October 13, 2009

DRC BOARD MEETING

Department of Environmental Quality
168 N 1950 W
DEQ BLDG #2
Conference Room 101
SALT LAKE CITY, UT 84114-4850
3:00 p.m. – 5:00 p.m.

RADIATION CONTROL BOARD
Department of Environmental Quality (Bldg #2),
Conference Room 101, 168 North 1950 West, Salt Lake City, Utah
3:00 – 5:00 P.M., October 13, 2009

FINAL AGENDA

I. Minutes **(Board Action Item)**
   a. Approval of the Minutes from the September 22, 2009 Board Meeting

II. Rules
   No Items

III. Radioactive Materials Licensing/Inspection **(Board Action Item)**
   a. Exemption from Rules on Procurement and Transfer of Technetium-99m and Calibration of Instrumentation Using Technetium-99m

IV. X-Ray Registration/Inspection
   No Items

V. Radioactive Waste Disposal
   a. Request from Charles Judd to Address the Board on Disposal Capacity at Energy*Solutions* **(Board Information Item)**

   b. Consideration of a License Amendment for Depleted Uranium disposal at Energy*Solutions* **(Board Action Item)**

VI. Uranium Mill Licensing and Inspection
   No Items

VII. Other Division Issues **(Board Information Item)**
   a. Division Activities Report

VIII. Public Comment

IX. **The Next Scheduled Board Meeting: November 10, 2009 (Tuesday)**, DEQ Bldg #2, Conference Room 101, 168 North 1950 West, Salt Lake City, Utah 3:00 – 5:00 P.M.

For those individuals needing special assistance in accordance with the Americans with Disabilities Act, please contact Brooke Baker at the Utah Department of Environmental Quality, at 168 North 1950 West, Salt Lake City, UT 84116, Office of Human Resources at (801) 536-4412, TDD (801) 536-4414, or by email at: bbaker@utah.gov.

RADIATION CONTROL BOARD
Department of Environmental Quality (Bldg #2),
Conference Room 101, 168 North 1950 West, Salt Lake City, Utah
3:00 – 5:00 P.M., October 13, 2009

FINAL AGENDA

I. Minutes **(Board Action Item)**
   a. Approval of the Minutes from the September 22, 2009 Board Meeting
   Presented by: Chairman Peter A. Jenkins

II. Rules
   No Items

III. Radioactive Materials Licensing/Inspection **(Board Action Item)**
   a. Exemption from Rules on Procurement and Transfer of Technetium-99m and Calibration of Instrumentation Using Technetium-99m
   Presented by: Craig W. Jones

IV. X-Ray Registration/Inspection
   No Items

V. Radioactive Waste Disposal
   a. Request from Charles Judd to Address the Board on Disposal Capacity at Energy*Solutions* **(Board Information Item)**
   Presented by: Charles Judd

   b. Consideration of a License Amendment for Depleted Uranium disposal at Energy*Solutions* **(Board Action Item)**
   Presented by: Fred Nelson, Attorney

VI. Uranium Mill Licensing and Inspection
   No Items

VII. Other Division Issues **(Board Information Item)**
   a. Division Activities Report

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UTAH RADIATION BOARD

BOARD MEMBERS - SIGN-IN SHEET

MEETING DATE: October 13, 2009

Peter A. Jenkins, M.S., CHP, Chair

Elizabeth Goryunova, M.S., Vice Chair Absent 10/13/09 mr

Amanda Smith, DEQ Executive Director

Dane L. Finerfrock, Exec. Sec.

Scott Bird

Patrick D. Cone Phone Call-in

Frank D. DeRosso, MSPH, CIH

Christian K. Gardner

Colleen Johnson

Edd Johnson

Douglas S. Kimball, DMD

Joseph K. Miner, M.D., MSPH

John W. Thomson, M.D.

David A. Tripp, PH.D. Absent 10/13/09 mr

OTHER STAFF ATTENDING

Public Attendance Sheet

Utah Radiation Control Board Meeting

DEQ Bldg. #2, Conf. Room 101
168 N 1950 W, Salt Lake City, UT 84114-4850
3:00 – 5:00 p.m.

October 13, 2009

Please Print

NAME (Please Print)	Organization/Affiliation Phone Number and Email Address:	Speak: Yes or No? If Yes, which Agenda Item Do you Wish to Address Before the Board Today? (List Item#)
1. James O'Neal	private citizen Provo, Utah	Yes – item V. b.
2. Dan Shrum	Energy Solutions	N/a
3. Sean McCandless	Energy Solutions	No.
4. Jim Sweet	Gradient West	—
5. Sandra Hays	Heal Utah Private citizen 801 572-2536	No
6. Ed Firmage	Self	Yes
7. Christopher Thomas	HEAL Utah	Yes V. b.
8. KRISTIA BOWERS	Concerned Citizen	No
9. Martin Gelman	HEAL 801-272-2522 Utah	~~Yes V~~
10. Bob Archibald	Self	YES
11. Mark Ledoux	Energy Solutions	NO
12. Norma Franklin	citizen	
13. Jeff Clay	Citizen	No
14. Kaxine Kaiser	HEAL Utah	No
15. Karen Kanazawa	Hafen	No
16. Eric Spreng	HEAL Utah	No
17. Robert Baird	NRC	NO
18.		
19.		

Public Attendance Sheet

Utah Radiation Control Board Meeting

DEQ Bldg. #2, Conf. Room 101
168 N 1950 W, Salt Lake City, UT 84114-4850
3:00 – 5:00 p.m.

October 13, 2009

Please Print

NAME (Please Print)	Organization/Affiliation: Phone Number and Email Address:	Speak: Yes or No? If Yes, which Agenda Item Do you Wish to Address Before the Board Today? (List Item#)
20. Rachel White	Citizen 625W 500N SLC 84116	Yes Item V
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Public Attendance Sheet

Utah Radiation Control Board Meeting

DEQ Bldg. #2, Conf. Room 101
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October 13, 2009

Please Print

NAME (Please Print)	Organization/Affiliation: Phone Number and Email Address:	Speak: Yes or No? If Yes, which Agenda Item Do you Wish to Address Before the Board Today? (List Item#)
134. ARTHUR [illegible]	HERL	NO
135. Jason Groenewold	–	No
136. Cherry Wong	Denison Enviro	No
137. ANN O'CONNOR	NA	NO
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From: HEAL - Utah
DRC Oct. 13, 2009 Board Mtg

Condition 35. Depleted Uranium:

A. Background: The Nuclear Regulatory Commission (NRC) has acknowledged some inadequacies in its past analyses and possibly its current regulatory structure with respect to disposal of substantial quantities of depleted uranium (DU). As a result, it has started a rulemaking process to determine the conditions under which DU and other unique wastes may be safely disposed of in near surface facilities. NRC has stated that new regulatory standards and guidance will be the likely result from that rulemaking process, and that new performance assessments will likely also be required. Rulemaking by the Division of Radiation Control (DRC) would also likely ~~be~~ follow. In the interim, Utah will adopt the regulatory approach of Texas, to require a performance assessment to the "period where peak dose occurs" before allowing additional disposal of substantial quantities of DU. ~~EnergySolutions has indicated to the Division that it would prefer not to wait until the completion of the NRC's and DRC's rulemaking processes or until completion of the resulting performance analysis that will likely be required before it begins to dispose of depleted uranium at the Clive facility.~~ The additional license conditions in this Condition 35 are therefore required.

~~B. Burial Depth: The Licensee shall place all wastes with DU concentrations greater than 5 percent (by weight) a minimum of 10 feet below the top of the cover.~~

~~C~~B. Performance assessment: A performance assessment~~, in general conformance with the approach used by the Nuclear Regulatory Commission (NRC) in SECY08-0147,~~ shall be submitted for Executive Secretary review and approval ~~no later than December 31, 2010~~before any further disposal of significant quantities of depleted uranium. ~~The performance assessment shall be revised as needed to reflect ongoing guidance and rulemaking from NRC.~~ For purposes of this performance assessment. the compliance period will be a minimum of 10,000 years or the period where peak dose (or activity) occurs, whichever is longer. Approval of this performance

assessment by the Executive Secretary will take place through a new license amendment and shall be subject to public comment and appeal before the Radiation Control Board. ~~Additional simulations will be performed for a minimum of a 1,000,000-year time frame for qualitative analysis.~~

~~D. Revised disposal embankment design: If the performance assessment specified in paragraph 35C indicates that changes to disposal operations and cover design are necessary to ensure compliance with the requirements of 10 CFR Part 61 or Utah Administrative Code R313, EnergySolutions will provide a revised design that does meet those requirements, for all wastes that have been and are reasonably anticipated to be disposed of at the facility, within 180 days of Executive Secretary approval of the performance assessment.~~

~~E. Remediation: If, following the completion of NRC's and DRC's regulatory processes described in paragraph 35A, the disposal of DU as performed after the date of this license condition would not have met the requirements of those new regulatory and performance standards, the facility will undertake remediation to ensure that those new regulatory and performance standards are met, or, if that is not possible, shall remove the DU and transport it off-site to licensed facility. Before accepting substantial quantities of DU for disposal after the effective date of this license condition, EnergySolutions shall provide evidence that it is feasible to meet this condition 35.E. Compliance with this provision is required even if EnergySolutions has complied with paragraph 35D.~~

~~F. Surety: The Licensee shall fund the surety for the remediation, in License Condition 35 E. Within 30-days of the effective date of this license condition, the licensee shall submit for Executive Secretary review and approval, the surety cost estimates for remediation of existing Savannah River DU waste disposal and planned, similar, large quantity DU waste disposal.~~

Condition 35. Depleted Uranium:

A. Background: The Nuclear Regulatory Commission (NRC) has acknowledged some inadequacies in its past analyses and possibly its current regulatory structure with respect to disposal of substantial quantities of depleted uranium (DU). As a result, it has started a rulemaking process to determine the conditions under which DU and other unique wastes may be safely disposed of in near surface facilities. NRC has stated that new regulatory standards and guidance will be the likely result from that rulemaking process, and that new performance assessments will likely also be required. Rulemaking by the Division of Radiation Control (DRC) would also likely follow. In the interim, Utah will adopt the regulatory approach of Texas, to require a performance assessment to the "period where peak dose occurs" before allowing additional disposal of substantial quantities of DU. The additional license conditions in this Condition 35 are therefore required.

B. Performance assessment: A performance assessment shall be submitted for Executive Secretary review and approval before any further disposal of significant quantities of depleted uranium. For purposes of this performance assessment. the compliance period will be a minimum of 10,000 years or the period where peak dose (or activity) occurs, whichever is longer. Approval of this performance assessment by the Executive Secretary will take place through a new license amendment and shall be subject to public comment and appeal before the Radiation Control Board.

Heal-Utah
Non ded. cnt
@ DRC Board
Mtg
10/13/2009

Utah Regulation of DU Disposal

Utah's regulations governing disposal of depleted uranium (DU) address only Ra-226, which is a decay product of DU. As defined in Table 1 of UAC R313-15.1008(c), the concentration limit of Ra-226 for Class A waste is 10 nCi/g. No other members of the DU decay series are listed as a basis for classifying DU.

If disposed concentrations of DU exceed 10 nCi/g, the state Class A limit for Ra-226 will be exceeded following the ingrowth of uranium decay products.

EnergySolutions Waste Acceptance Criteria

The current uranium waste acceptance criteria for EnergySolutions are based on dose calculations that consider only a 1,000-year period of performance. The calculations underestimated the long-term dose because they do not include the dose from radon gas, a uranium decay product. The dose calculations did not adequately evaluate the long-term hazard from DU.

Radiological Hazard Comparison – DU vs Transuranics

The radiological hazard from DU is primarily from the emission of alpha particles, a property shared with most transuranic isotopes. As a long-lived alpha emitter it is radiologically similar to the transuranic isotopes, such as plutonium and americium. DU has a radiological hazard similar to the transuranic isotopes, as shown in the table.

The table compares the hazards of transuranics and DU using the dose conversion factors (DCF) taken from Federal Guidance Reports No. 11 and No. 12. The table shows that the ingestion and inhalation hazards from DU are lower than a typical transuranic isotope (Pu-239) when decay products are not present. For long time frames (greater than 100,000 years), as the DU decay products accumulate, the hazard from DU surpasses the initial hazards from the transuranics. Given the similar long-term radiological hazards from DU and transuranic isotopes, it appears appropriate to regulate DU similarly to the transuranics (i.e., 10 nCi/g Class A limit). Based on the radiological hazard, DU should be regulated in the same manner as long-lived transuranic isotopes, which are already included in the classification system of 10 CFR 61.55.

Table 1. Comparison of DU and transuranic dose conversion factors

Pathway	Pu-239	Am-241	DU	DU + decay products
Inhalation (Sv/Bq)	1.16E-04	1.20E-04	3.20E-05 28% of Pu-239	1.64E-04 1.4 times Pu-239
Ingestion (Sv/Bq)	9.56E-07	9.84E-07	7.25E-08 8% of Pu-239	2.62E-06 2.7 times Pu-239
External gamma (Sv/s per Bq/m^3)	1.58E-21	2.34E-19	6.10E-19 390 times Pu-239	6.05E-17 38,000 times Pu-239

NRC's Analysis of DU

The NRC included DU in its Draft Environmental Impact Statement (NUREG-0782, 1981) in support of 10 CFR 61. Based on doses to an inadvertent intruder, a DU concentration of 0.05 microcurie/cm3 was considered the upper limit that was acceptable for near surface disposal (NUEG-0782, Table 7.2). Incidentally, the analysis did not include doses from radon, which, if included, would have led to a much lower concentration limit. The NRC's DU limit of 0.05 microcurie/cm^3 is equivalent to about 6 nCi/g, assuming a DU-oxide waste form with a density of about 8 g/cm^3 (U_3O_8 density is 8.3 g/cm^3).

AEAL-UTAH
Oct 13, 2009
DRC Board meeting

Utah Regulation of DU Disposal

Utah's regulations governing disposal of depleted uranium (DU) address only Ra-226, which is a decay product of DU. As defined in Table 1 of UAC R313-15.1008(c), the concentration limit of Ra-226 for Class A waste is 10 nCi/g. No other members of the DU decay series are listed as a basis for classifying DU.

If disposed concentrations of DU exceed 10 nCi/g, the state Class A limit for Ra-226 will be exceeded following the ingrowth of uranium decay products.

EnergySolutions Waste Acceptance Criteria

The current uranium waste acceptance criteria for EnergySolutions are based on dose calculations that consider only a 1,000-year period of performance. The calculations underestimated the long-term dose because they do not include the dose from radon gas, a uranium decay product. The dose calculations did not adequately evaluate the long-term hazard from DU.

Radiological Hazard Comparison – DU vs Transuranics

The radiological hazard from DU is primarily from the emission of alpha particles, a property shared with most transuranic isotopes. As a long-lived alpha emitter it is radiologically similar to the transuranic isotopes, such as plutonium and americium. DU has a radiological hazard similar to the transuranic isotopes, as shown in the table.

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TESTIMONY BEFORE THE UTAH RADIATION CONTROL BOARD

October 12, 2009

by Ed Firmage, Jr.

In 2006, when Utah looked to become a dump for high-level nuclear waste, the LDS Church issued the following statement: "The transportation and storage of high-level nuclear waste create substantial and legitimate public health, safety, and environmental concerns. It is not reasonable to suggest that any one area bear a disproportionate burden of the transportation and concentration of nuclear waste."

In 2009, Utah seems likely to become the dump of choice for the world's low-level waste, and more ominously for our country's and possibly the world's depleted uranium (DU) stockpiles. If Energy Solutions, which is one of only a handful of low-level waste sites in the U.S., has its way, waste from all over the world will be stored 75 miles from Salt Lake. The recent Nuclear Regulatory Commission decision--decried by scientists--to classify DU as low-level means that Utah becomes one of the main destinations where DU (and not just our DU but the world's) can be permanently stored.

Unlike true low-level waste, DU becomes MORE radioactive over time, releasing among other by-products radon gas, which Energy Solutions' simple earthen cover is unable to contain. More worrisome is the fact that under no conceivable scenario can Energy Solutions' Clive facility be said to have the staying power needed to keep the increasingly radioactive DU material from being dispersed as the Great Basin undergoes the sort of geologic changes that are CERTAIN to occur here. In the past 25,000 years, for example, the Great Basin has seen massive changes, including glaciation, the melting of the glaciers, the formation of Lake Bonneville, and the disappearance of Lake Bonneville. These climatic and geologic phenomena have each utterly changed the nature of the place where Energy Solutions now stores low-level waste. On the time-scale of such changes, low-level waste can be said to be relatively innocuous. But that is not the case with depleted uranium, whose danger to our descendants will grow over geologic time. Imagine, then, what future inhabitants of Utah will say of this board's decision to allow DU waste into Utah KNOWING that at some future date the Great Salt Lake will again grow and flood the valley where the Clive facility is located, dispersing radium, radon, and the other deadly by-products of the decay of DU throughout the future Great Salt Lake. Is this the legacy you want your names to be associated with? Is this the legacy you want to pass on to YOUR children's children?

In the case of DU, Utahns are again being asked to shoulder a disproportionate and dangerous nuclear burden. It's time for our political leadership and regulatory agencies to follow the wise example of our churches and tell the makers of nuclear waste that enough is enough? DU enters our state from here on out over our dead bodies.

Ed Firmage, Jr.

DRC Board Meeting - October 13, 2009
Public Comments: Ed Firmage, Jr.

Radiation Control Board
Oct 13. 2009

Science and logic would dictate that Depleted Uranium disposal be studied and modeled rationally for potential impacts before we let any more of it in to the State.

Since the NRC is unwilling to take a firm stand on the stuff without more examination, I don't see why the State of Utah should be expected to.

It seems we have to suspend a lot of disbelief, to believe that material once buried 3 meters deep can be easily retrieved.

On the other hand it seems entirely reasonable to expect that potential impacts be codified, before more DU is shipped here.

To do otherwise, could be invoking that tried and true folly, of choosing A while hoping for B.

If it means EnergySolutions has to put some shipments on hold during the study period, it doesn't seem like an unreasonable situation for them to manage.

Bob Archibald
Sandy

DRC Board Meeting - October 13, 2009
Public Comments: Bob Archibald
Sandy, Utah

Handout by HEAL-Utah at DRC Board Mtg - October 13, 2009

Condition 35. Depleted Uranium:

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~~B. Burial Depth: The Licensee shall place all wastes with DU concentrations greater than 5 percent (by weight) a minimum of 10 feet below the top of the cover.~~

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assessment by the Executive Secretary will take place through a new license amendment and shall be subject to public comment and appeal before the Radiation Control Board. Additional ~~simulations will be performed for a minimum of a 1,000,000-year time frame for qualitative analysis~~.

~~D. Revised disposal embankment design: If the performance assessment specified in paragraph 35C indicates that changes to disposal operations and cover design are necessary to ensure compliance with the requirements of 10 CFR Part 61 or Utah Administrative Code R313, EnergySolutions will provide a revised design that does meet those requirements, for all wastes that have been and are reasonably anticipated to be disposed of at the facility, within 180 days of Executive Secretary approval of the performance assessment.~~

~~E. Remediation: If, following the completion of NRC's and DRC's regulatory processes described in paragraph 35A, the disposal of DU as performed after the date of this license condition would not have met the requirements of those new regulatory and performance standards, the facility will undertake remediation to ensure that those new regulatory and performance standards are met, or, if that is not possible, shall remove the DU and transport it off-site to licensed facility. Before accepting substantial quantities of DU for disposal after the effective date of this license condition, EnergySolutions shall provide evidence that it is feasible to meet this condition 35.E. Compliance with this provision is required even if EnergySolutions has complied with paragraph 35D.~~

~~F. Surety: The Licensee shall fund the surety for the remediation, in License Condition 35 E. Within 30-days of the effective date of this license condition, the licensee shall submit for Executive Secretary review and approval, the surety cost estimates for remediation of existing Savannah River DU waste disposal and planned, similar, large quantity DU waste disposal.~~

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DIVISION OF RADIATION CONTROL

BOARD MEETING

October 13, 2009

ADDITIONAL SUPPLEMENTS

DRC BOARD FILE

RADIATION CONTROL BOARD
Department of Environmental Quality (Bldg #2),
Conference Room 101, 168 North 1950 West, Salt Lake City, Utah
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VI. Uranium Mill Licensing and Inspection
   No Items

VII. Other Division Issues **(Board Information Item)**
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VIII. Public Comment

IX. **The Next Scheduled Board Meeting: November 10, 2009 (Tuesday)**, DEQ Bldg #2, Conference Room 101, 168 North 1950 West, Salt Lake City, Utah 3:00 – 5:00 P.M.

For those individuals needing special assistance in accordance with the Americans with Disabilities Act, please contact Brooke Baker at the Utah Department of Environmental Quality, at 168 North 1950 West, Salt Lake City, UT 84116, Office of Human Resources at (801) 536-4412, TDD (801) 536-4414, or by email at: bbaker@utah.gov.

VII. Other Division Issues (Board Information Item)

a. Division Activities Report

(1) NRC News – NRC Staff Directed to Make Recommendations on Blending Low-Level Waste

NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs Telephone: 301/415-8200
Washington, DC 20555-0001 E-mail: OPA.Resource@nrc.gov
www.nrc.gov

No. 09-166 C

NRC STAFF DIRECTED TO MAKE RECOMMENDATIONS ON BLENDING LOW LEVEL WAST

Printable Version

Nuclear Regulatory Commission Chairman Gregory B. Jaczko has directed the agency staff to develop a vote p Commission to consider issues related to blending of low-level waste.

Since the closing of a low-level waste disposal facility at Barnwell, S.C., last year, said Jaczko in a memo to th have received several inquiries from stakeholders asking us to clarify the agency's position on blending and w acceptable under our regulations and guidance, especially with respect to blending that results in a change in of the waste under 10 CFR Part 61.55."

He noted that the staff has already identified revision of the Branch Technical Position on Concentration Avera Encapsulation as a high priority item in the Low-Level Waste Strategic Assessment published in 2007.

"I am certain there are policy issues related to blending that will need to be considered by the Commission," s giving the staff six months to prepare a vote paper on the topic.

Jaczko said the staff should specifically consider:

- Issues related to intentional changes in waste classification due to blending, including safety, security, considerations
- Protection of the public, the intruder, and the environment
- Mathematical concentration averaging and homogeneous physical mixing
- Practical considerations in operating a waste treatment facility, disposal facility, or other facilities, inclu appropriate point at which waste should be classified
- Recommendations for revisions, if necessary, to existing regulations, requirements, guidance, or oversi blending of LLW

Blending refers to mixing low-level waste of different concentrations. It generally does not involve mixing radi with non-radioactive waste, and it concerns only waste for disposal or storage, not for release.

With the closure of Barnwell to low-level waste from all but Connecticut, New Jersey and South Carolina, licen states no longer have access to disposal capacity for Class B and C wastes. The need for these licensees – pri power plants, medical facilities and research institutes – to store waste on site for an extended period until di becomes available has led to increased industry interest in blending.

There are two other low-level waste disposal facilities in the country. One in Richland, Wash., is open only to l states belonging to the Northwest and Rocky Mountain Compacts (N.M., Colo., Nev., Utah, Wyo., Mont., Idah Hawaii, Alaska and Wash.). A facility in Clive, Utah, can accept Class A waste from any U.S. generator.

RADIATION CONTROL BOARD

Department of Environmental Quality (Bldg #2),
Conference Room 101, 168 North 1950 West, Salt Lake City, Utah
3:00 – 5:00 P.M., October 13, 2009

TENTATIVE AGENDA

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   a. Approval of the Minutes from the September 22, 2009 Board Meeting

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III. Radioactive Materials Licensing/Inspection **(Board Action Item)**
   a. Exemption from Rules on Procurement and Transfer of Technetium-99m and Calibration of Instrumentation Using Technetium-99m

IV. X-Ray Registration/Inspection
   No Items

V. Radioactive Waste Disposal
   a. Request from Charles Judd to Address the Board on Disposal Capacity at Energy*Solutions* **(Board Information Item)**

   b. Consideration of a License Amendment for Depleted Uranium disposal at Energy*Solutions* **(Board Action Item)**

VI. Uranium Mill Licensing and Inspection
   No Items

VII. Other Division Issues **(Board Information Item)**
   a. Division Activities Report

VIII. Public Comment

IX. **The Next Scheduled Board Meeting: November 10, 2009 (Tuesday)**, DEQ Bldg #2, Conference Room 101, 168 North 1950 West, Salt Lake City, Utah 3:00 – 5:00 P.M.

For those individuals needing special assistance in accordance with the Americans with Disabilities Act, please contact Brooke Baker at the Utah Department of Environmental Quality, at 168 North 1950 West, Salt Lake City, UT 84116, Office of Human Resources at (801) 536-4412, TDD (801) 536-4414, or by email at: bbaker@utah.gov.

