycle wastes* that were not considered when the current regulations were developed.

But nothing has been done so far that I can find. Why not?

TOPIC	COMMENT	AUTHOR	NOTES
acceptance	If this was another similar fissionable material, either enriched U235 or Pu could it be disposed of in the same way as is being proposed for this U233? Is there any technical/scientific reason this stuff should be stored, handled, transported, guarded, and disposed of differently from enriched U235 or Pu, what are those reasons?	John McGrail	
acceptance	After listening to the presentation and all the comments, I do have the same concerns as everyone else: • Transportation risks • Security risks before, during and after transportation. • Worker safety • Is this the right place for this material? • Is Low Level waste the correct classification of this material and the risk associated with its disposal. I would like to see the Board address the concern that the definition of Low Level Waste is really not low risk waste and perhaps send a letter to the appropriate governing body which sets up the definition of the types of waste, whether it is the DOE or the NRC. I would also add that when a person hears Low Level Waste compared to High Level Waste, I believe a reasonable person would assume the LLW has a much lower hazard level to health than does the HLW. I know I certainly would have fallen into this category and I am sure many citizens do. Finally, after learning what I have about U233, I certainly do not believe this waste is 'low risk' and disposal of this substance at Area 5 should require further investigation.	Michael Moore	

Nye County

Nuclear Waste Repository Project Office

2101 E. Calvada Blvd., Ste. #100 · Pahrump, Nevada 89048
(775) 727-7727 · Fax (775) 727-7919

12-007-DL (L)

January 31, 2012

Mr. Scott Wade
Assistant Manager for Environmental Management
U.S. Department of Energy, Nevada Site Office
P.O. Box 98510
Las Vegas, NV 89193-8518

RE: U233 Waste for Area 5 LLW facility

Scott,
Commissioner Hollis asked me to send you a letter expressing our concerns and requesting additional information. Nye County would like to be involved in any discussion of the shipment and disposal of these materials. Since this type of material is more radioactive and is not like other waste forms going to the LLW facility, it is important that we understand the impacts of this decision and that we are involved in determining if addition mitigation is necessary.

The Nevada National Security Site has proposed the disposal of about 1000kg of waste uranium 233 at the low level waste disposal facility in Area 5 of the Nevada National Security Site (NNSS). Apparently, the material would be shipped to the Nevada National Security Site in modified Type B Legal Weight Truck shipping containers, and there would be approximately sixty shipments to the site from April 2013 to September 2014.

As described in the DOE EM presentation it appears this would be Greater Than Class C Waste (GTCC) if subject to NRC regulations. DOE is currently in the process of a NEPA analysis for the disposal of GTCC and GTCC like waste. We would like to see the waste analysis and technical documents that were used to determine that this waste meets the NNSS Waste Acceptance Criteria and any analysis used to determine that shallow burial is the appropriate disposal option. Current NRC regulations do not allow shallow burial of GTCC waste and the recent DOE GTCC EIS draft indicated that any proposed shallow burial design would have engineered barriers. The Yucca Mountain EIS proposed to handle this type of waste in a deep geologic repository.

Given the current uncertainty in transportation alternatives discussed in the recent Draft Site-Wide Environmental Impact Statement for the Nevada National Security Site, it is not likely that the Waste Acceptance Criteria document, which prohibits low level waste transport through the I-15 / U.S. 95 interchange or across Hoover Dam or the O'Callaghan-Tillman Bridge, will be

changed. Therefore, there is little reason to expect that the shipments will not utilize the current low level waste shipping route of Highway 160 through Nye County.

I believe that it is imperative that the Nevada National Security Site engage Nye County in discussions about the impacts of these shipments through Nye County. It may be inappropriate to have these shipments pass through downtown Pahrump, and we are interested in a detailed risk assessment and to also investigate alternative transportation routes in Nye County with you.

Thank you,

Darrell Lacy, Director
Nye County NWRPO

CC: Colleen Cripps NDEP
Christine Gelles – DOE
Denise Rupp – NSSAB

Funding by Site

Dollars in thousands

Site	FY 2011 Operating Plan	FY 2012 Current Enacted	FY 2013 Cong. Request
Brookhaven	13,833	9,585	7,840
ETEC	6,466	9,279	9,460
Hanford	1,040,248	1,021,824	1,037,773
Idaho	403,448	389,800	405,397
Los Alamos	191,800	188,561	239,143
Lawrence Livermore	822	873	1,484
Moab	32,594	31,000	30,941
Nevada	62,510	65,545	64,641
Oak Ridge	401,142	419,758	421,250
River Protection	1,134,197	1,181,800	1,172,113
Paducah	144,370	143,082	142,479
Portsmouth	257,604	254,527	186,672
Savannah River	1,300,022	1,316,922	1,303,493
SPRU	50,895	24,000	24,000
SLAC	7,711	2,435	3,800
Sandia	3,014	3,014	5,000
WIPP	220,006	218,179	202,987
West Valley	59,588	66,300	49,877
Other	175	14,703	1,990
Program Direction	320,007	321,628	323,504
Program Support	21,101	20,380	18,279
TD&D	18,869	10,622	20,000
D&D Fund Deposit	33,633	-	463,000
Subtotal, EM	5,724,055	5,713,817	6,135,123
D&D Fund Deposit Offset	(33,633)	-	(463,000)
Offsets	(22,700)	(3,381)	(22,123)
Total, EM	**5,667,722**	**5,710,436**	**5,650,000**

Safeguard and Security allocated across sites

Department of Energy
National Nuclear Security Administration
Nevada Site Office
P.O. Box 98518
Las Vegas, NV 89193-8518

JAN 20 2012

Kathleen Bienenstein, Chair
Nevada Site Specific Advisory Board
232 Energy Way
North Las Vegas, NV 89030

RESPONSE TO NEVADA SITE SPECIFIC ADVISORY BOARD'S (NSSAB) LIAISON POSITION RECOMMENDATION - PART 2

Per the letter dated January 9, 2012, the Nevada Site Office responded to four of the five recommendations the Board made to the Nevada Site Office on December 7, 2011. Below is the response to the final recommendation.

Recommendation: Department of Energy should explore funding options for a potential Native American tribal liaison.
Response: The Nevada Site Office fully supports Native American participation in activities related to the Nevada National Security Site (NNSS). To support this partnership, the Nevada Site Office funds activities and meetings for the Consolidated Group of Tribes and Organizations (CGTO), which is made up of culturally affiliated Western Shoshone, Southern Paiute, and Owens Valley Paiute-Shoshone tribes in Nevada, eastern California, southern Utah, and northern Arizona. Speaking with one voice, the CGTO consults with the Nevada Site Office on projects in order to protect and preserve the rich cultural resources of their ancestors on the NNSS. The CGTO determines what activities are of interest to them, including the liaison position with the NSSAB, which they have declined. If in the future the CGTO would like to use their funding to participate on the NSSAB, the Nevada Site Office will continue to support a liaison position.

If you have questions, please contact me at 702-295-2836.

Kelly K. Snyder
Deputy Designated Federal Officer

PSG.8196.KKS

cc via e-mail:
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