1

I. Minutes (Board Action Item)

a. Approval of the Minutes from the September 22, 2009 Board Meeting

2

II. Rules

No Items

3

III. Radioactive Materials Licensing/Inspection (Board Action Item)

a. Exemption from Rules on Procurement and Transfer of Technetium-99m and Calibration of Instrumentation Using Technetium-99m

4

IV. X-Ray Registration/Inspection

No Items

5

V. Radioactive Waste Disposal

a. Request from Charles Judd to Address the Board on the Disposal Capacity at Energy*Solutions* (Board Information Item)

b. Consideration of a License Amendment for Depleted Uranium Disposal at Energy*Solutions* (Board Action Item)

6

VI. Uranium Mill Licensing and Inspection

No Items

7

VII. Other Division Issues (Board Info Item)

a. Division Activities Report

VIII. Public Comment

8

IX. Other Issues:

The Next Scheduled Board Meeting: November 10, 2009 (Tuesday), DEQ Bldg #2, Conference Room 101, 168 North 1950 West, Salt Lake City, Utah, 3:00 – 5:00 P.M.

I. Minutes **(Board Action Item)**

a. Approval of the Minutes from the September 22, 2009 Board Meeting

The Salt Lake Tribune THURSDAY, September 17, 2009

Utah News

MORE UTAH NEWS HEADLINES

- West Valley City transit hub set to open
- Aviary has reason to crow - national rating restored
- Paraglider critical after crash near Draper
- SLC mayor picks new spokeswoman
- Woodruff woman charged in fatal crash
- Boy killed in motor home accident identified
- Glendale residents say police need to do more
- Nursing home employee accused of abusing Alzheimer's patient
- More Utah schools meet No Child Left Behind goals
- Massage therapist accused of sexually abusing clients
- State investigates Garfield School District CFO
- Utah education: U-PASS yields mixed results
- Tough primary election for female Salt Lake City council candidates
- USU president orders another furlough
- Lawmakers push back against ethics initiative
- Training center opens for weatherization
- Keep benefits break for seniors, panel urges
- McEntee: End-of-life conversations with Dad
- SLC mayor picks P.R. pro to be spokeswoman

Utah finally has an environmental quality lea

Amanda Smith » She steps into a post vacant for 10 months

The Salt Lake Tribune

Updated: 09/16/2009 02:10:11 PM MDT

The Utah Senate on Wednesday confirmed Amanda Smith to be executive director of the Department of Environmental Quality, nearly four months after she was nominated by former Gov. Jon Huntsman Jr. and nearly 10 months after her predecessor stepped down.

The confirmation lands Smith in the crossfire of some of the state's most contentious debates, including helping to shape state policy regarding climate change, overseeing the disposal of radioactive waste and managing the state's air and water pollution programs.

Smith had served as director of government affairs for The Nature Conservancy, an organization created to protect sensitive lands, and later as director of legislative affairs for Huntsman. She replaces Rick Sprott as director of DEQ.

"This has been a long process," acknowledged Senate Majority Leader Sheldon Killpack, R-Syracuse. "We wanted to do the due diligence ourselves and she has handled herself with class and dignity."

-- Robert Gehrke

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MINUTES

OF

THE UTAH RADIATION CONTROL BOARD

September 22, 2009

Department of Environmental Quality, DEQ Building #2

Conference Room 101

168 N 1950 W

Salt Lake City, Utah 84114-4850

BOARD MEMBERS PRESENT
Peter A. Jenkins, M.S., CHP, Chair
Dane L. Finerfrock, Executive Secretary
Scott Bird
Patrick D. Cone
Frank D. DeRosso, MSPH, CIH
Christian K. Gardner
Colleen Johnson
Edd C. Johnson
Douglas S. Kimball, DMD
Joseph K. Miner, M.D., MSPH
Amanda Smith, Acting DEQ Executive Director (Attended by Conf. Call)
John W. Thomson, M.D.
David A. Tripp, Ph.D.

BOARD MEMBERS ABSENT/EXCUSED
Elizabeth Goryunova, M.S., Vice Chair

DRC STAFF/OTHER DEQ MEMBERS PRESENT
Edith Barker, DRC Staff
Mario A. Bettolo, DRC Staff
Bill Craig, DRC Staff
David Esser, DRC Staff
Phil Goble, DRC Staff
John Hultquist, DRC Section Manager
Craig Jones, DRC Section Manager
Laura Lockhart, Attorney, Atty General's Office
Yoli Necochea, DRC Staff
Fred Nelson, Attorney, Atty General's Office
Loren Morton, DRC Section Manager

DRC STAFF/OTHER DEQ MEMBERS PRESENT-CONTINUE
Thomas Rushing, DRC Staff

DRC STAFF/OTHER DEQ MEMBERS PRESENT - CONTINUED
William J. Sinclair, DEQ Deputy Director
Donna Spangler, PIO, DEQ – PPA Staff

PUBLIC
Sarah Anderson, Exchange Monitor
Bob Archibald, Concerned Citizen
Beatrice Braidford, Snake River Alliance, Idaho
Krista Bowery, Concerned Citizen
Anna Bradford, U.S. Nuclear Regulatory Commission (NRC)
Larry Camper, U.S. Nuclear Regulatory Commission (NRC)
Jeff Cisy, Concerned Citizen
Gina Clifford, Concerned Citizen
Richard Codell, U.S. Nuclear Regulatory Commission (NRC)
Sue Corth, Concerned Citizen
Rolene Coulter, HEAL-Utah
John Coultus, HEAL-Utah
Helene Cumo, Concerned Citizen
David Esh, U.S. Nuclear Regulatory Commission (NRC)
Fyndo, Citizen
George Gates, HEAL-Utah
Claire Geddes, Concerned Citizen

PUBLIC - CONTINUED

John Greeves, Tacisman Int.
Chris Grossman, U.S. Nuclear Regulatory Commission (NRC)
Sandra Hays, Concerned Citizen
James Holtkamp, Holland & Hart law firm
Polly Hough, Concerned Citizen
Mark LeDoux, Energy*Solutions*, LLC
Lisa London, U.S. Nuclear Regulatory Commission (NRC)
Thomas Magette, Energy*Solutions*, LLC
Jamine Morgan, HEAL-Utah
Mary Ellen Navas, Concerned Citizen
Amy O'Conner, Concerned Citizen
James O'Neal, Concerned Citizen from Provo, Utah
Vanessa Pierce, HEAL-Utah
Sue Rice, Cavanagh Services
Mary Rogers, HEAL-Utah
Aurora E. Shlien, Citizens for Sustainability
Daniel Shrum, Energy*Solutions*, LLC
Eric Spreng, HEAL-Utah
Kent Staheli, Concerned Citizen
Gregory Suber, U.S. Nuclear Regulatory Commission (NRC)
Christopher Thomas, HEAL-Utah
Duncan White, U.S. Nuclear Regulatory Commission (NRC)
Cherry Wong, Woman Concerned
Mike Zody, CBN

GREETINGS/MEETING CALLED TO ORDER

Peter A. Jenkins, Chairman, called the board meeting to order at 3:02 p.m. and welcomed the board members and the public. He indicated that if the public wished to address any items on the agenda, they should sign the public sign-in sheet. Those desiring to comment would be given an opportunity to address their concerns during the comment period.

I. APPROVAL OF MINUTES (Board Action Item)

a. Approval of the Minutes from the July 14, 2009 Meeting

Peter A. Jenkins, Chair, asked the board members if they had any corrections to the minutes from the July 14, 2009 board meeting. Edd C. Johnson requested the following correction to the minutes:

1. Page 9. Item V. c., under subtitle "Radioactive Waste: Requests to Board to Provide Comments on Depleted Uranium Disposal (Board Information Item), Questions by the Board," second paragraph, second sentence, which reads: Chairman Jenkins said Dr. Moench had mentioned the National Academy of Science in his presentation . . . if he was referring to the **BEAR** (Biological Effects of **Atomic** Radiation) Report. Change to read: "**BEIR** (Biological Effects of **Ionizing** Radiation) . . ."

MOTION MADE BY SCOTT BIRD TO APPROVE THE MINUTES OF JULY 14, 2009 WITH THE AMENDED CHANGES

MOTION SECONDED BY CHRISTIAN K. GARDNER

MOTION CARRIED AND PASSED

II. RULES

No Items

III. RADIOACTIVE MATERIALS LICENSING/INSPECTION

No Items

IV. X-RAY REGISTRATION/INSPECTION

No Items

V. Radioactive Waste

a. Responses from the U.S. Nuclear Regulatory Commission (NRC) to Board Questions Regarding Disposal of Depleted Uranium

Peter A. Jenkins, Chairman, informed the Board that he had sent a memorandum regarding the Board's discussion for today's meeting. Chairman Jenkins said that the Board had heard presentations from both sides on the issue of Depleted Uranium (DU). He said the presentation

from the U.S. Nuclear Regulatory Commission (NRC) today would fill-in the last piece of deliberation. Chairman Jenkins said that he had received a significant amount of comments from the public on the topic of DU. He informed the Board and those attending the meeting that the Board would not be accepting public comments on this agenda item today.

Chairman Jenkins informed the public that for the next two days the U.S. NRC would be holding a public workshop on DU and hearing public comments. The workshop would be held at the Salt Lake Marriott Research Park Hotel at the University of Utah. The workshop would be free and open to everyone to stress their opinion on the issue of DU. The workshop would be held each day from 8:00 a.m. to 5:00 p.m. He said the NRC would be accepting comments on DU waste, and he said that it would be the appropriate forum to discuss any comments that members of the public may have on this topic. Chairman Jenkins said that after the Board finished hearing this action item that if there were other public comments about other things outside of this action item the Board would hear public comment as time allowed.

Chairman Jenkins said that the representatives from the NRC who would be making the presentation would be: (1) Larry Camper, (2) David Esh, and (3) Duncan White. Larry Camper, Director of Waste Management and Environmental Protection at the NRC would be the first speaker from his group.

Mr. Camper said the question on the disposal of DU in large quantities had fallen to his Division. Mr. Camper introduced his staff. Mr. Camper said that David Esh was the principal scientist and led the technical analysis for disposal of large quantities of DU. Mr. Camper said that Mr. Duncan White was from another Division within his office. He said Mr. White had a lot of experience with Agreement States and the Agreement State Program. Mr. Camper said that because Utah is an Agreement State, he felt "questions might come up on this front." Mr. Camper said he welcomed the opportunity to appear before the Board on the question of disposal for large quantities of DU from nuclear waste streams. He said that it is an issue that the NRC staff has wrestled with for two years. Mr. Camper said that this was not an easy issue, but rather a challenging and complicated issue.

Mr. Camper said that the direction that had been provided to the NRC staff was to proceed with a rulemaking that would require a "Site Specific Performance Assessment" to be conducted whenever large quantities of DU are disposed. He said that this requirement would also include specifying the technical parameters that would be evaluated as part of the Performance Assessment. The NRC would also provide guidance in implementing that requirement for the Agreement States—the Agreement

States could fully implement the requirement.

Mr. Camper said that as the NRC staff was responding to the requirements in the memorandum on this topic—the paper which referred to SECY-08-0147, Memorandum and Order entitled: "Response to NRC Commission Order CLI-05-20, 10/19/2005," regarding DU. He said the NRC Commission had directed the staff to precede with a rulemaking to consider whether the quantities of DU, at issue in the waste stream from uranium enrichment facilities warrant amending the classification type in NRC's regulation, Section 61.55 (a)(6) or Section 61.55 (a) waste classification tables. Mr. Camper said that when the NRC Commission asked his staff to work on the rulemaking, they asked them to modernize using the current ICRP (the Ionizing Counsel Radiation Protection) methodology. He said this would be the entire waste classification scheme, and the rulemaking would have special emphasis on DU disposal. Mr. Camper explained that the current rulemaking was Part I. It would conclude in 2011, and then Part II would commence.

Mr. Camper said that the Chairman of the Board had mentioned the workshop. He said that it would be the second workshop NRC would conduct on DU. Mr. Camper said it would be held for a couple of days beginning tomorrow, September 23-24 2009 at the University of Utah – Marriot Research Park. He said the NRC Commission had purposely decided to hold a hearing in Salt Lake City, Utah, because of the potential for DU to come to the Clive site. Mr. Camper said that they had conducted a workshop earlier in the month near Washington, D.C., and that they had a very good panel. He said that there was a good public representation at the board meeting today, and a good panel representing the NRC Commission. He said there was a lot of public in attendance and there would be a lot of comments and questions from the public. He said that NRC had already received a lot of good input on the subject of DU. Mr. Camper said that they hoped there would be such interest in NRC's workshop as well.

Mr. Camper said he would now turn the time over to David Esh to respond to the questions the Board had for the NRC Commission. He said if the Board had additional questions, they could ask them after the presentation. (See Attached Copy)

Questions by the Board:

After the NRC's presentation the Board members discussed the proposed moratorium and whether it was urgently necessary to issue a moratorium in order to protect the health and safety of the Citizens of Utah. The Board discussed the pros and cons of the matter, and the reason it was brought before the Board by HEAL-Utah. The Board also discussed the length of time it would take for the NRC to complete the rulemaking on

DU versus the time it would take to issue a moratorium. The board members agreed that there should be some type of rule put in place for the disposal of DU, but the board members differed in what the rule and conditions should be. Some members felt that there would be inherent problems in issuing a moratorium—they felt that it would take as long a time to implement a moratorium as it would for the NRC to finalize its rulemaking.

b. Consideration of Proposals for Policy & Rules on Disposal of Depleted Uranium (Board Action Item)

Peter Jenkins, Chairman, informed the Board that they had heard the U.S. Nuclear Regulatory Commission's (NRC) response to their questions. He said that he would like to hear from Laura Lockhart or Fred Nelson regarding what would happen if the Board voted for moratorium to protect the health and safety of the Citizens of Utah.

Laura Lockhart responded to questions and concerns the board members had. She said if Energy*Solutions* took the Board to court for an enforced "stay" from the Board's moratorium, they could still bring in the Depleted Uranium (DU).

After this discussion with the Attorney General's Office the Board referred to the letter sent from Energy*Solutions* dated September 21, 2009, addressed to Amanda Smith, DEQ Executive Director, and Energy*Solutions'* response to Board after the board meeting of July 14, 2009--in which Energy*Solutions* made commitments regarding the disposal of Depleted Uranium. The Board discussed the possibility of amending Energy*Solutions'* license to include the commitments Energy*Solutions* had made, which were: (1) the Disposal depth, (2) Performance Assessment, (3) Revision of the Disposal Embankment Design.

One of the board members said the Board owed it to the people of Utah that any future disposal of DU in Utah would be done in an environmentally safe way. The Board needed to consider the future generations of people in Utah. He said the Board could add other license conditions to Energy*Solutions*' license to retroactively agree to meet whatever Performance Assessment Criteria the NRC came up with in the final rulemaking. Some board members that felt that there could be potential problems with implementing a moratorium and a "stay" would be effective. They felt if the moratorium was challenged, they would have accomplished nothing. The Board discussed the possibility of a cooperative agreement with Energy*Solutions*. If the Board started the process to amend Energy*Solutions*' license, the Board would be in a better position to accomplish what they had intended to accomplish: to assure

that the disposal of the DU was accomplished with consideration for the environment and future generations of Utah citizens.

Peter Jenkins, Chairman, summarized to the Board what he had heard at the meeting. He said that they had heard a couple of things from the NRC that answered several questions that the Board had in past meetings. He asked the Board to recall that representatives from HEAL-Utah had proposed that the Board adopt a moratorium to ensure that the Citizens of Utah would be adequately protected. He said that the Board had heard from the NRC and from the attorneys at the Attorney General's Office. The NRC and attorneys had interpreted that the adoption of a Moratorium may cause some very significant issues. Chairman Jenkins said that if the Board cannot absolutely prohibit DU from coming into the State, if we can have some assurance that the State is protected against whatever the NRC ruling will affect in the future—if not pursuing this, "the rocky road, if you will," of a rulemaking or a moratorium. Chairman Jenkins called for a motion from the Board.

EDD JOHNSON MADE A MOTION THAT THE BOARD DENY THE PROPOSAL FOR A MORATORIUM FROM HEAL-UTAH

SECONDED BY COLLEEN JOHNSON

AMANDA SMITH MADE A MOTION TO AMEND THE ORIGINAL MOTION TO INCLUDE THAT THE BOARD PURSUE THE PERMIT REQUIREMENTS AND TO MAKE ENERGY*SOLUTIONS* TAKE A RETROACTIVE LOOK AT ANY NEW WASTE THAT THEY MAY ACCEPT IN THE INTERIM—BETWEEN NOW AND THE FINAL U.S. NUCLEAR REGULATORY COMMISSION'S RULEMAKING

SECONDED BY COLLEEN JOHNSON

AMANDA SMITH MADE A MOTION THAT THE BOARD ADOPT THE LETTER FROM ENERGY*SOLUTIONS* DATED SEPTEMBER 21, 2009, DIRECTED TO AMANDA SMITH, DEQ EXECUTIVE DIRECTOR, FROM THE PRESIDENT OF ENERGY*SOLUTIONS*, VAL CHRISTIANSEN, AS A LICENSE CONDITION TO THEIR PERMIT

SECONDED BY DAVID A. TRIPP

Discussion followed by the Board on the amended motion. Frank D. DeRosso asked if the Board had any experience in trying to retroactively apply a license condition. Edd Johnson said that he felt that Ms. Smith had worded the amendment correctly by saying "that the Board pursue or

come to a desired endpoint through negotiation." Dane Finerfrock said that he would assume, if Energy*Solutions* was not "living up to the requirements" of their license that the State or the Division could take a take action against them. Action could ultimately result in fines--the Division could pursue remediation and collect the amount of money that it would take to remediate now versus a later date. Chairman Jenkins said that perhaps an opinion from the Attorney General's office would help. He asked Fred Nelson to respond to the questions.

Fred Nelson, Attorney, said that if Energy*Solutions* made the commitment to dispose of the waste in accordance with the future NRC rulemaking, and they disposed of DU in a way that became incompatible with the NRC's future rule finding, the license condition would be enforceable. Mr. Nelson said regardless of the practically and cost, the license condition would be very enforceable. The Executive Secretary could at each reviewable time look at what is happening at the facility; look at the financial requirements; look at the potential based on new information. At each five-year license renewal, they could have a complete renewal of the license and deal with the DU issues. Mr. Nelson said that the idea of a retroactive license-condition was not unusual, but rather typical. He said that once the new requirements would come into place that Energy*Solutions* would have to meet and this was the reason for the annual reviews and the 5-year license reviews.

The board members also discussed what they could include in the license condition. Dane Finerfrock, Executive Secretary, said that the Board could ask Energy*Solutions* to describe to them how they would dispose of DU, and they could also amend the financial assurance in the license condition. He said they could ask Energy*Solutions* to amend their Performance Assessment to match-up with the final NRC rules and guidance. Mr. Finerfrock said that Energy*Solutions* had agreed to "beef-up" the Clive site and to include all of these requirements and changes, when the NRC finally completes the rule. He said in addition, the State could compare the new license condition with NRC's final rule, and Energy*Solutions* had agreed to support NRC's rulemaking. Mr. Finerfrock said that Energy*Solutions* had agreed to do whatever was necessary and to abide by NRC's new rule.

Joseph K. Miner said that he would like to add to the license condition that a retroactive remediation could be required--it would include DU removal from Energy*Solutions* and more suitable geologic disposal.

"FRIENDLY AMENDED MOTION" MADE BY JOSEPH K. MINER THAT THE RETROACTIVE REMIDIATION LANGUAGE INCLUDE THE REMOVAL AND DISPOSAL OF DEPLETED URANIUM IN A MORE APPROPRIATE GEOLOGAL SITE—A

SITE THAT WOULD COMPLIMENT THE U.S. NUCLEAR REGULATORY COMMISSION'S FINAL RULEMAKING DECISION

MOTION MADE THAT THE BOARD ACCEPT THROUGH THE LICENSE PERMIT PROCESS THE LETTER OF SEPTEMBER 21, 2009 AS A LICENSE CONDITION; A RETROACTIVE REMIDIATION; AND TO ALSO INCLUDE THE LANGUAGE THAT THE RETROACTIVE REVIEW COULD INCLUDE REMOVAL AND "DU" DISPOSAL IN A MORE SUITABLE GEOLOGICAL SITE, IF IT IS DEEMED NECESSARY

CHAIRMAN JENKINS ASKED FOR A ROLL CALL ON THE MOTION AND FRIENDLY AMENDMENT:

Christian K. Gardner, No
Scott Bird, Yes
Patrick D. Cone, No
Frank D. DeRosso, Yes
John W. Thomson, No
Amanda Smith, Yes
Peter A. Jenkins, Abstained
Joseph K. Miner, Yes
Colleen Johnson, Yes
Douglas S. Kimball, Yes
Edd Johnson, Yes
David A. Tripp, Yes

Vote: 8 Yes'; and 3 No's; 1 Abstention

MOTION PASSED AND CARRIED

PUBLIC COMMENTS:

James O'Neal, Concerned Citizen from Provo, Utah:
Mr. O'Neal said that he wanted to make a general comment about "compatibility." He said that he did not think Energy*Solutions*' had "compatibility" with the people of Utah—it did not work. He said he did not think Energy*Solutions* wanted to give Utah money or give money to the Legislators. He said Utah needed a divorce, and a complete separation from Energy*Solutions*.

Christopher Thomas, HEAL-Utah:
Mr. Thomas said that he was disappointed with the Board's decision. He said that the Board had put a lot of time into the issue of a moratorium. He said that from

his perspective the citizens would be better represented by a Board willing to take on this kind of "bumpy rocky road:" and willing to take on the prospect of a legal fight with Energy*Solutions*. He said that he felt that eventually if it is shown through the "Performance Analysis" that Energy*Solutions*' site is not a compatible site for DU material, the issue would end up in court. Mr. Thomas said the license condition can be enforceable, but that he had a hard time imagining that a license action that would require a multi-million dollar investment from Energy*Solutions* that Energy*Solutions* would not take up that fight. He said that Energy*Solutions* had already used litigation successfully to try to uproot other of State Rights. He said that "using a license condition" had just kicked the fight down the road to a later date. Primarily this is why he was disappointed with what had happen today.

He said that he appreciated the amendment that the license condition would include DU removal and appropriate disposal; however, he would rather see it somewhere else. He said that he would have liked to have been able to review Energy*Solutions* language in the "letter," before it was voted on by the Board. In addition, he wished that HEAL-Utah had received an opportunity to look at Energy*Solutions*' "counter proposal," before it had been voted on. He would have appreciated the courtesy to actually see what was voted on. Mr. Thomas said that he thought he was not alone on this thought.

Polly Hough, Concerned Citizen of Utah:

Ms. Hough said that most of the public that were present were concerned with the continual effort by Energy*Solutions* to enlarge the Clive site and to bring in different kinds of waste. She said that the public had tried to stand up to the infernal of hot waste--the public had tried to stand-up to various other kinds of waste reclassifications, and other of efforts. The public is concerned. She said they knew that Energy*Solutions* would continue to fight to have as much business as they could at the site in the desert. This was their business and they had a right to do business. Ms. Hough said that Energy*Solutions* had been given a permit to dispose of low-level radioactive waste in the State of Utah, but the fact that they had been able to bring in the DU—quiet, over a long period of time, before it was announced to the public.

She said that when the public began to protest that Energy*Solutions* began to say "well, we've already had it here." Ms. Hough said that it was not clear to most of the citizens that a variance had already been given to have the DU placed at the Clive site. Ms. Hough said that the public was very glad that the Board had stood up to high-level radioactive waste, but that there was a concern from the public that the Board had placed "the cart before the horse." She asked, how bad the sanctions would have been, if the public had requested sanctions from the Department of Energy (DOE)--because she supposed this was where the waste issue would eventually have ended up. She said that she wished that Utah would have been able to wait until the "Performance Appraisal" had been completed. Ms. Hough said that this was the logical way to do these things, and that she now

appreciated that they were all in a "big bind." She understood this now--that they had the citizens of Utah in a "big bind," and that she hoped everyone would be able to dig their way out of it eventually.

Helene Cumo, Concerned Citizen of Utah:
Helene Cumo said that she had been sitting in the audience for a couple of hours. She did not understand what part of what the U.S. Nuclear Regulatory Commission had said that went over the board members' heads. Ms. Cumo said that NRC never said there was no risk. She said their language was "It's not ideal. It may be unsuitable." She said what had not been done in the past would not be done today. Ms. Cumo said that the NRC was saying there was risk. They do not know what it is. Yet, the Board is saying: "O.K., well if they come-up with something well then we will remove it." She said well what even is the risk of removal in the amendment? She said that the Board had said that they would have them remove it, and put it in a geologically safer spot. She asked: had there been any analysis done on the risk of removal? She said that the public would have liked to ask the Down-Winders.

Ms. Cumo said as a Board, the board members had been sitting at the meeting for three to four hours. How did they could come-up with this—to include an amendment without really thinking this whole process through? Without thinking about the citizens of Utah, and the risk they were taking. She said that the scariest part is sufficient site analysis—does this mean analysis would be completed every 500 years. This is five generations. Ms. Cumo asked what would be happening after that? Yet, board members could not wait, and try to make it a little bit harder for Energy*Solutions*? Instead, all the Board would do was roll over and say: "O.K. do what you want, and if it is not right, we can fix it later." She asked the Board how they knew that it could be fixed, and when the time came, how would they would know it was fixed?

Ms. Cumo said that she felt that there had been no backbone presented from the Board at all. She said that she felt they were opening "Pandora's Box," and that this was a very scary thought--because once it had been accepted, and everyone knows that it already had been accepted. The State of Utah was saying, "Yeah, bring it on, and bring it on, more, more." She asked: when does it stop, and who had any backbone to really say: "This has not been thought through." Ms. Cumo said that they all knew that this needed to happen.

Claire Geddes, Concerned Citizen of Utah:
Claire Geddes said that she had worked a long time with the legislators, and knew the annex of "who was Envirocare." She said that she very distinctly remembered one audit where it talked about giving "preauthorization to a situation" where they had not figured out how the "preauthorized situation" should be handled. She said she would get this information, and bring it to the Board at their next meeting (which by then would be way too late to present and consider this information). Ms. Geddes said that the legislative auditors did not think at the time that it was a

very good idea, and she said that most of the people in the State of Utah would probably think this was not a good idea.

She said that she had lost her father—he used to haul uranium ore from one of the mines in Marisol, in Utah. He died of lung cancer at the age of 46. Ms. Geddes said that at that time uranium was considered safe.

Ms. Geddes said there were many people that believed DU waste should be in deep, geological repositories. She said that she thought it was not safe to go into shallow burial, and frankly, what she had heard from the NRC was astounding. She could not believe the Board would even vote on it, after their presentation. Ms. Geddes told the Board that they had the entire welfare of the State of Utah in their hands, and they had decided to do something and they would have no idea what the ramifications would be--because it had not even had a thorough examination. She found this astounding. She felt that the Board was going to find out that there were a lot of people in the State of Utah that disagreed with the Board 100 percent.

Ms. Geddes said that she appreciated the three members of the Board who were thoughtful enough to think about the ramifications upon generations, and generations and generations. She said that this was not an issue that everybody believed that it was safe to bring DU waste into the State of Utah. Ms. Geddes asked why it was not classified a different thing? She said that she believed it was, because it could not have come to Utah if it was not Class A. She said it was just not classified--making it handy for disposal. She said that the one that was really "driving the ball for DU" was Energy*Solutions*. She said the State of Utah was not regulating Energy*Solutions*, but rather that they were running the State of Utah. She said that this was the way it had been going-on for years and years, and years.

Ms. Geddes said that Energy*Solutions* was going to hire somebody that could tell them what would be safe to do. Next, Energy*Solutions* will bring DU to the State of Utah. Ms. Geddes said that most people were not comfortable with this type of analysis, and that the people of Utah would like an independent analysis completed on the facility.

She said that after spending several years looking at the Division of Radiation Control Board and going over what had happened up on the hill/capitol with the Legislators--she had watched Energy*Solutions* have their way--basically at every turn. She said that she thought this was the saddest day she had ever seen, because the Board had just agreed to take a whole lot hotter stuff than the State of Utah had ever had. Ms. Geddes said that she hoped that the Board understood what this puts on the board members--a handful of people get to do this to us. She said that she knew there was one NRC staff that had mentioned that there had been a huge disagreement, and this was not something that everyone felt was safe to do. She said that she appreciated the Board's time.

Peter A. Jenkins, Chairman, said that he appreciated everybody's comments and the public's participation through the lengthy process--he mentioned that the Board's deliberation had been going on since May 2009. Chairman Jenkins said he could honestly say the Board had been given the issue thoughtful consideration.

VI. URANIUM MILL LICENSING AND INSPECTION

No Items

VII. OTHER DIVISION ISSUES (Board Information Item)

a. **Division Activities Report**

Peter A. Jenkins, Chairman, asked the Board if they had any questions on the Division Activities Report. The board members had none.

VIII. PUBLIC COMMENT

Please refer to Item V. a.

IX. The Next Scheduled Board Meeting: October 13, 2009 (Tuesday), DEQ Bldg #2, Conference Room 101, 168 North 1950 West, Salt Lake City, Utah 3:00 – 5:00 P.M. THE BOARD MEETING ADJOURNED AT 6:12 P.M.

I. Minutes (Board Action Item)

a. Approval of the Minutes from the September 22, 2009 Board Meeting

MINUTES

OF

THE UTAH RADIATION CONTROL BOARD

September 22, 2009

Department of Environmental Quality, DEQ Building #2

Conference Room 101

168 N 1950 W

Salt Lake City, Utah 84114-4850

BOARD MEMBERS PRESENT
Peter A. Jenkins, M.S., CHP, Chair
Dane L. Finerfrock, Executive Secretary
Scott Bird
Patrick D. Cone
Frank D. DeRosso, MSPH, CIH
Christian K. Gardner
Colleen Johnson
Edd C. Johnson
Douglas S. Kimball, DMD
Joseph K. Miner, M.D., MSPH
Amanda Smith, Acting DEQ Executive Director
John W. Thomson, M.D.
David A. Tripp, Ph.D.

BOARD MEMBERS ABSENT/EXCUSED
Elizabeth Goryunova, M.S., Vice Chair

DRC STAFF/OTHER DEQ MEMBERS PRESENT
Edith Barker, DRC Staff
Mario A. Bettolo, DRC Staff
Bill Craig, DRC Staff
David Esser, DRC Staff
Phil Goble, DRC Staff
John Hultquist, DRC Section Manager
Craig Jones, DRC Section Manager
Laura Lockhart, Attorney, Atty General's Office
Yoli Necochea, DRC Staff
Fred Nelson, Attorney, Atty General's Office
Loren Morton, DRC Section Manager
Thomas Rushing, DRC Staff

DRC STAFF/OTHER DEQ MEMBERS PRESENT - CONTINUED
William J. Sinclair, DEQ Deputy Director
Donna Spangler, PIO, DEQ – PPA Staff

PUBLIC
Sarah Anderson, Exchange Monitor
Bob Archibald, Concerned Citizen
Beatrice Braidford, Snake River Alliance, Idaho
Krista Bowery, Concerned Citizen
Anna Bradford, U.S. Nuclear Regulatory Commission (NRC)
Larry Camper, U.S. Nuclear Regulatory Commission (NRC)
Jeff Cisy, Concerned Citizen
Gina Clifford, Concerned Citizen
Richard Codell, U.S. Nuclear Regulatory Commission (NRC)
Sue Corth, Concerned Citizen
Rolene Coulter, HEAL-Utah
John Coultus, HEAL-Utah
Helene Cumo, Concerned Citizen
David Esh, U.S. Nuclear Regulatory Commission (NRC)
Fyndo, Citizen
George Gates, HEAL-Utah
Claire Geddes, Concerned Citizen
John Greeves, Tacisman Int.
Chris Grossman, U.S. Nuclear Regulatory Commission (NRC)
Sandra Hays, Concerned Citizen

PUBLIC - CONTINUED
James Holtkamp, Holland & Hart law firm
Polly Hough, Concerned Citizen
Mark LeDoux, Energy*Solutions*, LLC
Lisa London, U.S. Nuclear Regulatory Commission (NRC)
Thomas Magette, Energy*Solutions*, LLC
Jamine Morgan, HEAL-Utah
Mary Ellen Navas, Concerned Citizen
Amy O'Conner, Concerned Citizen
James O'Neal, Concerned Citizen from Provo, Utah
Vanessa Pierce, HEAL-Utah
Sue Rice, Cavanagh Services
Mary Rogers, HEAL-Utah
Aurora E. Shlien, Citizens for Sustainability
Daniel Shrum, Energy*Solutions*, LLC
Eric Spreng, HEAL-Utah
Kent Staheli, Concerned Citizen
Gregory Suber, U.S. Nuclear Regulatory Commission (NRC)
Christopher Thomas, HEAL-Utah
Duncan White, U.S. Nuclear Regulatory Commission (NRC)
Cherry Wong, Woman Concerned
Mike Zody, CBN

GREETINGS/MEETING CALLED TO ORDER

Peter A. Jenkins, Chairman, called the board meeting to order at 3:02 p.m. and welcomed the board members and the public. He indicated that if the public wished to address any items on the agenda, they should sign the public sign-in sheet. Those desiring to comment would be given an opportunity to address their concerns during the comment period.

I. APPROVAL OF MINUTES (Board Action Item)

a. Approval of the Minutes from the July 14, 2009 Meeting

Peter A. Jenkins, Chair, asked the board members if they had any corrections to the minutes from the July 14, 2009 board meeting. Edd C. Johnson requested the following correction to the minutes:

1. Page 9. Item V. c., under subtitle "Radioactive Waste: Requests to Board to Provide Comments on Depleted Uranium Disposal (Board Information Item), Questions by the Board," second paragraph, second sentence, which reads: Chairman Jenkins said Dr. Moench had mentioned the National Academy of Science in his presentation . . . if he was referring to the **BEAR** (Biological Effects of **Atomic** Radiation) Report. Change to read: "**BEIR** (Biological Effects of **Ionizing** Radiation) . . ."

MOTION MADE BY SCOTT BIRD TO APPROVE THE MINUTES OF JULY 14, 2009 WITH THE AMENDED CHANGES

MOTION SECONDED BY CHRISTIAN K. GARDNER

MOTION CARRIED AND PASSED

II. RULES

No Items

III. RADIOACTIVE MATERIALS LICENSING/INSPECTION

No Items

IV. X-RAY REGISTRATION/INSPECTION

No Items

V. Radioactive Waste

a. Responses from the U.S. Nuclear Regulatory Commission (NRC) to Board Questions Regarding Disposal of Depleted Uranium

Peter A. Jenkins, Chairman, informed the Board that he had sent a memorandum regarding the Board's discussion for today's meeting. Chairman Jenkins said that the Board had heard presentations from both sides on the issue of Depleted Uranium (DU). He said the presentation

from the U.S. Nuclear Regulatory Commission (NRC) today would fill-in the last piece of deliberation. Chairman Jenkins said that he had received a significant amount of comments from the public on the topic of DU. He informed the Board and those attending the meeting that the Board would not be accepting public comments on this agenda item today.

Chairman Jenkins informed the public that for the next two days the U.S. NRC would be holding a public workshop on DU and hearing public comments. The workshop would be held at the Salt Lake Marriott Research Park Hotel at the University of Utah. The workshop would be free and open to everyone to stress their opinion on the issue of DU. The workshop would be held each day from 8:00 a.m. to 5:00 p.m. He said the NRC would be accepting comments on DU waste, and he said that it would be the appropriate forum to discuss any comments that members of the public may have on this topic. Chairman Jenkins said that after the Board finished hearing this action item that if there were other public comments about other things outside of this action item the Board would hear public comment as time allowed.

Chairman Jenkins said that the representatives from the NRC who would be making the presentation would be: (1) Larry Camper, (2) David Esh, and (3) Dunkin White. Larry Camper, Director of Waste Management and Environmental Protection at the NRC would be the first speaker from his group.

Mr. Camper said the question on the disposal of DU in large quantities had fallen to his Division. Mr. Camper introduced his staff. Mr. Camper said that David Esh was the principal scientist and led the technical analysis for disposal of large quantities of DU. Mr. Camper said that Mr. Dunken White was from another Division within his office. He said Mr. White had a lot of experience with Agreement States and the Agreement State Program. Mr. Camper said that because Utah is an Agreement State, he felt "questions might come up on this front." Mr. Camper said he welcomed the opportunity to appear before the Board on the question of disposal for large quantities of DU from nuclear waste streams. He said that it is an issue that the NRC staff has wrestled with for two years. Mr. Camper said that this was not an easy issue, but rather a challenging and complicated issue.

Mr. Camper said that the direction that had been provided to the NRC staff was to proceed with a rulemaking that would require a "Site Specific Performance Assessment" to be conducted whenever large quantities of DU are disposed. He said that this requirement would also include specifying the technical parameters that would be evaluated as part of the Performance Assessment. The NRC would also provide guidance in implementing that requirement for the Agreement States—the Agreement

States could fully implement the requirement.

Mr. Camper said that as the NRC staff was responding to the requirements in the memorandum on this topic—the paper which referred to SECY-08-0147, Memorandum and Order entitled: "Response to NRC Commission Order CLI-05-20, 10/19/2005," regarding DU. He said the NRC Commission had directed the staff to precede with a rulemaking to consider whether the quantities of DU, at issue in the waste stream from uranium enrichment facilities warrant amending the classification type in NRC's regulation, Section 61.55 (a)(6) or Section 61.55 (a) waste classification tables. Mr. Camper said that when the NRC Commission asked his staff to work on the rulemaking, they asked them to modernize using the current ICRP (the Ionizing Counsel Radiation Protection) methodology. He said this would be the entire waste classification scheme, and the rulemaking would have special emphasis on DU disposal. Mr. Camper explained that the current rulemaking was Part I. It would conclude in 2011, and then Part II would commence.

Mr. Camper said that the Chairman of the Board had mentioned the workshop. He said that it would be the second workshop NRC would conduct on DU. Mr. Camper said it would be held for a couple of days beginning tomorrow, September 23-24 2009 at the University of Utah – Marriot Research Park. He said the NRC Commission had purposely decided to hold a hearing in Salt Lake City, Utah, because of the potential for DU to come to the Clive site. Mr. Camper said that they had conducted a workshop earlier in the month near Washington, D.C., and that they had a very good panel. He said that there was a good public representation at the board meeting today, and a good panel representing the NRC Commission. He said there was a lot of public in attendance and there would be a lot of comments and questions from the public. He said that NRC had already received a lot of good input on the subject of DU. Mr. Camper said that they hoped there would be such interest in NRC's workshop as well.

Mr. Camper said he would now turn the time over to David Esh to respond to the questions the Board had for the NRC Commission. He said if the Board had additional questions, they could ask them after the presentation. (See Attached Copy)

Questions by the Board:

After the NRC's presentation the Board members discussed the proposed moratorium and whether it was urgently necessary to issue a moratorium in order to protect the health and safety of the Citizens of Utah. The Board discussed the pros and cons of the matter, and the reason it was brought before the Board by HEAL-Utah. The Board also discussed the length of time it would take for the NRC to complete the rulemaking on

DU versus the time it would take to issue a moratorium. The board members agreed that there should be some type of rule put in place for the disposal of DU, but the board members differed in what the rule and conditions should be. Some members felt that there would be inherent problems in issuing a moratorium—they felt that it would take as long a time to implement a moratorium as it would for the NRC to finalize its rulemaking.

b. Consideration of Proposals for Policy & Rules on Disposal of Depleted Uranium (Board Action Item)

Peter Jenkins, Chairman, informed the Board that they had heard the U.S. Nuclear Regulatory Commission's (NRC) response to their questions. He said that he would like to hear from Laura Lockhart or Fred Nelson regarding what would happen if the Board voted for moratorium to protect the health and safety of the Citizens of Utah.

Laura Lockhart responded to questions and concerns the board members had. She said if Energy*Solutions* took the Board to court for an enforced "stay" from the Board's moratorium, they could still bring in the Depleted Uranium (DU).

After this discussion with the Attorney General's Office the Board referred to the letter sent from Energy*Solutions* dated September 21, 2009, addressed to Amanda Smith, DEQ Executive Director, and Energy*Solutions'* response to Board after the board meeting of July 14, 2009--in which Energy*Solutions* made commitments regarding the disposal of Depleted Uranium. The Board discussed the possibility of amending Energy*Solutions'* license to include the commitments Energy*Solutions* had made, which were: (1) the Disposal depth, (2) Performance Assessment, (3) Revision of the Disposal Embankment Design.

One of the board members said the Board owed it to the people of Utah that any future disposal of DU in Utah would be done in an environmentally safe way. The Board needed to consider the future generations of people in Utah. He said the Board could add other license conditions to Energy*Solutions*' license to retroactively agree to meet whatever Performance Assessment Criteria the NRC came up with in the final rulemaking. Some board members that felt that there could be potential problems with implementing a moratorium and a "stay" would be effective. They felt if the moratorium was challenged, they would have accomplished nothing. The Board discussed the possibility of a cooperative agreement with Energy*Solutions*. If the Board started the process to amend Energy*Solutions*' license, the Board would be in a better position to accomplish what they had intended to accomplish: to assure

that the disposal of the DU was accomplished with consideration for the environment and future generations of Utah citizens.

Peter Jenkins, Chairman, summarized to the Board what he had heard at the meeting. He said that they had heard a couple of things from the NRC that answered several questions that the Board had in past meetings. He asked the Board to recall that representatives from HEAL-Utah had proposed that the Board adopt a moratorium to ensure that the Citizens of Utah would be adequately protected. He said that the Board had heard from the NRC and from the attorneys at the Attorney General's Office. The NRC and attorneys had interpreted that the adoption of a Moratorium may cause some very significant issues. Chairman Jenkins said that if the Board cannot absolutely prohibit DU from coming into the State, if we can have some assurance that the State is protected against whatever the NRC ruling will affect in the future—if not pursuing this, "the rocky road, if you will," of a rulemaking or a moratorium. Chairman Jenkins called for a motion from the Board.

EDD JOHNSON MADE A MOTION THAT THE BOARD DENY THE PROPOSAL FOR A MORATORIUM FROM HEAL-UTAH

SECONDED BY COLLEEN JOHNSON

AMANDA SMITH MADE A MOTION TO AMEND THE ORIGINAL MOTION TO INCLUDE THAT THE BOARD PURSUE THE PERMIT REQUIREMENTS AND TO MAKE ENERGY*SOLUTIONS* TAKE A RETROACTIVE LOOK AT ANY NEW WASTE THAT THEY MAY ACCEPT IN THE INTERIM—BETWEEN NOW AND THE FINAL U.S. NUCLEAR REGULATORY COMMISSION'S RULEMAKING

SECONDED BY COLLEEN JOHNSON

AMANDA SMITH MADE A MOTION THAT THE BOARD ADOPT THE LETTER FROM ENERGY*SOLUTIONS* DATED SEPTEMBER 21, 2009, DIRECTED TO AMANDA SMITH, DEQ EXECUTIVE DIRECTOR, FROM THE PRESIDENT OF ENERGY*SOLUTIONS*, VAL CHRISTIANSEN, AS A LICENSE CONDITION TO THEIR PERMIT

SECONDED BY DAVID A. TRIPP

Discussion followed by the Board on the amended motion. Frank D. DeRosso asked if the Board had any experience in trying to retroactively apply a license condition. Edd Johnson said that he felt that Ms. Smith had worded the amendment correctly by saying "that the Board pursue or

come to a desired endpoint through negotiation." Dane Finerfrock said that he would assume, if Energy*Solutions* was not "living up to the requirements" of their license that the State or the Division could take a take action against them. Action could ultimately result in fines--the Division could pursue remediation and collect the amount of money that it would take to remediate now versus a later date. Chairman Jenkins said that perhaps an opinion from the Attorney General's office would help. He asked Fred Nelson to respond to the questions.

Fred Nelson, Attorney, said that if Energy*Solutions* made the commitment to dispose of the waste in accordance with the future NRC rulemaking, and they disposed of DU in a way that became incompatible with the NRC's future rule finding, the license condition would be enforceable. Mr. Nelson said regardless of the practically and cost, the license condition would be very enforceable. The Executive Secretary could at each reviewable time look at what is happening at the facility; look at the financial requirements; look at the potential based on new information. At each five-year license renewal, they could have a complete renewal of the license and deal with the DU issues. Mr. Nelson said that the idea of a retroactive license-condition was not unusual, but rather typical. He said that once the new requirements would come into place that Energy*Solutions* would have to meet and this was the reason for the annual reviews and the 5-year license reviews.

The board members also discussed what they could include in the license condition. Dane Finerfrock, Executive Secretary, said that the Board could ask Energy*Solutions* to describe to them how they would dispose of DU, and they could also amend the financial assurance in the license condition. He said they could ask Energy*Solutions* to amend their Performance Assessment to match-up with the final NRC rules and guidance. Mr. Finerfrock said that Energy*Solutions* had agreed to "beef-up" the Clive site and to include all of these requirements and changes, when the NRC finally completes the rule. He said in addition, the State could compare the new license condition with NRC's final rule, and Energy*Solutions* had agreed to support NRC's rulemaking. Mr. Finerfrock said that Energy*Solutions* had agreed to do whatever was necessary and to abide by NRC's new rule.

Joseph K. Miner said that he would like to add to the license condition that a retroactive remediation could be required--it would include DU removal from Energy*Solutions* and more suitable geologic disposal.

"FRIENDLY AMENDED MOTION" MADE BY JOSEPH K. MINER THAT THE RETROACTIVE REMIDIATION LANGUAGE INCLUDE THE REMOVAL AND DISPOSAL OF DEPLETED URANIUM IN A MORE APPROPRIATE GEOLOGAL SITE—A

SITE THAT WOULD COMPLIMENT THE U.S. NUCLEAR REGULATORY COMMISSION'S FINAL RULEMAKING DECISION

MOTION MADE THAT THE BOARD ACCEPT THROUGH THE LICENSE PERMIT PROCESS THE LETTER OF SEPTEMBER 21, 2009 AS A LICENSE CONDITION; A RETROACTIVE REMIDIATION; AND TO ALSO INCLUDE THE LANGUAGE THAT THE RETROACTIVE REVIEW COULD INCLUDE REMOVAL AND "DU" DISPOSAL IN A MORE SUITABLE GEOLOGICAL SITE, IF IT IS DEEMED NECESSARY

CHAIRMAN JENKINS ASKED FOR A ROLL CALL ON THE MOTION AND FRIENDLY AMENDMENT:

Christian K. Gardner, No
Scott Bird, Yes
Patrick D. Cone, No
Frank D. DeRosso, Yes
John W. Thomson, No
Amanda Smith, Yes
Peter A. Jenkins, Abstained
Joseph K. Miner, Yes
Colleen Johnson, Yes
Douglas S. Kimball, Yes
Edd Johnson, Yes
David A. Tripp, Yes

Vote: 8 Yes'; and 3 No's; 1 Abstention

MOTION PASSED AND CARRIED

PUBLIC COMMENTS:

James O'Neal, Concerned Citizen from Provo, Utah:
Mr. O'Neal said that he wanted to make a general comment about "compatibility." He said that he did not think Energy*Solutions*' had "compatibility" with the people of Utah—it did not work. He said he did not think Energy*Solutions* wanted to give Utah money or give money to the Legislators. He said Utah needed a divorce, and a complete separation from Energy*Solutions*.

Christopher Thomas, HEAL-Utah:
Mr. Thomas said that he was disappointed with the Board's decision. He said that the Board had put a lot of time into the issue of a moratorium. He said that from

his perspective the citizens would be better represented by a Board willing to take on this kind of "bumpy rocky road:" and willing to take on the prospect of a legal fight with Energy*Solutions*. He said that he felt that eventually if it is shown through the "Performance Analysis" that Energy*Solutions*' site is not a compatible site for DU material, the issue would end up in court. Mr. Thomas said the license condition can be enforceable, but that he had a hard time imagining that a license action that would require a multi-million dollar investment from Energy*Solutions* that Energy*Solutions* would not take up that fight. He said that Energy*Solutions* had already used litigation successfully to try to uproot other of State Rights. He said that "using a license condition" had just kicked the fight down the road to a later date. Primarily this is why he was disappointed with what had happen today.

He said that he appreciated the amendment that the license condition would include DU removal and appropriate disposal; however, he would rather see it somewhere else. He said that he would have liked to have been able to review Energy*Solutions* language in the "letter," before it was voted on by the Board. In addition, he wished that HEAL-Utah had received an opportunity to look at Energy*Solutions*' "counter proposal," before it had been voted on. He would have appreciated the courtesy to actually see what was voted on. Mr. Thomas said that he thought he was not alone on this thought.

Polly Hough, Concerned Citizen of Utah:

Ms. Hough said that most of the public that were present were concerned with the continual effort by Energy*Solutions* to enlarge the Clive site and to bring in different kinds of waste. She said that the public had tried to stand up to the infernal of hot waste--the public had tried to stand-up to various other kinds of waste reclassifications, and other of efforts. The public is concerned. She said they knew that Energy*Solutions* would continue to fight to have as much business as they could at the site in the desert. This was their business and they had a right to do business. Ms. Hough said that Energy*Solutions* had been given a permit to dispose of low-level radioactive waste in the State of Utah, but the fact that they had been able to bring in the DU—quiet, over a long period of time, before it was announced to the public.

She said that when the public began to protest that Energy*Solutions* began to say "well, we've already had it here." Ms. Hough said that it was not clear to most of the citizens that a variance had already been given to have the DU placed at the Clive site. Ms. Hough said that the public was very glad that the Board had stood up to high-level radioactive waste, but that there was a concern from the public that the Board had placed "the cart before the horse." She asked, how bad the sanctions would have been, if the public had requested sanctions from the Department of Energy (DOE)--because she supposed this was where the waste issue would eventually have ended up. She said that she wished that Utah would have been able to wait until the "Performance Appraisal" had been completed. Ms. Hough said that this was the logical way to do these things, and that she now

appreciated that they were all in a "big bind." She understood this now--that they had the citizens of Utah in a "big bind," and that she hoped everyone would be able to dig their way out of it eventually.

Helene Cumo, Concerned Citizen of Utah:
Helene Cumo said that she had been sitting in the audience for a couple of hours. She did not understand what part of what the U.S. Nuclear Regulatory Commission had said that went over the board members' heads. Ms. Cumo said that NRC never said there was no risk. She said their language was "It's not ideal. It may be unsuitable." She said what had not been done in the past would not be done today. Ms. Cumo said that the NRC was saying there was risk. They do not know what it is. Yet, the Board is saying: "O.K., well if they come-up with something well then we will remove it." She said well what even is the risk of removal in the amendment? She said that the Board had said that they would have them remove it, and put it in a geologically safer spot. She asked: had there been any analysis done on the risk of removal? She said that the public would have liked to ask the Down-Winders.

Ms. Cumo said as a Board, the board members had been sitting at the meeting for three to four hours. How did they could come-up with this—to include an amendment without really thinking this whole process through? Without thinking about the citizens of Utah, and the risk they were taking. She said that the scariest part is sufficient site analysis—does this mean analysis would be completed every 500 years. This is five generations. Ms. Cumo asked what would be happening after that? Yet, board members could not wait, and try to make it a little bit harder for Energy*Solutions*? Instead, all the Board would do was roll over and say: "O.K. do what you want, and if it is not right, we can fix it later." She asked the Board how they knew that it could be fixed, and when the time came, how would they would know it was fixed?

Ms. Cumo said that she felt that there had been no backbone presented from the Board at all. She said that she felt they were opening "Pandora's Box," and that this was a very scary thought--because once it had been accepted, and everyone knows that it already had been accepted. The State of Utah was saying, "Yeah, bring it on, and bring it on, more, more." She asked: when does it stop, and who had any backbone to really say: "This has not been thought through." Ms. Cumo said that they all knew that this needed to happen.

Claire Geddes, Concerned Citizen of Utah:
Claire Geddes said that she had worked a long time with the legislators, and knew the annex of "who was Envirocare." She said that she very distinctly remembered one audit where it talked about giving "preauthorization to a situation" where they had not figured out how the "preauthorized situation" should be handled. She said she would get this information, and bring it to the Board at their next meeting (which by then would be way too late to present and consider this information). Ms. Geddes said that the legislative auditors did not think at the time that it was a

very good idea, and she said that most of the people in the State of Utah would probably think this was not a good idea.

She said that she had lost her father—he used to haul uranium ore from one of the mines in Marisol, in Utah. He died of lung cancer at the age of 46. Ms. Geddes said that at that time uranium was considered safe.

Ms. Geddes said there were many people that believed DU waste should be in deep, geological repositories. She said that she thought it was not safe to go into shallow burial, and frankly, what she had heard from the NRC was astounding. She could not believe the Board would even vote on it, after their presentation. Ms. Geddes told the Board that they had the entire welfare of the State of Utah in their hands, and they had decided to do something and they would have no idea what the ramifications would be--because it had not even had a thorough examination. She found this astounding. She felt that the Board was going to find out that there were a lot of people in the State of Utah that disagreed with the Board 100 percent.

Ms. Geddes said that she appreciated the three members of the Board who were thoughtful enough to think about the ramifications upon generations, and generations and generations. She said that this was not an issue that everybody believed that it was safe to bring DU waste into the State of Utah. Ms. Geddes asked why it was not classified a different thing? She said that she believed it was, because it could not have come to Utah if it was not Class A. She said it was just not classified--making it handy for disposal. She said that the one that was really "driving the ball for DU" was Energy*Solutions*. She said the State of Utah was not regulating Energy*Solutions*, but rather that they were running the State of Utah. She said that this was the way it had been going-on for years and years, and years.

Ms. Geddes said that Energy*Solutions* was going to hire somebody that could tell them what would be safe to do. Next, Energy*Solutions* will bring DU to the State of Utah. Ms. Geddes said that most people were not comfortable with this type of analysis, and that the people of Utah would like an independent analysis completed on the facility.

She said that after spending several years looking at the Division of Radiation Control Board and going over what had happened up on the hill/capitol with the Legislators--she had watched Energy*Solutions* have their way--basically at every turn. She said that she thought this was the saddest day she had ever seen, because the Board had just agreed to take a whole lot hotter stuff than the State of Utah had ever had. Ms. Geddes said that she hoped that the Board understood what this puts on the board members--a handful of people get to do this to us. She said that she knew there was one NRC staff that had mentioned that there had been a huge disagreement, and this was not something that everyone felt was safe to do. She said that she appreciated the Board's time.

Peter A. Jenkins, Chairman, said that he appreciated everybody's comments and the public's participation through the lengthy process--he mentioned that the Board's deliberation had been going on since May 2009. Chairman Jenkins said he could honestly say the Board had been given the issue thoughtful consideration.

VI. **URANIUM MILL LICENSING AND INSPECTION**
No Items

VII. **OTHER DIVISION ISSUES (Board Information Item)**

a. **Division Activities Report**

Peter A. Jenkins, Chairman, asked the Board if they had any questions on the Division Activities Report. The board members had none.

VIII. **PUBLIC COMMENT**
Please refer to Item V. a.

IX. **The Next Scheduled Board Meeting: October 13, 2009 (Tuesday), DEQ Bldg #2, Conference Room 101, 168 North 1950 West, Salt Lake City, Utah 3:00 – 5:00 P.M. THE BOARD MEETING ADJOURNED AT 6:12 P.M.**

VII. Other Division Issues **(Board Information Item)**
   a. Division Activities Report

Division of Radiation Control
Activities Report Summary

July & August, 2009

Notices of Violation assigned a Severity Level I, II, or III or where a Monetary Penalty has been imposed.

1. Professional Service Industries (PSI), Oakbrook Terrace, IL; Severity Level III and $2,500.00 civil Penalty

   An inspector investigated an allegation that Professional Service Industries, a licensee of the U.S. Nuclear Regulatory Commission (NRC), was performing industrial radiography in Utah without following the reciprocal recognition licensing requirements. By rule, an out-of-state licensee must notify the Executive Secretary in writing at least three days prior to the use of licensed materials in Utah. Notifications must indicate the location, period, and type of proposed possession and use within Utah and must be accompanied by a copy of the radioactive material license.

2. Bayou Inspection Services, Inc., Amelia, LA; Severity Level III

   This licensee was working in Utah by reciprocal recognition of their State of Louisiana radioactive material license. Two Severity Level III violations were observed and both involved security matters. First, the licensee allowed an individual to have unescorted assess to a large quantity of radioactive material and the individual had not been deemed trustworthy and reliable by the licensee. Second, the licensee stored a large quantity of radioactive material in two vehicles without a representative available at close proximity to respond to a theft or intrusion alarm.

V. Radioactive Waste Disposal

a. Responses from the U.S. Nuclear Regulatory Commission (NRC) to Board Questions Regarding Disposal of Depleted Uranium (Board Information Item)

Additional Handout by U.S. Nuclear Regulatory Commission (NRC)
Handed-out at the DRC Board Meeting for their
Presentation to the Board
Tuesday, September 22, 2009

V. Radioactive Waste (Board Action Item)

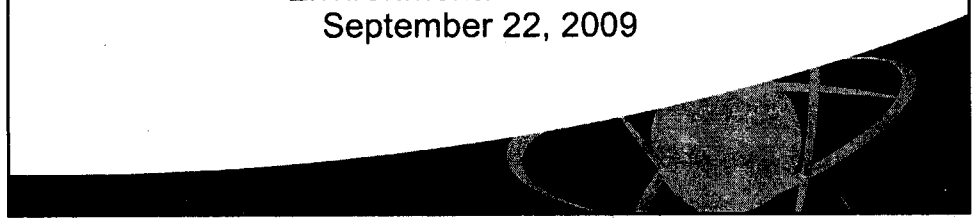
b. Consideration of Proposals for Policy & Rules on Disposal of Depleted Uranium

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

NRC Response to Questions Regarding Depleted Uranium

Utah Radiation Control Board Meeting

David Esh
Division of Waste Management and Environmental Protection
September 22, 2009



1. What are the criteria used by the NRC staff in their report to the NRC Commissioners, regarding the possible re-classification of DU? How did the 3 options vary that were presented?

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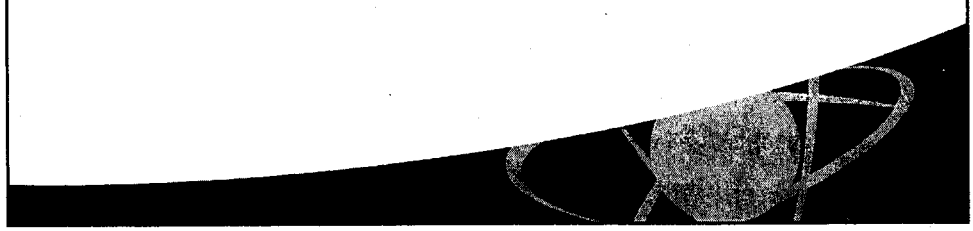
Answer:

- Reclassification was not attempted as part of SECY-08-0147
- Primary variable of options was the degree of change (minimal to extensive)



2. Is there a possibility that the classification of DU will be revisited in the near future? If not, why not? Is the NRC "strongly" considering placing DU as a special subset of Class A waste with different disposal requirements?

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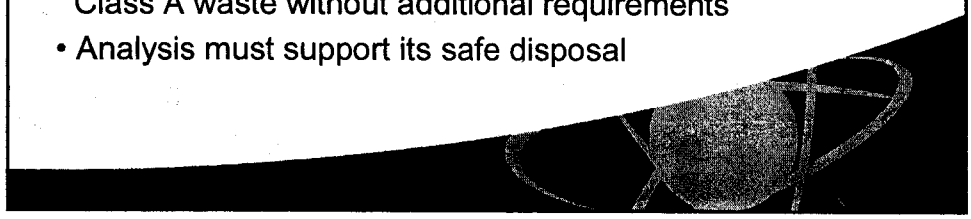
Answer:

- Unlikely in the near future
- Deliberative process with stakeholders important
- No immediate public health and safety concern
- It is unlikely large quantities of DU can be disposed of as Class A waste without additional requirements
- Analysis must support its safe disposal



3. Please describe the performance analysis that was used to develop the specifications for the waste disposal of DU. For example, source function (i.e. amounts), time scale, and possible events that could impact the outcome?

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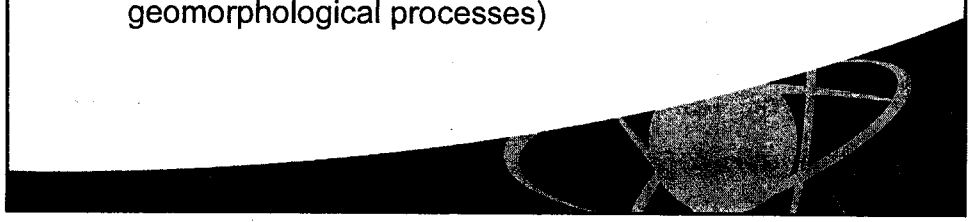
Answer:

- See next four slides

  - **Source type and quantity**: variable (1 to 1E6 MT)
  - **Time scale**: variable (1,000 to 1,000,000 years)
  - **Events**: normal natural processes (not geomorphological processes)



Depleted Uranium: NRC Analysis

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- Screening model developed for SECY-08-0147
- Developed to examine key variables:
  - Period of performance
  - Disposal depth
  - Receptor types and scenarios
  - Site characteristics
- Performed probabilistic assessment
- Analysis methodology for unique waste streams consistent with original Part 61 analysis

Depleted Uranium: NRC Analysis

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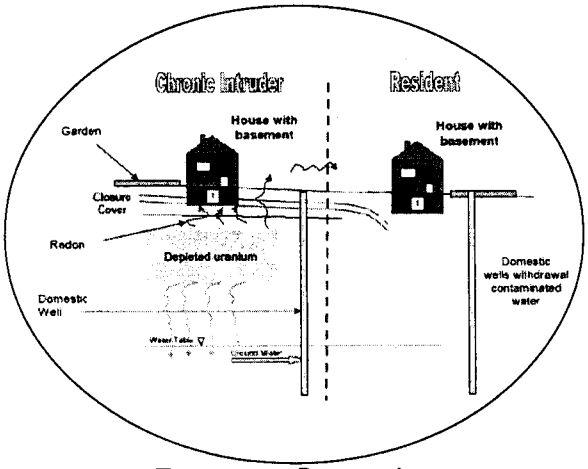
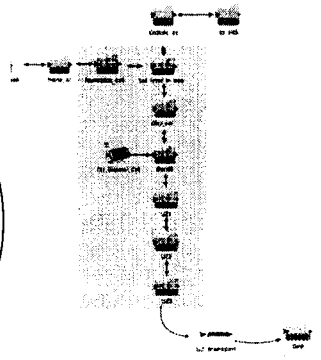


Receptor Scenarios



Depleted Uranium: NRC Analysis

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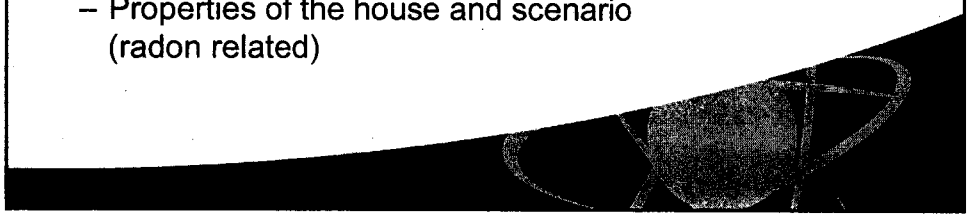
- Major variables: period of performance, disposal depth, receptor scenarios
- Uncertainty analysis performed with genetic algorithms
- Key parameters:
  - Hydraulic conductivity and gradient of the aquifer
  - Infiltration rate
  - Geochemical conditions
  - Liquid saturation
  - Properties of the house and scenario (radon related)



Depleted Uranium: NRC Analysis

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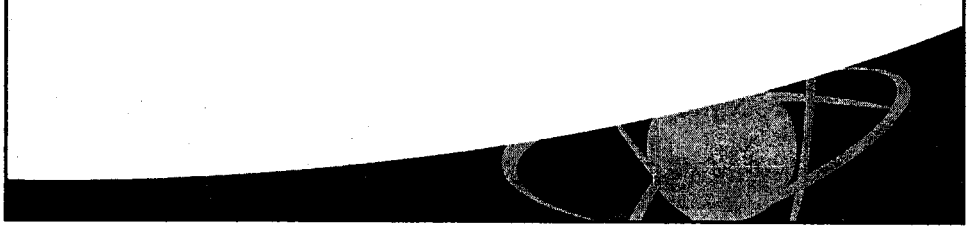
- If radon is included, shallow disposal at an arid site is challenging
- For humid sites, the groundwater pathway can exceed the performance objectives
- Greater consideration of long-term stability needed
- Site-specific conditions can result in large variance in impacts



4. If the State of Utah either banned or placed a moratorium on DU disposal within the State, what would the NRC reaction be? Would this action threaten Utah's inclusion as one of the "agreement states"?

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Answer:

- This depends on the basis of a ban or moratorium:
  - Utah should provide NRC with any proposed language
  - NRC staff would make a determination regarding compatibility
  - NRC would work with the State to resolve any issues that affect compatibility of the low-level waste program
- This action could affect compatibility status (of this specific area)

5. What are the long and short-term dangers of DU in an engineered facility? What are the health and safety issues related to DU in an above-ground waste facility as opposed to a geological facility similar to Yucca Mountain?

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Answer:

- Short-term risks are minimal in an engineered facility
- Long-term risks can result from groundwater (leaching), radon, and direct exposure pathways (if disturbed)
- Above ground vs. geologic disposal:
  - Radon risk is highly-nonlinear with depth
  - Likelihood of disturbance is higher with near surface
  - Geologic stability is higher with deep disposal

6. Is it possible that the Energy Solutions site at Clive Utah will not be a suitable disposal site for DU given its above-ground shallow cells? (See question #9)

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Answer:

- Suitability of the Clive site for DU must be evaluated with a site-specific analysis
- Utah Division of Radiation Control has responsibility as agreement State regulator
- Above-grade disposal is not ideal for long-lived waste, but may be suitable
- Assessment becomes more challenging with long-lived radioactive waste

Uranium in the Environment

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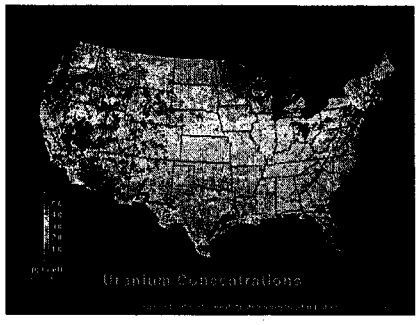
- Uranium in surface soils ~ 1 to 5 ppm
- Mean atmospheric radon is ~ 0.25 pCi/L
- Indoor average radon levels ~ 1.5 to 4.2 pCi/L
- Radon contributes roughly 70% of the average annual dose in the United States (~250 mrem/yr)



7. How much DU needs to be disposed, both domestic and foreign? What's DOE's role in this? Is there a pressing need for disposal? What are the projected timeframes?

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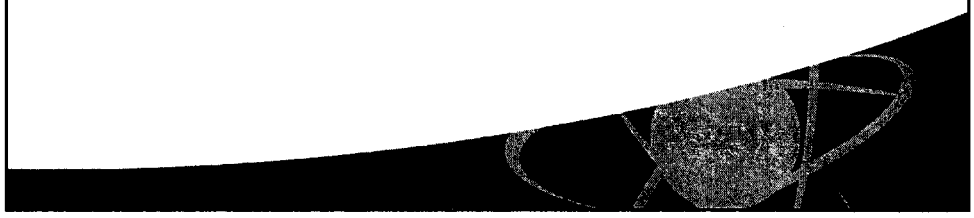
Answer:

- Greater than 1,000,000 MT (700k DOE, 400k LES, other)
- Not aware of foreign sources
- 14,800 drums of legacy waste from SRS – Sept 2009
- DOE de-converted DU disposal - mid-2010



8. What are the health and safety issues associated with DU disposal prior to the final rule making by the NRC? Are preemptive actions required?

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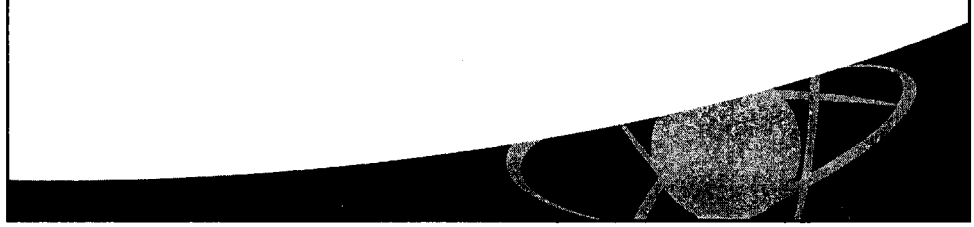
Answer:

- Material disposed of in an engineered facility under institutional control poses minimal risk
- Preemptive actions are not anticipated



9. Does increasing the burial depth to a minimum of 10 feet remove the risks? If not, what does NRC feel the burial depth should be? This should be asked for short or long term time periods.

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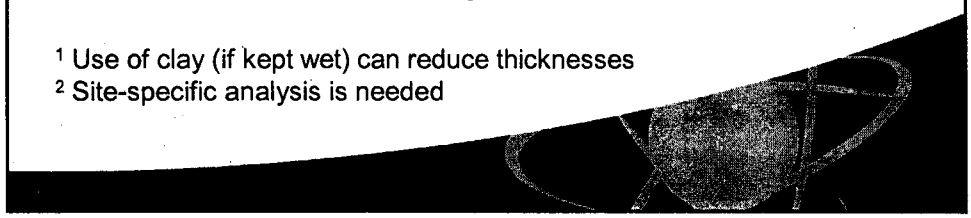
Answer:

- Increasing burial depth can lessen but not eliminate risk

Examples (Regulatory Guide 3.64 [20 pCi/(m^2 s)])[1,2]:

- arid conditions/ peak ~8 m (5 to 13)
- humid conditions/ peak ~2 m
- arid conditions/ 10,000 yr ~5 m (2 to 7)
- humid conditions/ 10,000 yr ~1 m

[1] Use of clay (if kept wet) can reduce thicknesses
[2] Site-specific analysis is needed



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Thank you, questions?

Contact Information:

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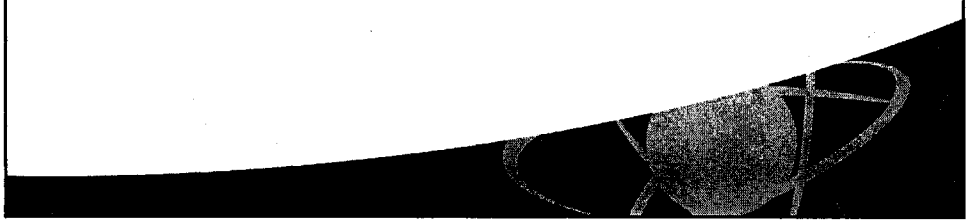

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Backup

Commission Direction

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- Memorandum and Order CLI-05-20, 10/19/05
  - Commission directed staff, "outside of the LES adjudication, to consider whether the quantities of depleted uranium (DU) at issue in the waste stream from uranium enrichment facilities warrant amending section 61.55 (a)(6) or the section 61.55 (a) waste classification tables."

Options Evaluated

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- Generic Communication
- Require site-specific analysis
- Classification of DU within existing classification framework
- Re-examine existing waste classification framework

Path Forward

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- Commission chose a two-tiered approach
  - Site-specific performance assessment
  - Budget to re-examine the waste classification framework in the long-term

Site-specific PA + Re-examine framework

III. Radioactive Materials Licensing/Inspection (Board Action Item)

a. Exemption from Rules on Procurement and Transfer of Technetium-99m and Calibration of Instrumentation Using Technetium-99m

UTAH RADIATION CONTROL RULES

BOARD ACTION ITEM

Exemption from Rules on Procurement and Transfer of Technetium-99m and Calibration of Instrumentation Using Technetium-99m

Refer to R313-22-75(9) and R313-32

The U.S. Nuclear Regulatory Commission (NRC) has issued an Exemption from some requirements in 10 CFR Parts 32 and 35 to all NRC medical use licensees, during times of molybdenum-99 shortages in the United States. The intent of the Exemption is to assure that the available technetium-99m is used for patient healthcare. A copy of the Exemption is enclosed for review and discussion by the Board members.

Subsection R313-22-75(9) is essentially identical to NRC requirements stated in 10 CFR 32.72 and rules for the medical use of radioactive materials (R313-32) incorporate, by reference, specific subsections of 10 CFR Part 35. The provisions of Subsection R313-12-55, *Exemptions*, allow the Radiation Control Board, upon its own initiative, to grant exemptions or exceptions from requirements stated in R313.

Craig Jones will discuss the importance and value for the Board to grant an Exemption.

Recommendation

1. **It is recommended that the Board grant all medical use licensees, during times of molybdenum-99 shortages in the United States, an Exemption from the requirements of R313-22-75(9) as well as 10 CFR 35.60(b), 10 CFR 35.100(a)(1) and 10 CFR 35.200(a)(1); which have been incorporated by reference in R313-32. See the attached Exemption.**

UTAH RADIATION CONTROL BOARD

EXEMPTION

For All R313-32 Licensees:

1. if: (i) the licensee would use technetium-99m that is needed to administer to a patient to perform a test; (ii) the licensee certifies in writing that the quantities of technetium-99m that it is receiving from its supplier is less than what the licensee has ordered or procured and is not sufficient to perform the test in accordance with the national standard; and (iii) the licensee's supplier provides written documentation, that the supplier is providing reduced quantities of technetium-99m to the licensee as a result of production shortages of molybdenum-99 affecting its generator or technetium-99m. **[NOTE: If there is a calibration license condition, the licensee needs to take an action to amend the condition to allow the change in calibration; the exemption by itself will not allow the licensee to accomplish these actions]** The licensee must perform the calibration test as soon as adequate supplies become available, and document results of the test in accordance with 10 CFR 35.2060. If adequate supplies become available, the licensee cannot defer performing the tests until the next time interval. The licensee shall maintain records of its certification and the underlying documentation supporting the licensee's certification, and the supplier's written documentation for three (3) years.

2. Notwithstanding the requirements in R313-32, which incorporate by reference the requirements of 10 CFR 35.100(a)(1) and 10 CFR 35.200(a)(1) to obtain unsealed byproduct material prepared for medical use for uptake, dilution, excretion, imaging or localization studies from a manufacturer or preparer licensed under Subsection 10 CFR 32.72 or equivalent Agreement State requirements, the licensee may obtain technetium-99m, or dosages of technetium-99m radioactive drugs, from another NRC-licensed medical use licensee to administer to patients when the licensee is unable to obtain technetium-99m (or unit dosage of a technetium-99m radioactive drug) from its normal supplier as a result of production shortages of molybdenum-99 affecting its generator or technetium-99m supplier, as documented in writing by the supplier. The licensee shall certify in writing that it is receiving reduced qualities of technetium-99m from its supplier and did not have enough to provide the administration(s). The licensee shall maintain a record of the transfer, its certification underlying documentation supporting the licensee's certification, and the supplier's certification for three (3) years.

3. Notwithstanding the requirements in R313-22-75(9), the licensee may transfer surplus technetium-99m, or dosages of technetium-99m radiopharmaceuticals, to other medical use licensees licensed by the Radiation Control Board, for

administration to patients, but only after the licensee obtains from the receiving medical use licensee a written certification that it is unable to obtain a generator, or technetium-99m or unit dosages of a technetium-99m radiopharmaceutical from its normal supplier as a result of production shortages of molybdenum-99 affecting its generator or technetium-99m supplier. The licensee shall maintain a record of the transfer and the receiving licensee's certification for three (3) years.

4. Nothing in this exemption relieves the licensee from complying with the requirements in 10 CFR 35.7 that are incorporated in R313-32, by reference.

5. This exemption is effective upon issuance and during periods of the United States shortages of molybdenum-99 and technetium-99m generators and technetium-99m radioactive drugs.

6. This exemption should be kept with the license and discussed with the licensee's Radiation Safety Officer and Authorized Users.

Dated at Salt Lake City, Utah
this _____ day of October, 2009

UTAH RADIATION CONTROL BOARD

Peter A. Jenkins, Chair

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

July 16, 2009

All 10 CFR Part 35 Licensees, Including
United States Nuclear Regulatory Commission (NRC)
Master Materials License 10 CFR Part 35 Permitees

SUBJECT: EXEMPTION FROM 10 CFR PART 32 AND 10 CFR PART 35 REQUIREMENTS ON PROCUREMENT AND TRANSFER OF TECHNETIUM-99m, AND CALIBRATION OF INSTRUMENTATION USING TECHNETIUM-99m

NRC is issuing the enclosed Exemption from certain provisions in 10 CFR Parts 32 and 35 to all NRC medical use licensees, including NRC Master Materials License medical use permittees, during times of molybdenum-99 shortages in the United States. The intent of the Exemption is to assure that the available technetium-99m is used for patient administrations.

The supply chain for fission-produced medical isotopes is fragile and may shrink dramatically at any time when the aging international reactors that currently produce these isotopes are shut down for safety or routine maintenance. Therefore, this Exemption may be needed intermittently until the supply of molybdenum-99 permanently stabilizes. The Exemption should be kept with the license and discussed with the licensee's radiation safety officer and authorized users. The Exemption can only provide relief from the regulations; it does not provide relief from specific license conditions. Contact the Regional Office if you believe that there are license conditions that also affect the availability of technetium-99m for patient treatments or if there are any questions about the Exemption.

Robert J. Lewis, Director
Division of Materials Safety
and State Agreements
Office of Federal and State Materials
and Environmental Management Programs

Enclosure: Exemption

July 16, 2009

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

All 10 CFR Part 35 Licensees, including NRC Master Materials Licensee 10 CFR Part 35 Permittees

EXEMPTION FROM 10 CFR PART 32 AND 10 CFR PART 35 REQUIREMENTS ON PROCUREMENT AND TRANSFER OF TECHNETIUM-99m, AND CALIBRATION OF INSTRUMENTATION USING TECHNETIUM-99m

I. INTRODUCTION

All 10 CFR Part 35 licensees, including NRC Master Materials License 10 CFR Part 35 permittees, are authorized for the medical use of byproduct material.

II. DISCUSSION

On May 14, 2009, the Chalk River National Research Universal reactor in Canada experienced an unexpected shutdown that has resulted in an extended shutdown for safety repairs. The Chalk River reactor produces approximately 50 percent of the United States supply of molybdenum-99 used to produce molybdenum-99/technetium-99m generators. This resulted in a United States and worldwide shortage of molybdenum-99 for generator production and technetium-99m for medical uses. The High Flux Reactor in Petten, Netherlands, also produces a substantial amount of molybdenum-99 used to produce generators in the United States and the world. The reactor in Petten is currently operating on a temporary operating permit and expected to be shutdown in early 2010 for a number of months for repairs. This will also cause molybdenum-99 and technetium-99m shortages in the United States and the world. The supply chain for fission-produced isotopes is fragile and may shrink dramatically at any time when these two, or the other three aging international reactors currently producing these isotopes, are shut down for safety or routine maintenance.

The NRC is issuing exemptions from certain of its requirements in 10 CFR 32.72, 10 CFR 35.60(b); and 10 CFR §§ 35.100(a)(1) and 35.200(a)(1), governing the sourcing and transfer of technetium-99m, and calibration of devices using technetium-99m. Each of these exemptions and the safety bases for exempting the licensee from these requirements is discussed below.

10 CFR 32.72

10 CFR 32.72 specifies the requirements for manufacturing and preparing radioactive drugs distributed to 10 CFR Part 35 licensees. Licenses issued pursuant to this regulation are for commercial distribution of radioactive drugs to medical use licensees. Exempting the medical

use licensee from the requirements in 10 CFR 32.72 permits the medical use licensee to transfer surplus molybdenum-99/technetium-99m generators or technetium-99m, or technetium-99m radioactive drugs, to other medical use licensees for administration to patients without requiring the licensee to meet the requirements for a commercial distributor of radioactive drugs. During times of technetium-99m shortages, this exemption will facilitate the transfer of surplus from a licensee that does not need it to one with patients that need technetium-99m procedures. The material has to be prepared and transported in accordance with the radioactive materials transportation requirements using adequate shielding, appropriate containers, and the proper radioactive shipping labels. Further, the activities and short half-lives of the molybdenum-99 and technetium-99m make it highly unlikely that granting this exemption will endanger life or property or common defense and security. The exemption is in the public interest because it makes needed radioactive material available for necessary patient treatment.

10 CFR 35.60(b)

10 CFR 35.60(b) requires licensees to calibrate instrumentation required in paragraph (a) of section 35.60 in accordance with nationally recognized standards. National standards specify that instruments used to measure patient dosages are checked for linearity at the maximum activities measured. The maximum activity may be for multidose vials, generator elutions, or high activity dosages of technetium-99m or other radionuclides, such as iodine-131. The calibration tests are most frequently performed with technetium-99m because it is normally easy to obtain from suppliers and has a short half-life. Under the exemption, the licensee will not be required to perform the calibration test at the maximum activity or at the time interval specified in the national standard if the licensee would use technetium-99m that is needed to administer to a patient to perform the calibration test. The exemption will only be in effect when the licensee is receiving reduced quantities of technetium-99m as a result of production shortages of molybdenum-99 affecting its generator or technetium-99m supplier, as documented in writing by the supplier. The licensee must perform the test when adequate supplies become available, and must document the results of the test in accordance with 10 CFR 35.2060. During shortage periods, it is expected that the licensee will perform the test with lower activities if the test can be performed using material that is either not needed for patient administration or at the completion of the test can still be used for patient administration. In this case, the licensee will have confidence that over those ranges the instrument is still operational and calibrated. In times of extreme shortage, the licensee may have to postpone performing the test altogether. Most instruments used to measure patient dosages today are stable if not moved and provided with reasonable climate controls. Not granting the exemption will make fewer dosages available to patients and result in licensees not being able to use these instruments even though they are calibrated at the levels of routine technetium-99m dosages. Once adequate supplies become available and the licensee performs the tests in accordance with the national standards, the instruments that pass the calibration test at that time can be assumed to have been calibrated while the exemption was in effect. The world supply of molybdenum-99 is very fragile because it depends on aging reactors that may be shut down for safety or maintenance at any time. Therefore, because of the uncertainty of continued availability, the test must be performed as soon as adequate supplies are available, as indicated in the provisions of the exemption. The test must not be postponed to the next specified time interval, to avoid conflict with a subsequent shortage. For higher dosages requiring written directives the licensee will have to depend upon the activity provided with the

radioactive drug to assure patient safety associated with the administration. The exemption will not endanger life or property or common defense and security because it does not relieve the licensee from NRC requirements for worker dose or public dose, handling or securing the radioactive materials, or handling or securing radioactive waste associated with performing the test. All of those protections remain in place. Also, both molybdenum-99 and technetium-99m have short half-lives and the proposed exemption does not affect how the licensee handles these radionuclides. The exemption is in the public interest because it provides for performing calibration test at levels of activity being used, makes needed technetium-99m available to patients, and assures that when the supplies of technetium-99m become available, the calibration is performed in accordance with national standards.

10 CFR 35.100(a)(1) and 10 CFR 35.200(a)(1)

10 CFR 35.100(a)(1) and 35.200(a)(1) require medical use licensees to obtain unsealed byproduct material prepared for medical use for uptake, dilution, excretion, imaging or localization studies from a manufacturer or preparer licensed under § 32.72 of this chapter or equivalent Agreement State requirements. The exemption would permit the licensee to obtain the technetium-99m (or a technetium-99m radioactive drug) from another medical use licensee to administer to patients. This permits medical use licensees with patients that need technetium-99m procedures that cannot get technetium-99m from their normal supplier because of the shortage to obtain the needed technetium-99m from a local medical use licensee that has a surplus. This exemption will only be in effect when the licensee is unable to obtain technetium-99m (or a technetium-99m radioactive drug) from its normal supplier as a result of production shortages of molybdenum-99 affecting its generator or technetium-99m supplier, as documented in writing by the supplier. This exemption will give some relief on a case-by-case basis to a medical use licensee if its supplier is severely affected by the shortage but the other medical use licensee supplier is not. The activities and short half-lives of the molybdenum-99 and technetium-99m make it highly unlikely that granting this exemption will endanger life or property or common defense and security. The exemption is in the public interest because it makes needed radioactive material available for necessary patient treatment.

10 CFR 30.11 authorizes the NRC to issue exemptions from the requirements of, *inter alia*, 10 CFR Parts 32 and 35. For the reasons set forth above, the Commission concludes that exemptions from the NRC requirements in 10 CFR 32.72, 10 CFR 35.60(b); and 10 CFR §§ 35.100(a)(1) and 35.200(a)(1), as set forth below, are authorized by law and will not endanger life or property or the common defense and security, and are in the public interest.

III. EXEMPTION

1. Notwithstanding the requirements in 10 CFR 35.60(b) to calibrate the instrumentation required in paragraph (a) of this section in accordance with nationally recognized standards, the licensee is not required to perform the calibration test at the maximum activity or at the time interval specified in the national standard if: (i) the licensee would use technetium-99m that is needed to administer to a patient to perform the test; (ii) the licensee certifies in writing that the quantities of technetium-99m that it is receiving from it supplier is less than what the licensee has ordered or procured and is not sufficient to perform the test in accordance with the national standard; and (iii) the licensee's supplier provides written documentation, that the supplier is

providing reduced quantities of technetium-99m to the licensee as a result of production shortages of molybdenum-99 affecting its generator or technetium-99m. **[NOTE: IF THERE IS A CALIBRATION LICENSE CONDITION, THE LICENSEE NEEDS TO TAKE AN ACTION TO AMEND THE CONDITION TO ALLOW THE CHANGE IN CALIBRATION; THE EXEMPTION BY ITSELF WILL NOT ALLOW THE LICENSEE TO ACCOMPLISH THESE ACTIONS]** The licensee must perform the calibration test as soon as adequate supplies become available, and document results of the test in accordance with 10 CFR 35.2060. If adequate supplies become available, the licensee cannot defer performing the tests until the next time interval. The licensee shall maintain records of its certification and the underlying documentation supporting the licensee's certification, and the supplier's written documentation for 3 years.

2. Notwithstanding the requirements in 10 CFR 35.100(a)(1) and 35.200(a)(1) to obtain unsealed byproduct material prepared for medical use for uptake, dilution, excretion, imaging or localization studies from a manufacturer or preparer licensed under § 32.72 of this chapter or equivalent Agreement State requirements, the licensee may obtain technetium-99m, or dosages of technetium-99m radioactive drugs, from another NRC-licensed medical use licensee to administer to patients when the licensee is unable to obtain technetium-99m (or unit dosage of a technetium-99m radioactive drug) from its normal supplier as a result of production shortages of molybdenum-99 affecting its generator or technetium-99m supplier, as documented in writing by the supplier. The licensee shall certify in writing that it is receiving reduced qualities of technetium-99m from its supplier and did not have enough to provide the administration(s). The licensee shall maintain a record of the transfer, its certification and the underlying documentation supporting the licensee's certification, and the supplier's certification for 3 years.

3. Notwithstanding the requirements in 10 CFR 32.72, the licensee may transfer surplus technetium-99m, or dosages of technetium-99m radioactive drugs, to other medical use licensees licensed by the NRC, for administration to patients, but only after the licensee obtains from the receiving medical use licensee a written certification that it is unable to obtain a generator, or technetium-99m or unit dosages of a technetium-99m radioactive drug from its normal supplier as a result of production shortages of molybdenum-99 affecting its generator or technetium-99m supplier. The licensee shall maintain a record of the transfer and the receiving licensee's certification for 3 years.

4. Nothing in this exemption relieves the licensee from complying with the requirements in 10 CFR 35.7.

5. This exemption is effective upon issuance and during periods of United States shortages of molybdenum-99 and technetium-99m as documented in writing by the suppliers of molybdenum-99/technetium-99m generators and technetium-99m radioactive drugs.

6. This exemption should be kept with the license and discussed with the licensee's Radiation Safety Officer and Authorized Users.

Robert J. Lewis, Director
Division of Materials Safety
and State Agreements
Office of Federal and State Materials
and Environmental Management Programs

V. Radioactive Waste Disposal

a. Request from Charles Judd to Address the Board on the Disposal Capacity at Energy*Solutions* (Board Information Item)

CEDAR MOUNTAIN ENVIRONMENTAL INC.

September, 8, 2009

Radiation Control Board
168 North 1950 West
P.O. Box 144850
Salt Lake City, Utah 84114-4850

Dear Radiation Control Board:

Over the past several months there has been an ongoing issue with the possibility of Energy*Solutions* accepting waste from foreign countries. It seems that this issue may be in the courts for several years before it is finally resolved. In the meantime, it is apparent that there is really no room for foreign waste at the Clive facility. The fact is that Energy*Solutions* does not have the capacity to accept the waste it already has under contract from Nuclear Facilities within the United States. The important issue for the State of Utah is to assure that there is capacity to dispose of all of the clean up wastes when the site is closed.

I would like the opportunity to present an overview of the remaining capacity at the Clive site for low-level radioactive waste. I would expect that my presentation would be 10 minutes in length.

Sincerely,

Charles Judd

2028 EAST FORT UNION BLVD., STE. 102; SALT LAKE CITY, UT 84121
PH: 801-942-3757 FAX: 801-942-3636 WWW.CMENVIRONMENTAL.COM

CEDAR MOUNTAIN ENVIRONMENTAL INC.

September 30, 2009

Mr. Dane Finerfrock, Executive Secretary
Utah Radiation Control Board
168 North 1950 West
Salt Lake City, Utah 84114-4850

Dear Mr. Finerfrock:

Enclosed is our briefing packet for Cedar Mountain's presentation for the meeting on October 13, 2009. Thank you for the opportunity to be on the agenda to discuss these topics. If you need anything further, please call our office at 801.942.3757.

Sincerely,

Charles Judd
Cedar Mountain Environmental, President

2028 EAST FORT UNION BLVD., STE. 102-A; SALT LAKE CITY, UT 84121

REPORT ON ADDING TEN FEET OF FILL OVER DEPLETED URANIUM AT CLIVE

In the past year, there have been several significant changes at the Clive site owned by EnergySolutions. These changes are having marked affects on the low level radioactive waste industry. In the last Board meeting, a decision was made to allow the continued shipments of depleted uranium. This decision was based partially on a letter from EnergySolutions where they committed to place 10 feet of fill material over any depleted uranium. It is unclear if any public comment has been taken on the 10 foot fill option. It is important for the Radiation Control Board to be aware of several important issues as it concerns the 10 foot fill option.

A) IMPACTS OF ACCEPTING DEPLETED URANIUM ON THE STATE SURETY –

At the last Board Meeting, the Board voted to allow depleted uranium to continue to be shipped to the Clive site. The Board voted to do so with the understanding that EnergySolutions covered all such depleted uranium with at least 10 feet of fill material. This new approach drastically affects the State of Utah Closure requirements for the Clive site. EnergySolutions has already taken 49,000 tons of depleted uranium and is suggesting that it will bring in at least another 14,000 tons of the material.

In addition to the material shipped to the site that contains depleted uranium, there will also be materials around the site that will be contaminated with depleted uranium that will need to be cleaned up at site closure. During the unloading process and before the material is buried there will certainly be some other materials that come in contact with the depleted uranium and then be contaminated also. The possibility that the depleted uranium will become airborne is also a concern. In the past two years there have been at least two occasions when contaminated materials had to be cleaned up off of the Clive site due to airborne contamination. All of this material should be treated as if it had depleted uranium. Another alternative is to test all site cleanup materials before they are disposed to assure that they are not contaminated with depleted uranium – however there are no monies in the surety for this effort and there is no great way to sample all of the possibly contaminated materials.

Therefore, EnergySolutions must be prepared to dispose of approximately 330,000 cubic yards of material in their licensed facility and then place 10 feet of fill over the top of this waste. It is not clear if EnergySolutions plans to place 10 feet of fill and then the approved cover or if they are planning on using the cover as part of the fill material. The cover is not really appropriate fill material because it consists of large rock and other materials whose main purpose is not to contain radioactivity.

The big question becomes, is their monies in the Surety to close the facility if more depleted material comes to the site and the 10 foot commitment is to be maintained. The answer to this question is clearly, no.

Exhibit 1 is a copy of the 2008 Premature Closure Plan as submitted by EnergySolutions. The last page of that submittal shows the areas that are to be closed by the amounts of money in the surety. Some waste is to be disposed of to complete the Class A cell and the remainder of the cell space is a small portion of the Class A North cell. If the surety were properly funded for depleted uranium then there would be cell space for 330,000 cubic yards of waste and then room for 10 feet of cover over this material.

Exhibit 2 is the same map that is included with the Premature Closure Plan, however the areas where 10 feet of fill would be possible are marked. The amount of area where depleted uranium could be disposed of corresponds to these areas. There is less than 500,000 square feet of area where depleted uranium could be placed. The average depth of depleted uranium waste would be less than 6 feet in these areas. This would allow disposal of approximately 110,000 cubic yards of material contaminated with depleted uranium. This is only about 1/3 of the amount of cell space needed.

Solution: The area to be funded to for closure needs to be increased significantly before the agreement for 10 feet of fill can be finalized. It is estimated that ½ of the Class A North cell would need to be used to properly provide the 10 foot of fill over materials contaminated by depleted uranium. The surety would therefore need to be increased by approximately $5,000,000.00. It would also be necessary to include some monies to pay to place the fill material over the materials contaminated by depleted uranium. There could be as much as 300,000 cubic yards of additional material to provide the fill material over the contaminated material. This would cost approximately $1,500,000.00 additional dollars.

ENERGYSOLUTIONS ARGUMENTS AGAINST INCREASING SURETY

1) Depleted Uranium will not contaminate any other soils
2) The 10 foot fill also includes the required cover

B) STATE SHOULD BEGIN MANAGEMENT OF REMAINING CAPACITY AT CLIVE

As the Clive site begins to reach full capacity for low level radioactive waste, the State of Utah should begin to monitor the remaining capacity to assure that there is sufficient capacity to dispose of the contaminated materials for site cleanup. This became even more important when it was announced that EnergySolutions would begin to place 10 feet of fill over any waste contaminated with depleted uranium. It is unclear what is included in this 10 feet of fill but whatever the source of the 10 feet of fill, it is clear that more cell space is going to be used by including 10 feet of fill.

As the low level radioactive waste site in South Carolina began to shut down, the State of South Carolina became involved in monitoring the amount of waste that was allowed to come to the site. In fact, the State even put caps on the amounts of waste that could be disposed in any given year. This type of involvement is also necessary by the State of Utah because they must ensure that there is capacity to dispose of the minimum amount of 320,000 cubic yards of contaminated materials that will be generated during site closure.

Exhibit 3 shows that the licensed cell space of low level waste disposal at the Clive site is approximately 7.7 million cubic yards. The exhibit also shows that as of August of 2008 that approximately 5.5 million cubic yards of cell space had been used.

Exhibit 4 helps to determine the amount of additional waste can be accepted at the site. Of the remaining 2.2 million cubic yards the following amounts are already filled or committed to be filled a) 250,000 cubic yards filled in the last 13 months, b) 230,000 cubic yards to construct clay liner protection, temporary cover and interim cover, c) 320,000 cubic yards for site cleanup and d) 300,000 cubic yards of clean fill material to go with the waste accepted (over the past several years the volume of cell used for every cubic yard of waste accepted has been 1.25 to 1). This means that the actual licensed capacity for waste acceptance at the Clive site is approximately 1.1 million cubic yards. This is equal to just over 29 million cubic feet of capacity for waste acceptance in the low level facility.

The question is, who gets to use this remaining 29 million cubic feet. Exhibit 5 shows the dilemma that the State of Utah has at the present time. EnergySolutions has already signed contracts to accept at least 85 million cubic feet from nuclear power facilities within the United States (Exhibit 7, page 18). EnergySolutions has several large contracts with Government Agencies that will bring in at least 10 million more cubic feet (Exhibit 7, page 11). In addition, EnergySolutions has made it clear that they plan to accept 7.5 million c.f. of foreign waste. It is also EnergySolutions plan to eventually shut down and clean up other sites that it owns in the eastern US and bring that waste to Clive. These site cleanups could easily bring another 3 million cubic feet of waste to Clive.

This means that over 100 million cubic feet is already under contract or planning to be disposed of at the Clive facility. The issue is that now EnergySolutions is suggesting that a significant

amount of cell space will be filled with fill material to cover the depleted uranium that it plans to accept. It seems to be a good technical approach to place 10 feet of fill over the depleted uranium, however the question now is, "Whose waste will not be able to be disposed?" It is important that the State of Utah ensure that the site cleanup capacity is not used by others.

EnergySolutions may argue that they are planning to expand their current capacity. The only viable way to do this without expanding outside of Section 32 is to amend their license to accept low level waste in the current 11e.(2) cell. There is no time line to get this additional capacity, and there is no way to know if this amendment will be approved. Even if it is approved it is most likely that the 11.e(2) and the new low level cells will need to be separated. If everything works out and some amendment is given it will probably increase cell space by about 65 million cubic feet. By the time you fill up some of this cell space with clean fill, clay liner protection, temporary cover, interim cover, additional site cleanup materials and other such things it is expected that the new amendment would only make it possible to accept another 50 million cubic feet of low level waste. This additional capacity is still a "maybe" and is still years away if it is ever approved. Exhibit 6 shows the same dilemma even if the new amendment is approved. If the amendment is approved then there will be capacity to accept 79 million cubic feet of waste; however, this is still not enough cell space to accept the expected low level waste volume.

SOLUTION – The State of Utah needs to follow the lead of the State of South Carolina and begin monitoring the amount of capacity remaining at the Clive site. Rules need to be established on how much waste EnergySolutions can contract to accept based on the remaining capacity, (i.e. is it okay to contract to accept waste for disposal even if there is no capacity for the waste). With these new procedures then the State of Utah can assure that there is enough capacity to properly clean up the site and close it properly.

C) STUDY OF DISPOSAL OF DEPLETED URANIUM SHOULD CONSIDER PREVIOUS DISPOSAL PRACTICES

EnergySolutions has already disposed of a large amount of depleted uranium in existing cells. The location of this waste is important. One concern is that the cover system over the original LARW cell is not performing properly. There are already signs of extreme differential settlement in the final LARW cover. This type of cover damage should be included in any report done by EnergySolutions consultants. If there is depleted uranium under the LARW cover then that concern should be addressed. If depleted uranium is going to be disposed under future covers then the possibility of extreme differential settlement should be addressed.

Exhibit 1

ENERGY*SOLUTIONS*

Engineering/QC Department

Memorandum

To: **Sean McCandless, Director of Compliance and Permitting**

From: **David Booth, Director of Engineering**

cc: **File**

Date: **August 28, 2008**

Subject: **2008 LLRW Surety Update: Premature Closure Plan**

REMAINING CAPACITY IN CLASS A EMBANKMENT

As of August 25, 2008 the remaining capacity (airspace) on completed liner (liner is 100% complete) in the Class A Embankment is approximately 506,735 yd^3. This capacity was estimated by first calculating the total embankment capacity on completed liner (3,778,896 yd^3), then subtracting the reported 2007 placed volume (3,072,610 yd^3), and finally subtracting the estimated (QC waste lift tracking totals) waste placed between August 20, 2007 and August 25, 2008 (199,551 yd^3). The remaining capacity is 1.6 times greater than the required surety reserve capacity (318,638 yd^3). Note that this is only for the Class A Embankment. Additional airspace is available in the Class A North embankment.

SITE RE-VEGETATION

Since the 2007 surety update, the batch plant was relocated to the area east of the LARW Operations building. Approximately 167,300 ft^2 (3.84 acres) of surface was cleared of vegetation. Otherwise, there has been no new construction of facilities or roads or other activities within Section 32 that would increase the area requiring re-vegetation.

ROCK BORROW (COVER MATERIALS)

Energy*Solutions* still has a 5 year contract (expires August 27, 2012) with the BLM for material from the Central Grayback Community Pit '24', which has a reserve of at least 1.1 million cubic yards of material. No material has been removed from the contract area since the 2007 update.

CLASS A AND CLASS A NORTH EMBANKMENTS

Whereas the current state of the Class A and Class A North Embankments pose perceptible challenges in the event of a premature closure, redesign and construction for premature closure can be simply accomplished by following the current cover design principles. These principles would guide the embankment redesign as suggested in the following conceptual redesign plan.

1. Conduct an aerial survey of the embankment and develop current topographical data to be used as the base of the redesign.
2. Overlay on the aerial survey areas of the embankment the following areas:
    a. Completed areas (top of waste) with temporary cover,
    b. Extents of completed liner,
    c. CWF and Large Component areas,
    d. And, additional areas of interest, i.e. CLSM pyramids.
3. Determine the best areas of placement for the debris and soil waste generated from the decommissioning of the LLRW facilities. The most likely placement locations would be the "hole" in the

northwest quadrant (Large Component Area) and the areas around the CLSM pyramids in the Class A Embankment. The goal would be to reduce, if not eliminate, the valleys and holes in the interior of the embankment with decommissioning waste rather than with clean fill.

4. Once step 3 is completed, redesign the embankment geometry per the following criteria:

   a. Side slopes cannot exceed 5:1,
   b. Top slopes cannot exceed 4%,
   c. Storm water must freely drain off of and away from the embankment,
   d. Final contours (geometry) cannot concentrate storm water flow that may lead to erosion of the cover materials,
   e. And, final design should minimize the required clean fill material. This can be accomplished by balancing the cut and fill of existing soil/debris waste.

5. Possible Premature Class A Embankment Closure Plan: The Class A Embankment is nearly complete. There are 3 areas where the embankment has not been constructed to the permit limits. These areas are the northeast corner (where the remaining liner was recently completed), the H12 lift (CLSM) area in the eastern center, and the L3 large component/CLSM lift area in the west end. The embankment currently has a remaining airspace of approximately 1.6 times what is estimated to be needed for site decommissioning.

   The last area of liner, in the northeast corner, was completed during August 2008. A possible redesign would not place additional waste in this area, but rather cut off the corner by regrading the existing waste to 5:1 slopes. This would look similar to what was done in the southwest corner of the LARW embankment (for the cover design change). A conceptual redesign is attached.

   Both the H12 and L3 areas would be almost entirely filled with decommissioning debris and soil. Some additional fill material may be needed, but both areas could be brought up to design limits and the cover constructed as currently designed.

   All slopes would not exceed 5:1 and would be contoured to avoid concentration of embankment runoff. To the extent possible, waste would be relocated to minimize the amount of clean fill required. I am confident that the design could be refined such that clean fill in excess of the current surety amount would not be required, especially since most of the previous "canyons" have been filled with waste.

   The perimeter ditch would be designed and graded to channel the embankment runoff away from the embankment to the southwest.

   The cover would be constructed per the current Construction Quality Assurance/Quality Control Manual, including 2 ft of radon barrier, Type B Filter, Sacrificial Soil, Type A Filter and Types A & B Riprap.

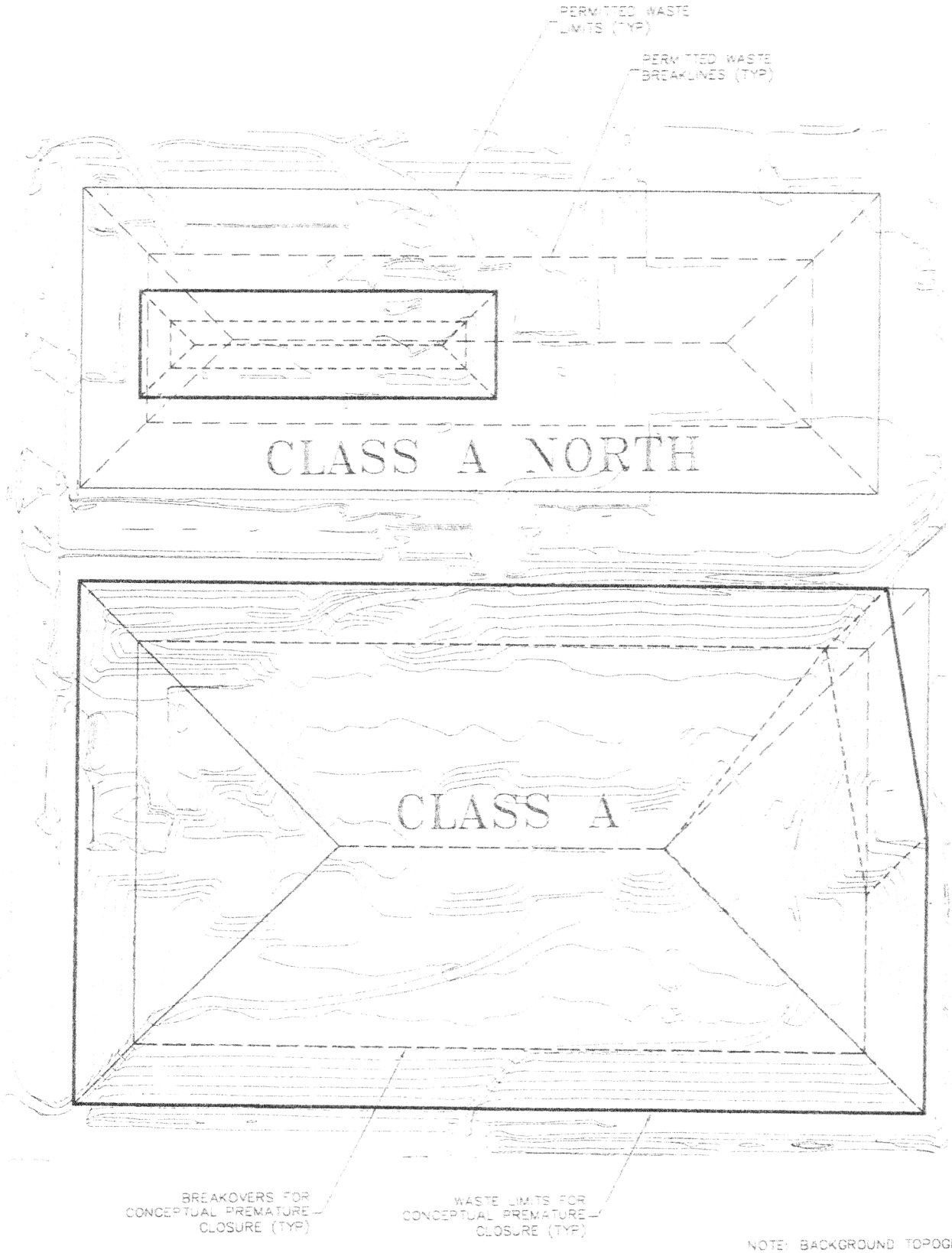
6. The premature closure of the Class A North Embankment could be accomplished by filling the area between and around the CWF and Large Component areas with LLRW demolition debris and soil materials into a smaller embankment in both foot print and height. A conceptual redesign is attached.

   All slopes would not exceed 5:1 and would be contoured to avoid concentration of embankment runoff. To the extent possible, waste would be relocated to minimize the amount of clean fill required. I am confident that the design could be refined such that clean fill in excess of the current surety amount would not be required.

   The perimeter ditch would be designed and graded to channel the embankment runoff away from the embankment to the southwest.

   The cover would be constructed per the current Construction Quality Assurance/Quality Control Manual, including 2 ft of radon barrier, Type B Filter, Sacrificial Soil, Type A Filter and Types A & B Riprap.

Once the aerial survey is completed and converted into an electronic file, a team of one engineer and one CAD designer (utilizing AutoCAD Land Desktop or similar software) should be able to redesign, including reviews and revisions, the embankment geometry redesign within six to eight (6-8) working weeks for the Class A Embankment and within two to three (2-3) weeks for the Class A north Embankment.



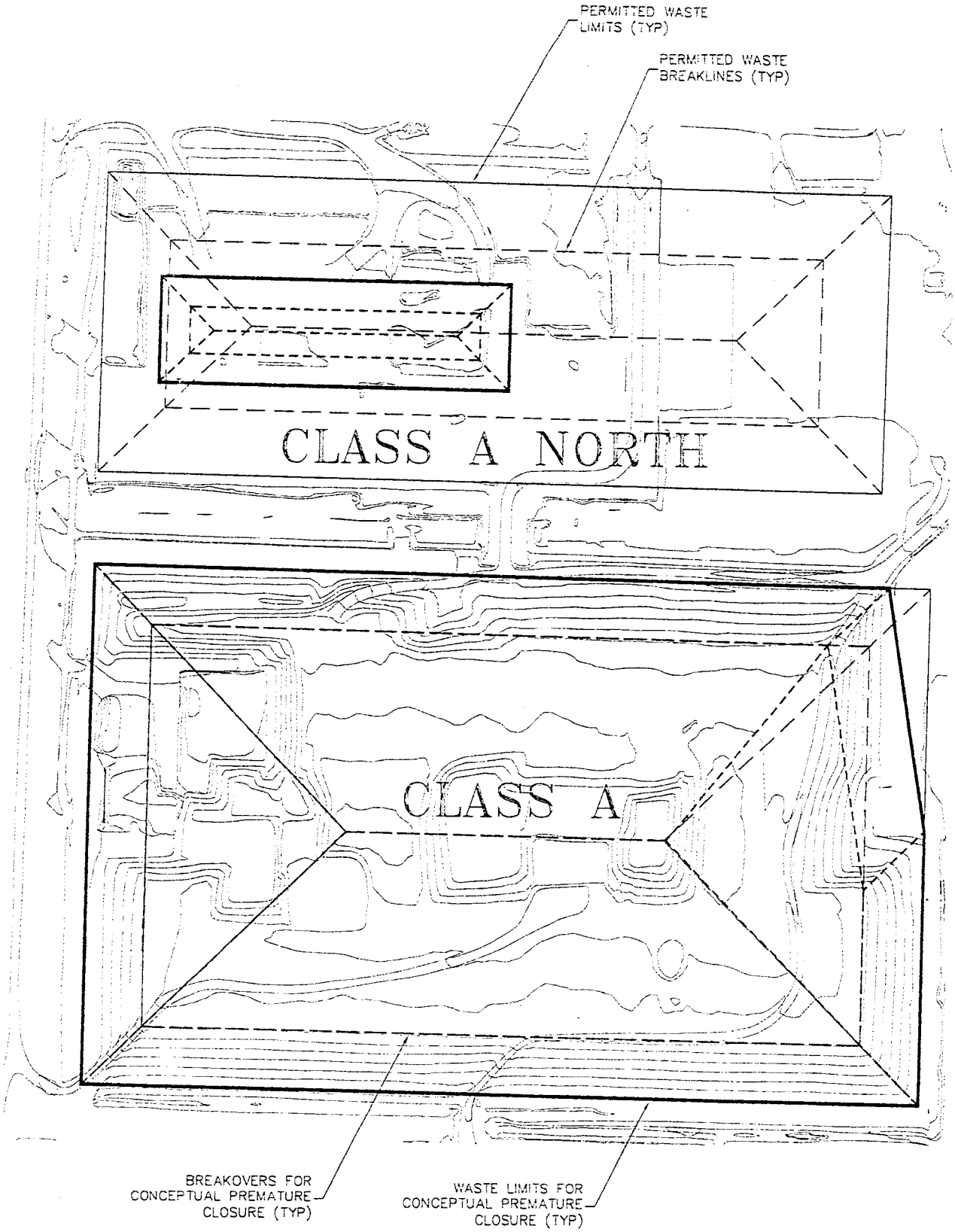
NOTE: BACKGROUND TOPOGRAPHY WAS DEVELOPED FROM THE AUGUST 2007 AERIAL SURVEY.

CONCEPTUAL EMBANKMENTS FOR PREMATURE SITE CLOSURE

100 0 100 200

ENERGYSOLUTIONS

Exhibit 2



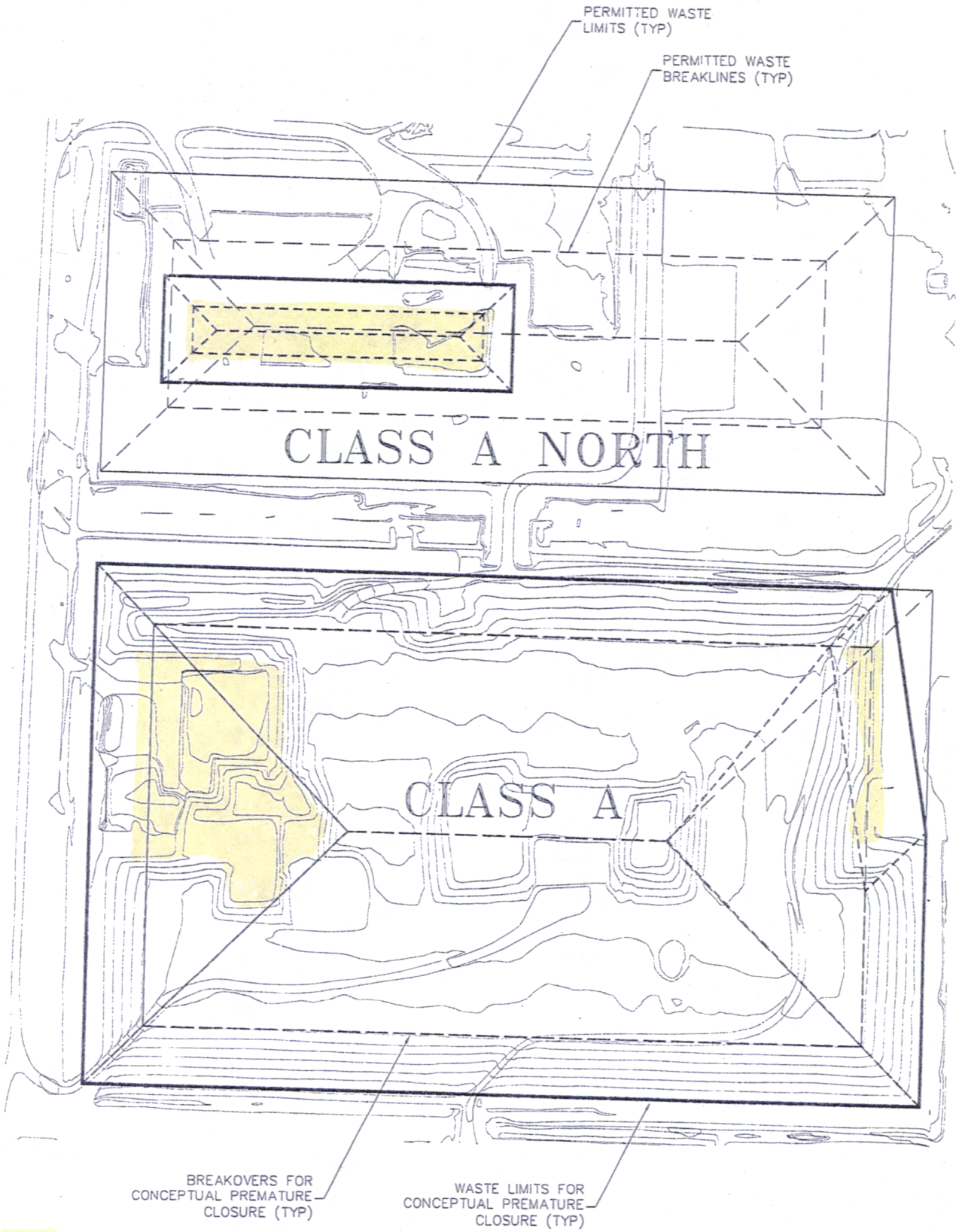
D.U. Disposal Possibilities

NOTE: BACKGROUND TOPOGRAPHY WAS DEVELOPED FROM THE AUGUST 2007 AERIAL SURVEY.

CONCEPTUAL EMBANKMENTS FOR PREMATURE SITE CLOSURE

100 0 100 200

ENERGYSOLUTIONS



D.U. Disposal Possibilities

CONCEPTUAL EMBANKMENTS FOR PREMATURE SITE CLOSURE

100 0 100 200

NOTE: BACKGROUND TOPOGRAPHY WAS DEVELOPED FROM THE AUGUST 2007 AERIAL SURVEY.

ENERGYSOLUTIONS

Exhibit 3
Low-Level Rad. Waste Volumes—Clive
August 2008

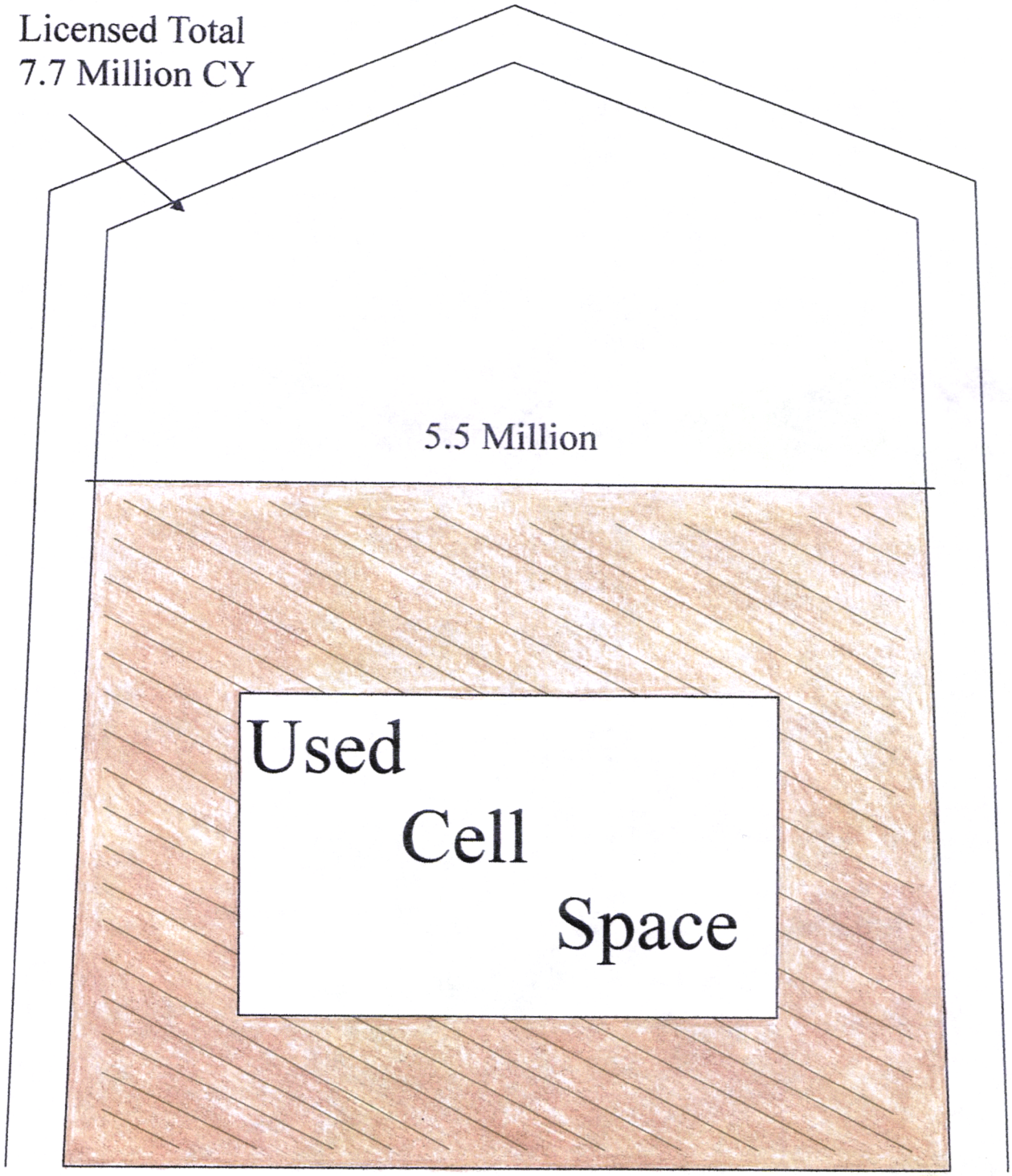


Exhibit 4
Remaining Cell Space
October 2009

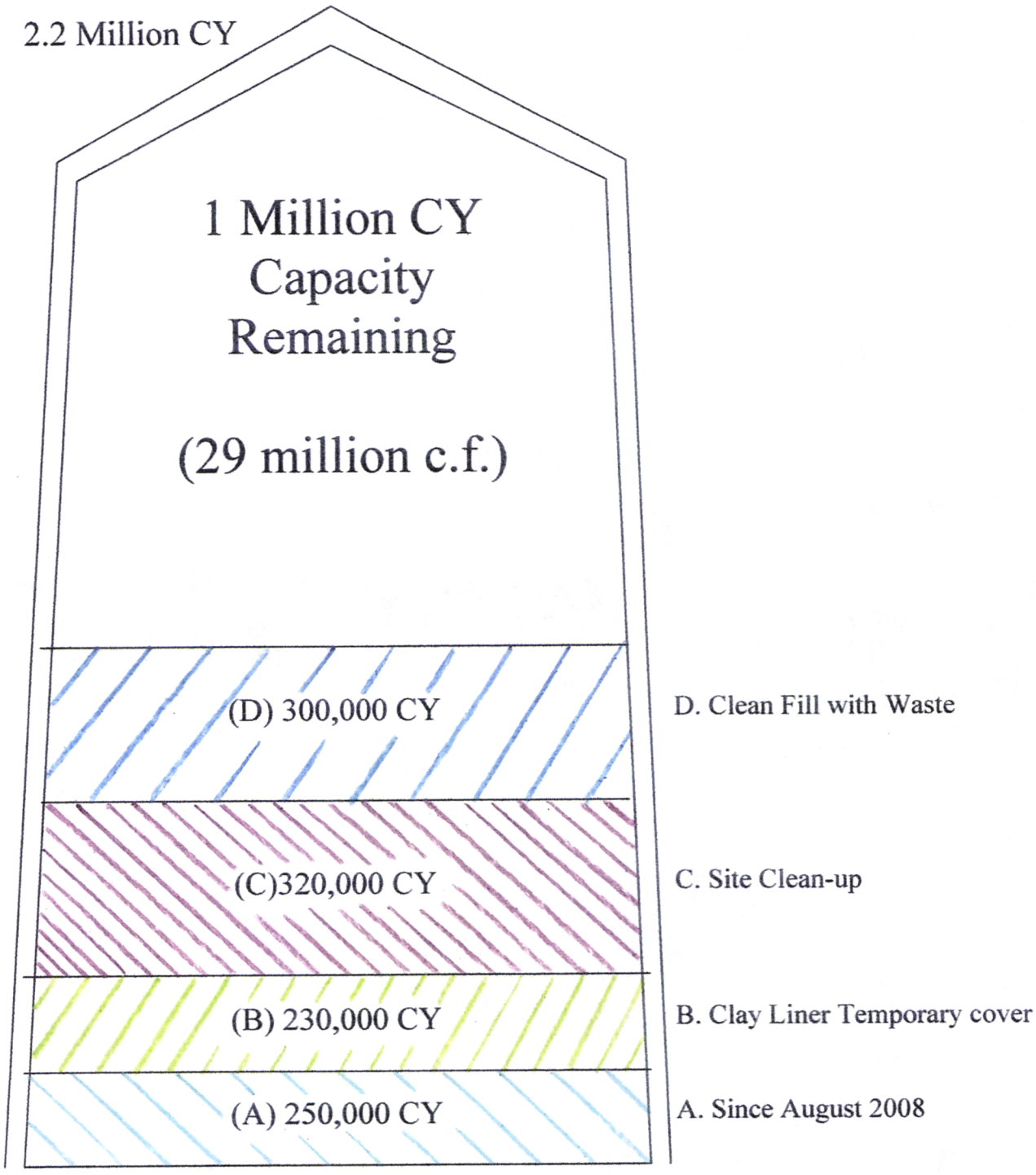


Exhibit 5
Remaining Capacity Compared to Expected Waste Receipts
(Currently Licensed)

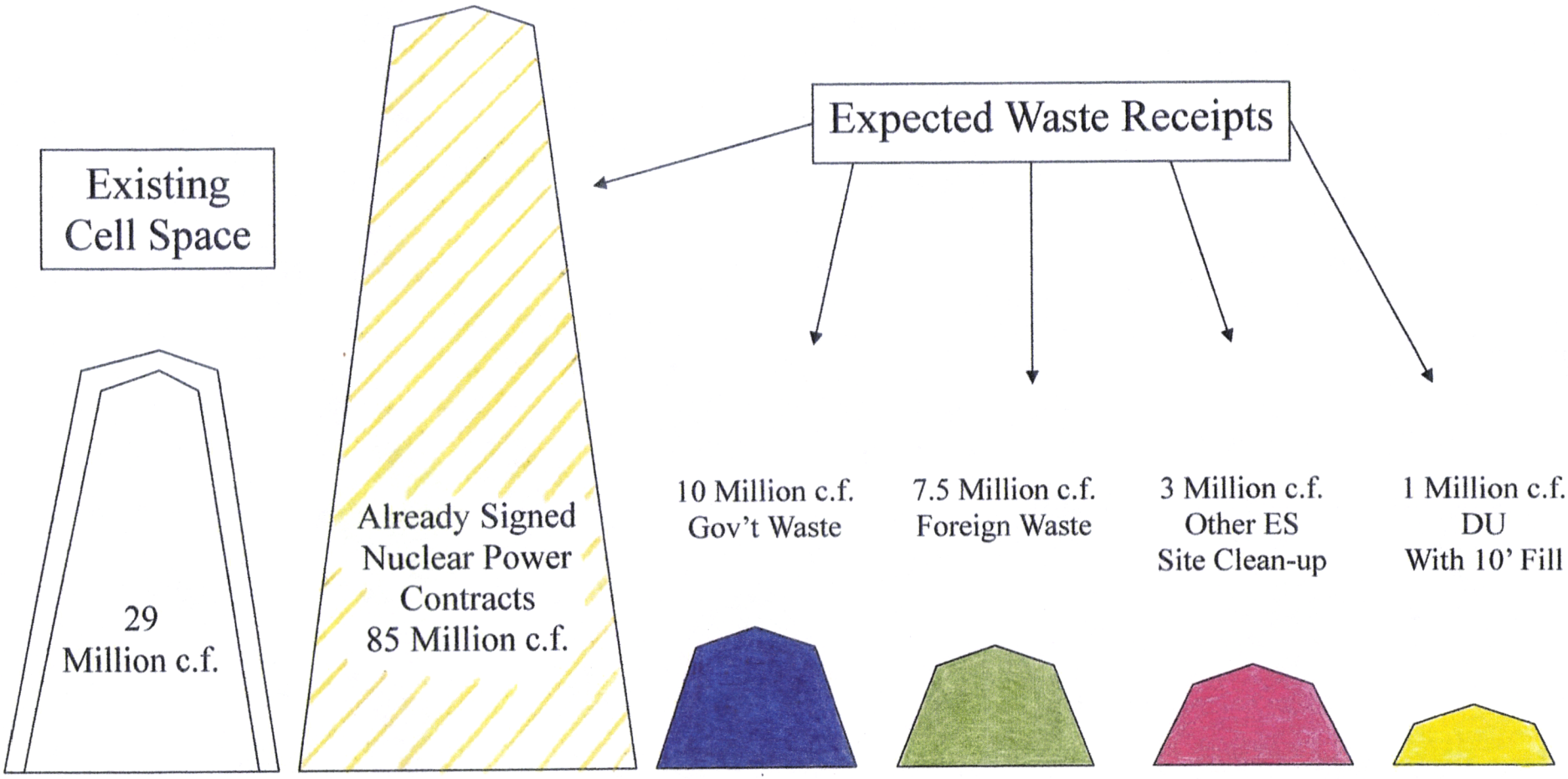


Exhibit 6
Remaining Capacity Compared to Expected Waste Receipts
(Currently Licensed & Proposed 11e(2) Amendment)

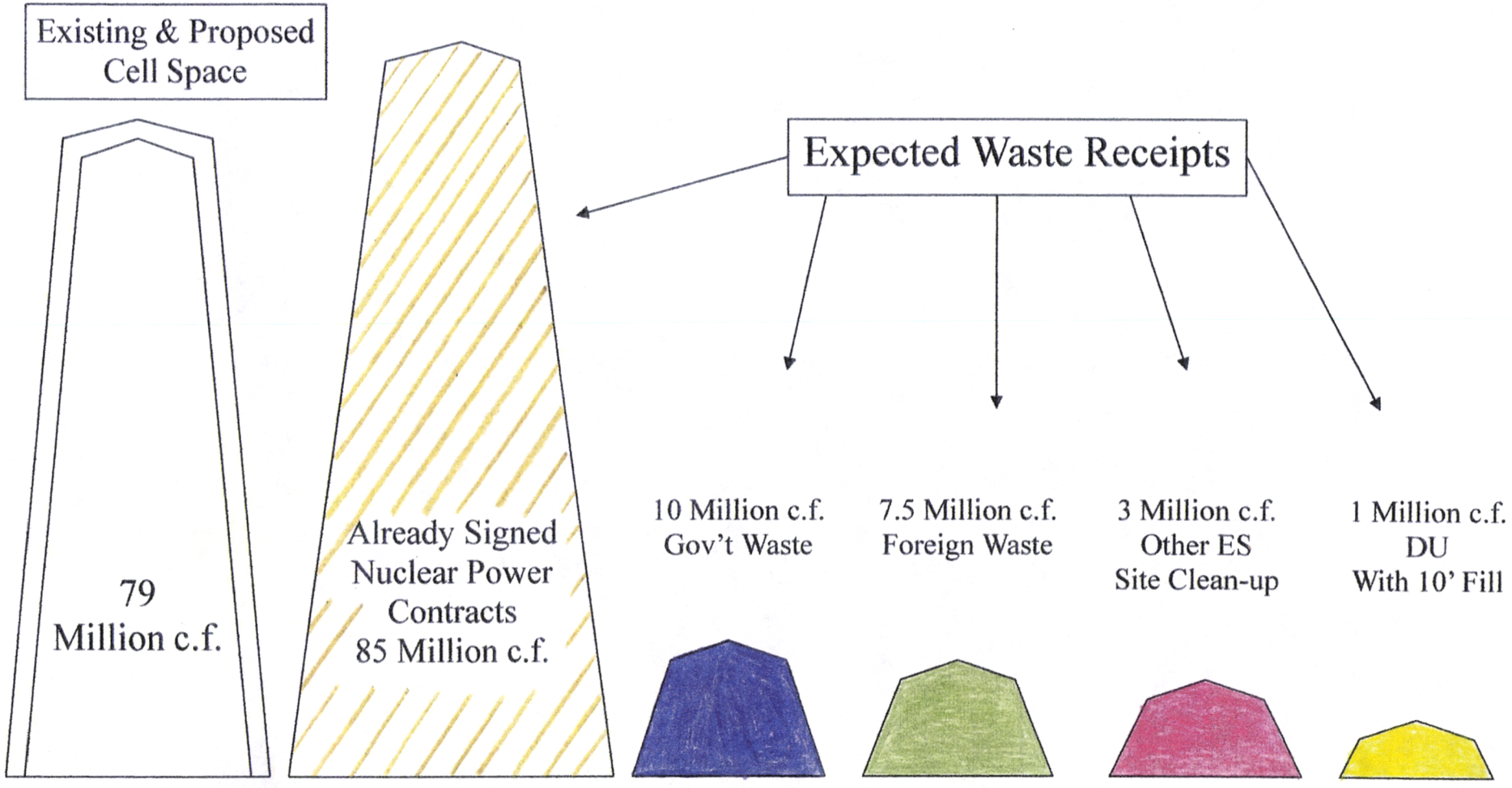


Exhibit 7

An Outlook on U.S. Disposal Capacity for Low-Level Radioactive Waste

September 3, 2008

Paul J. Larsen

ENERGY SOLUTIONS
We're part of the solution

ENERGY SOLUTIONS

"Nuclear Renaissance"

Nuclear Waste News

Generation · Packaging · Transportation · Processing · Disposal

Vol. 27 No. 17 August 27, 2007 Page 141

Public Support for Nuclear Power Tempered by Concerns About Waste

While about two-thirds of Americans would support expanding nuclear power significantly if "effective waste storage" were not an issue, fewer than one in three believes nuclear power plant waste can be stored safely, a new survey indicates.

"Waste storage is a show-stopper for nuclear power," the Massachusetts Institute of Technology's (MIT) Center for Advanced Nuclear Energy Systems concludes from its survey of Americans' attitudes toward alternative energy sources. "Much of the opposition to this fuel stems from waste."

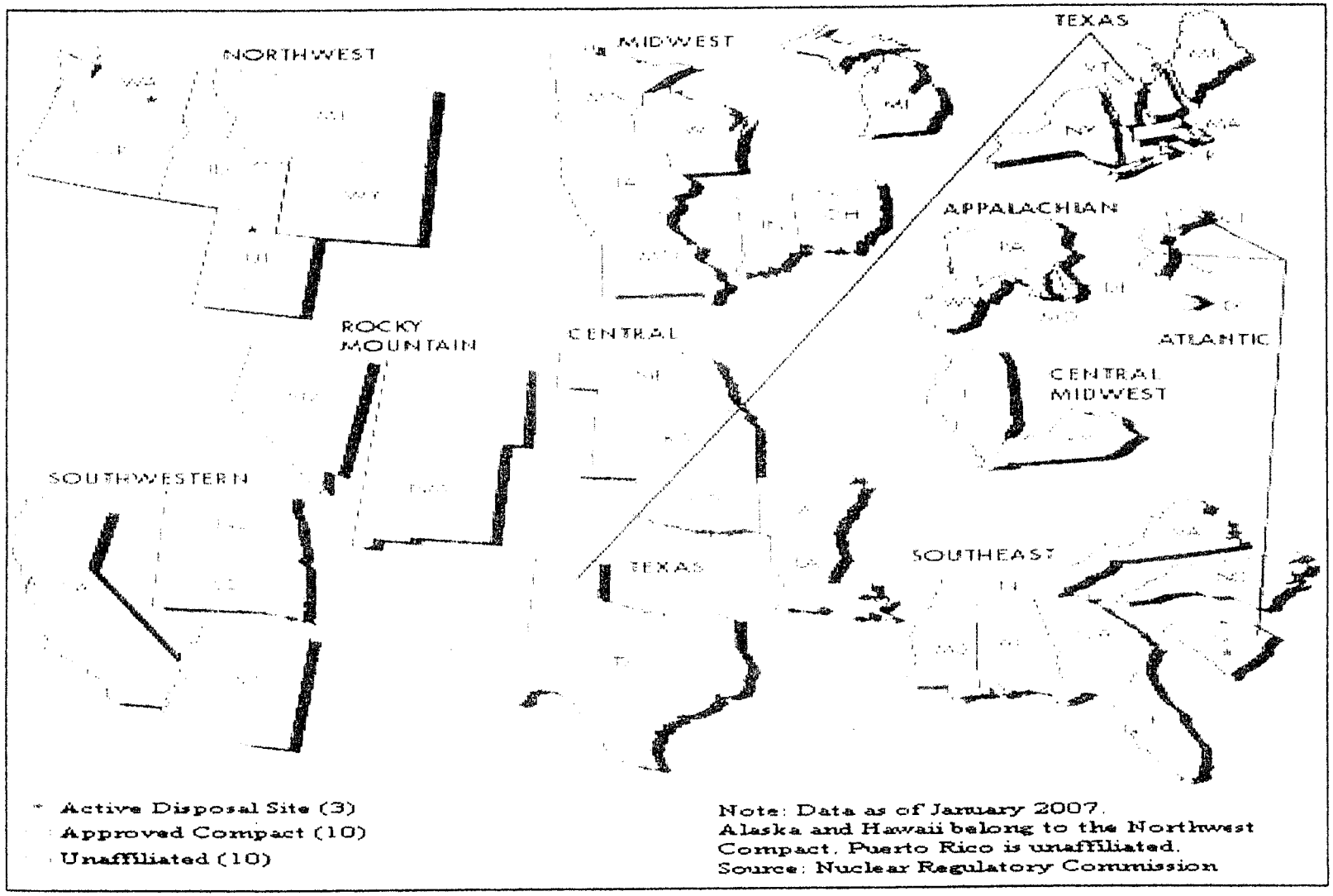
ENERGY SOLUTIONS

Is there a problem today?

- Commercial versus Government Waste
- Naturally Occurring Radioactive Waste (NORM)
- Low-Level Radioactive Waste (Class A, B, C, GTCC)
- Mixed LLRW
- Transuranic Waste (TRU)
- High Level Waste (HLW)
- Other (PCB, Asbestos, Liquids, Sealed Sources, etc.)

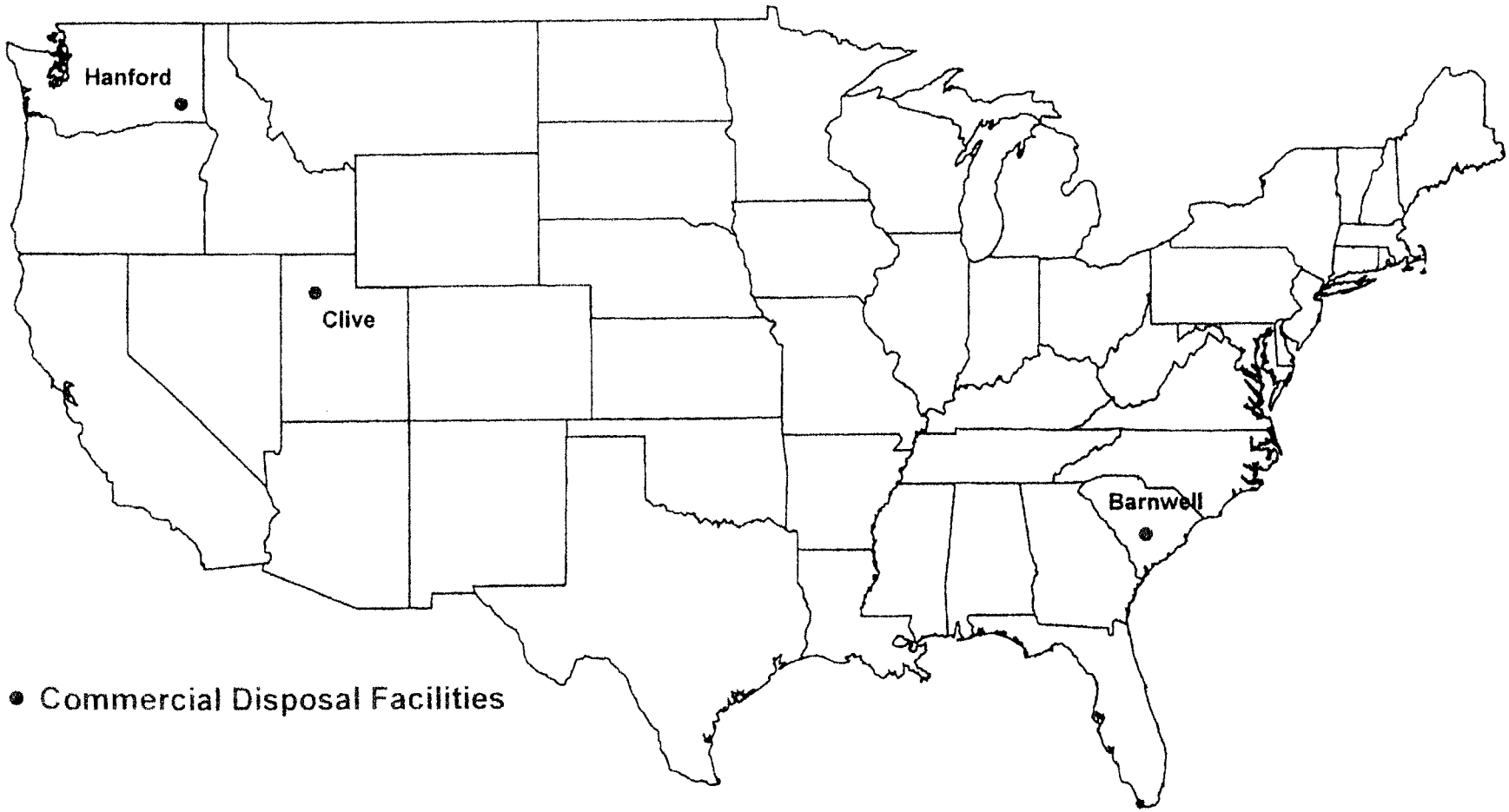
LLRW Policy Acts of 1980/1985 Compact System – Is it working?

ENERGY SOLUTIONS



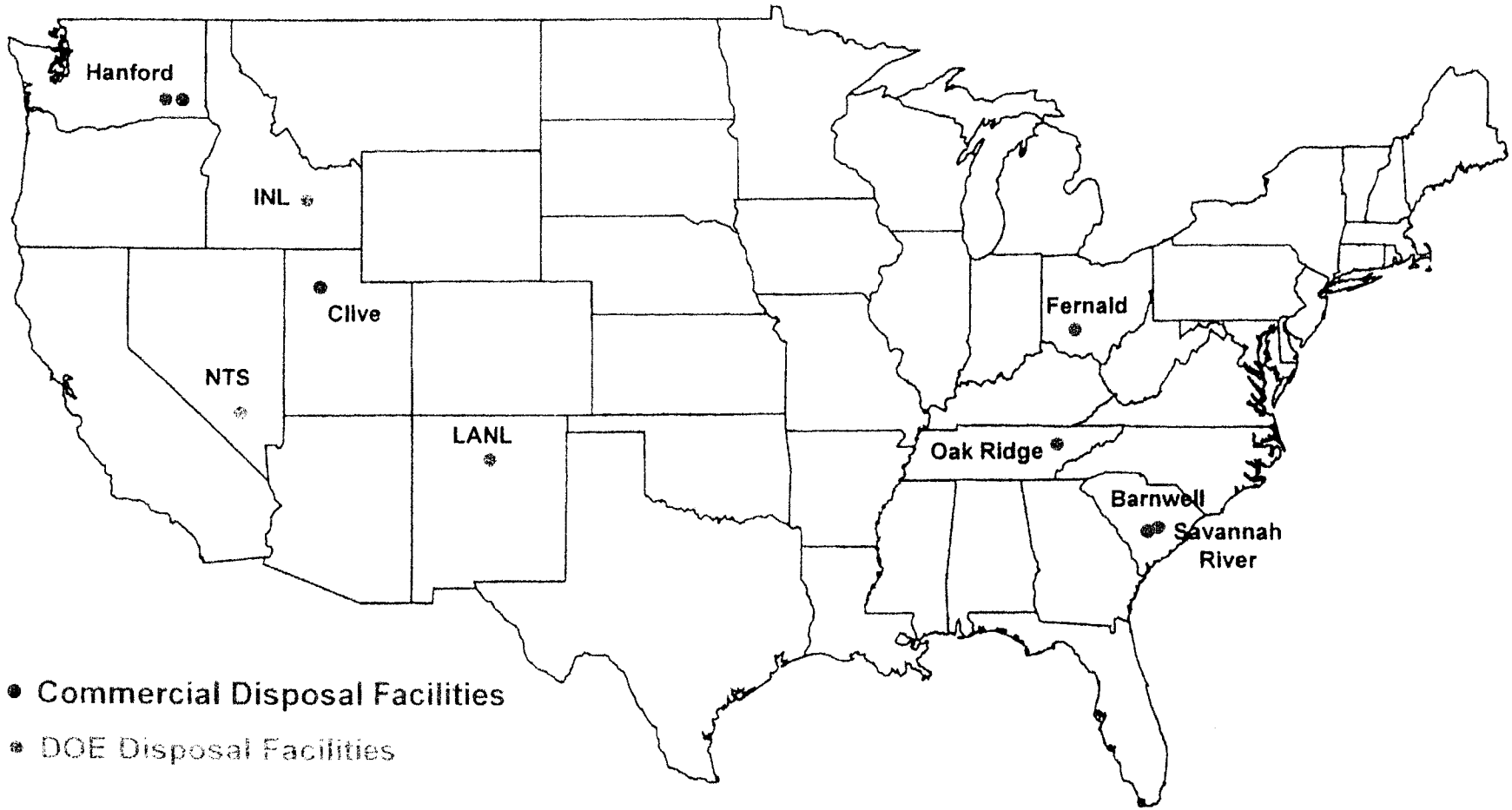
ENERGY SOLUTIONS

LLRW Disposal Facilities



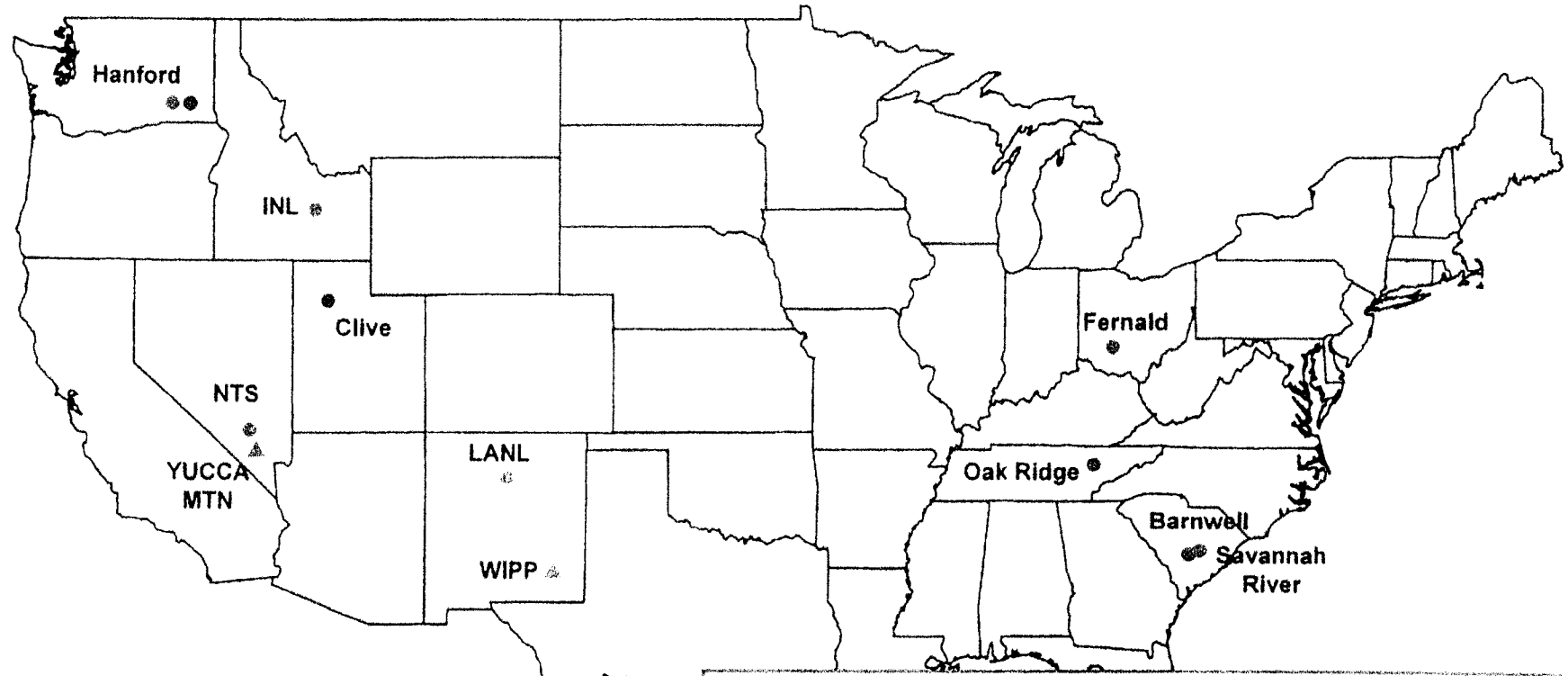
ENERGY SOLUTIONS

LLRW Disposal Facilities



ENERGY SOLUTIONS

LLRW, HLW, TRU Disposal Facilities



- Commercial Disposal Facilities
- DOE Disposal Facilities
- HLW, TRU Disposal Facilities

DOE Waste Management Policy:

LLW and MLLW: If practical, 1) disposal on the site at which it is generated; if on-site disposal not available, 2) at another DOE disposal facility; 3) At commercial disposal facilities if compliant, cost effective, and in best interest of the Department

TRU waste: If defense, disposed at Waste Isolation Pilot Plant, New Mexico; if non-defense, safe storage awaiting future disposition

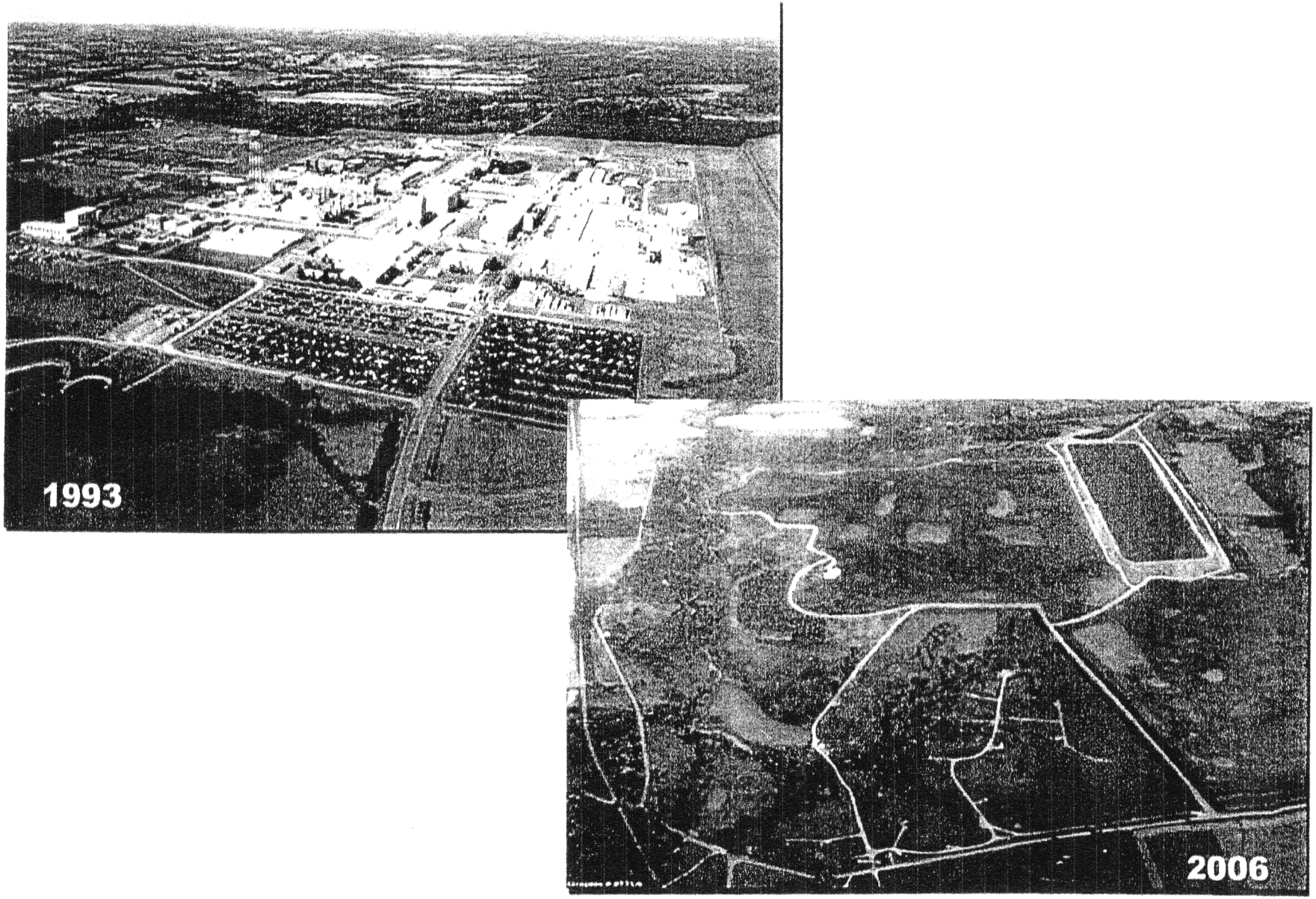
HLW and SNF: Stabilization, if necessary, and safe storage until geologic disposal is available

ENERGY SOLUTIONS

How is disposal capacity being used?

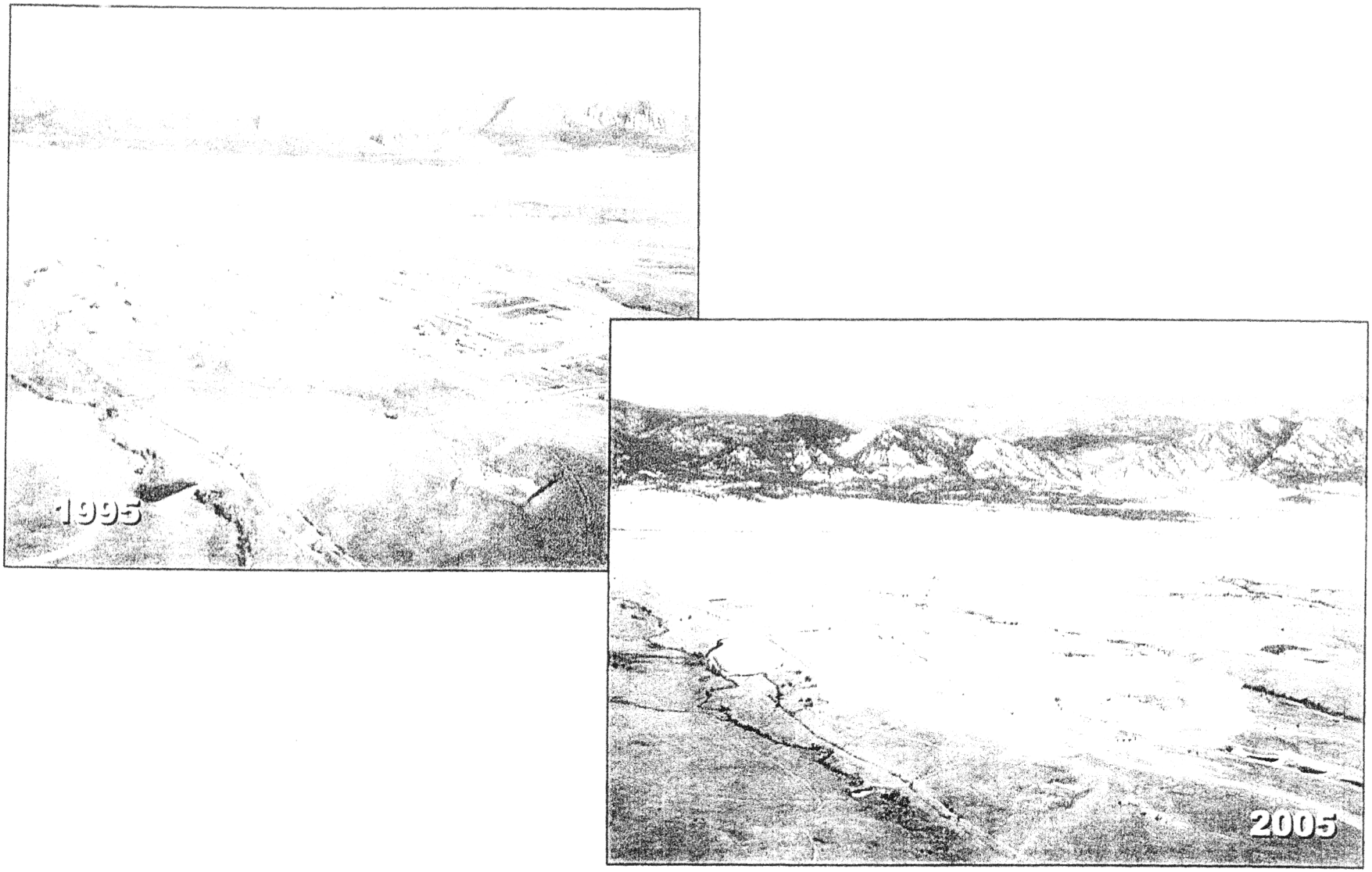
DOE Fernald Closure Project

ENERGY SOLUTIONS



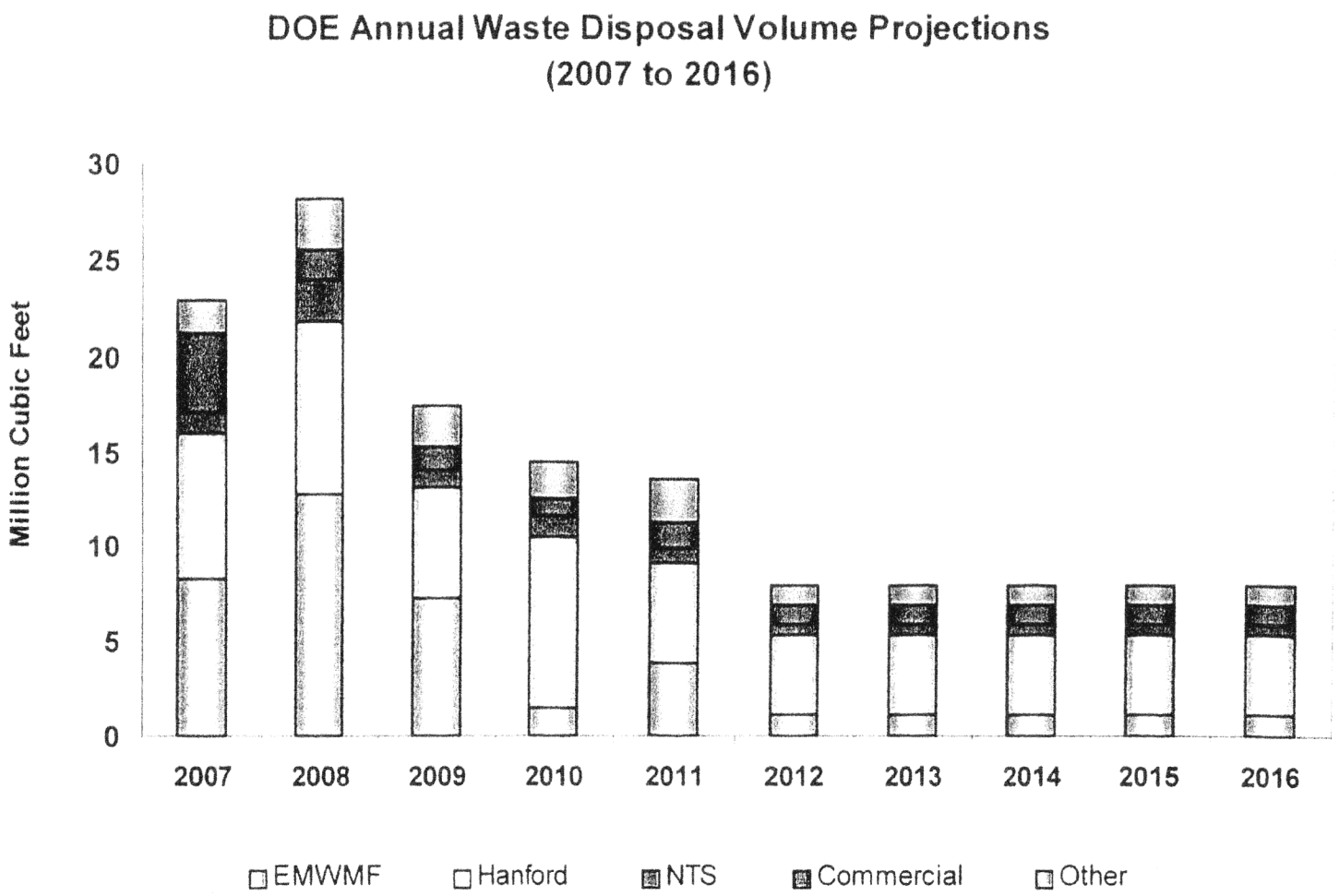
DOE Rocky Flats Closure Project

ENERGY SOLUTIONS



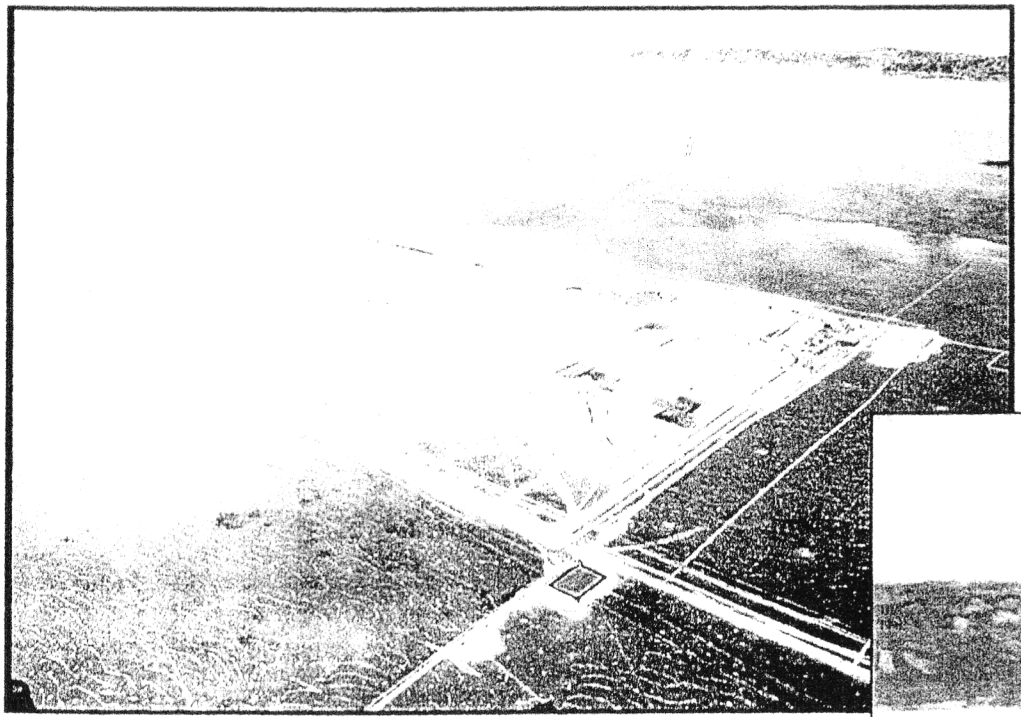
ENERGY SOLUTIONS

DOE Waste Disposal Projection



ENERGY SOLUTIONS

Utah and Nevada Desert



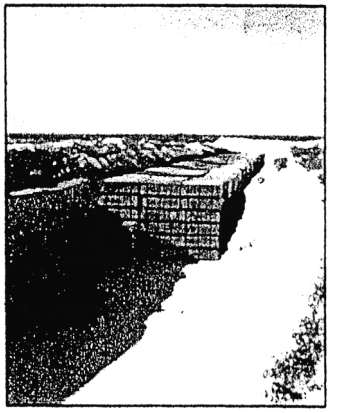
Clive, Utah

Nevada Test Site

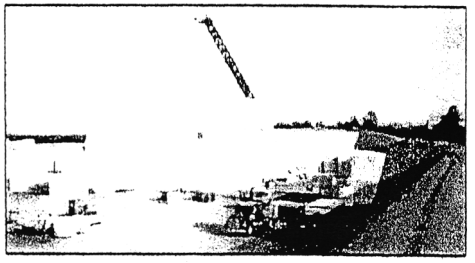
Containerized vs. Bulk Disposal

ENERGYSOLUTIONS

- Disposing of containers is more costly than bulk disposal
- Disposal packages contain voids
  - Burying void space increases costs
  - Uses valuable disposal capacity
  - Negative impact on long-term integrity of the disposal embankment

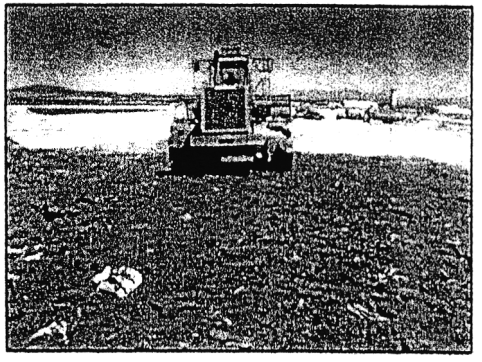


NTS



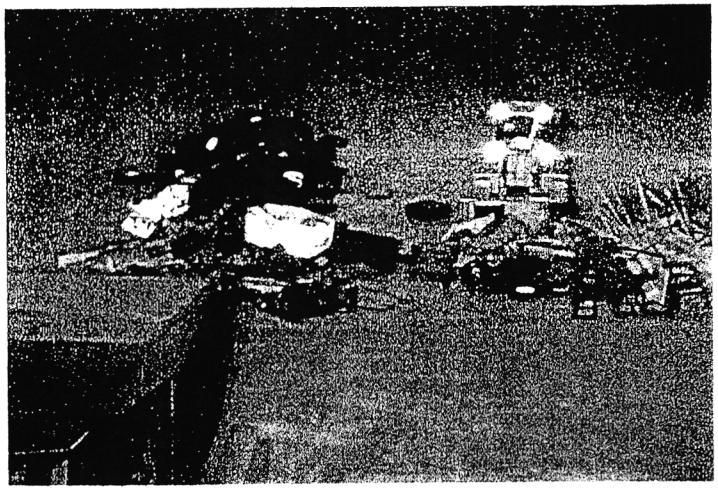
Barnwell

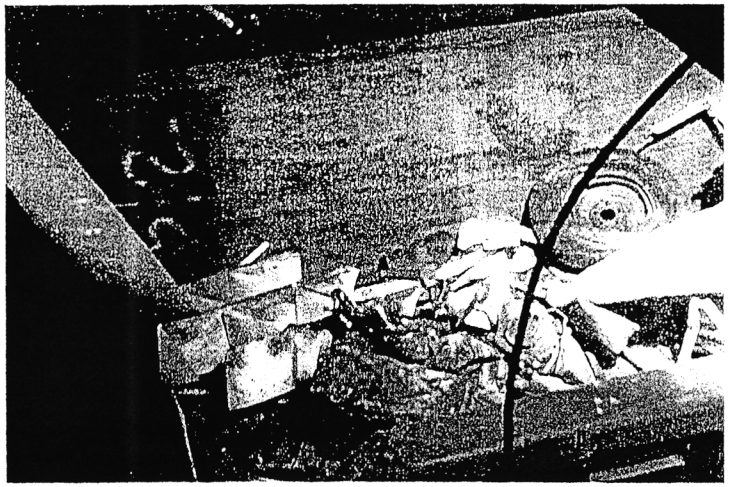
Clive

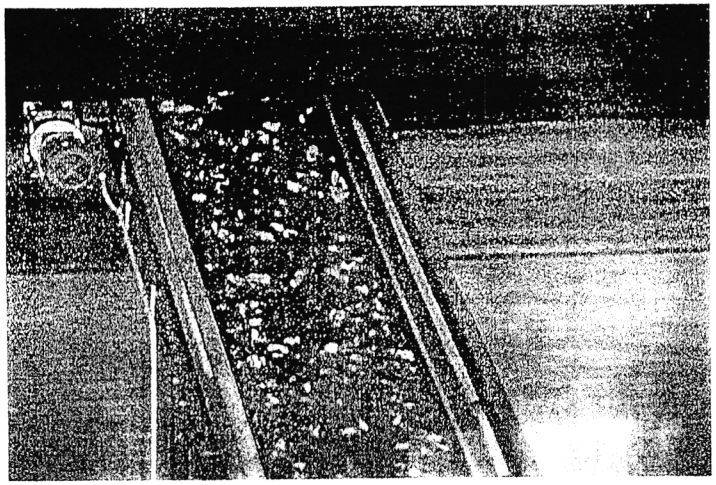


ENERGY SOLUTIONS

Shredder – Minimizes Voids







ES Volume Comparisons

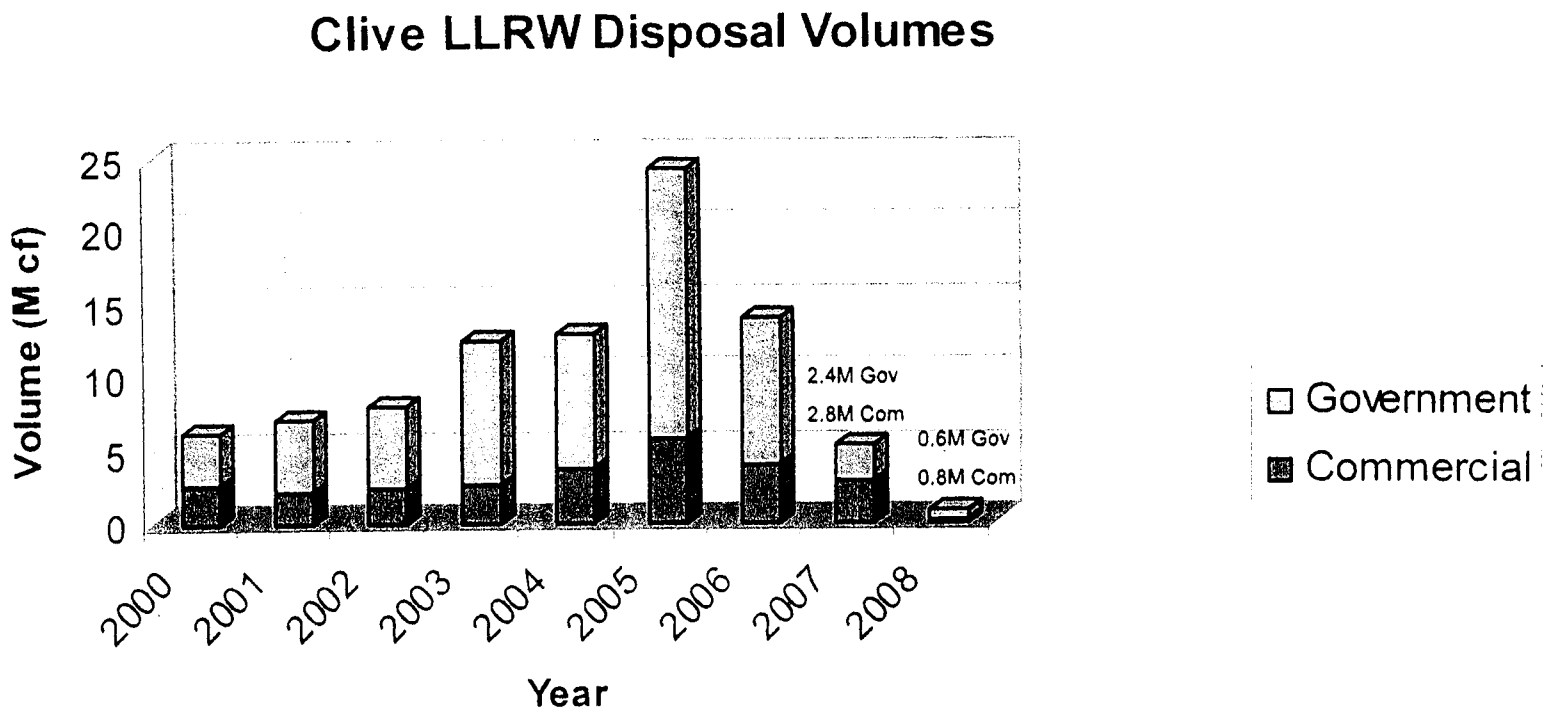
	LARW and Class A Cells			
Year	Volume Manifested (1) [yd^3]	Total Volume Placed (2) [yd^3]	%	Description
2001	385,551(3)	752,000	**195%**	Placed debris at 10% ratio; large volumes of W.R. Grace placed with sand fill
2002	399,979	394,951	**99%**	Increased debris ratio to 30% of lift volume; better use of waste soils as fill with debris
2003	505,897	682,406	**135%**	
2004	509,992	378,442	**74%**	High volumes of soil received
2005	829,999	626,148	**75%**	New compactor allowed increase to 50% debris ratio; volume includes Class A North

Footnotes: 1) ES volume receipt reports to DRC (200[illegible] - 2005)
2) ES Annual Activity Reports to DRC (2001 - 2005)
3) Original ES volumes reported in ft^3, converted here to yd^3

From 8/25/06 TIS Submittal

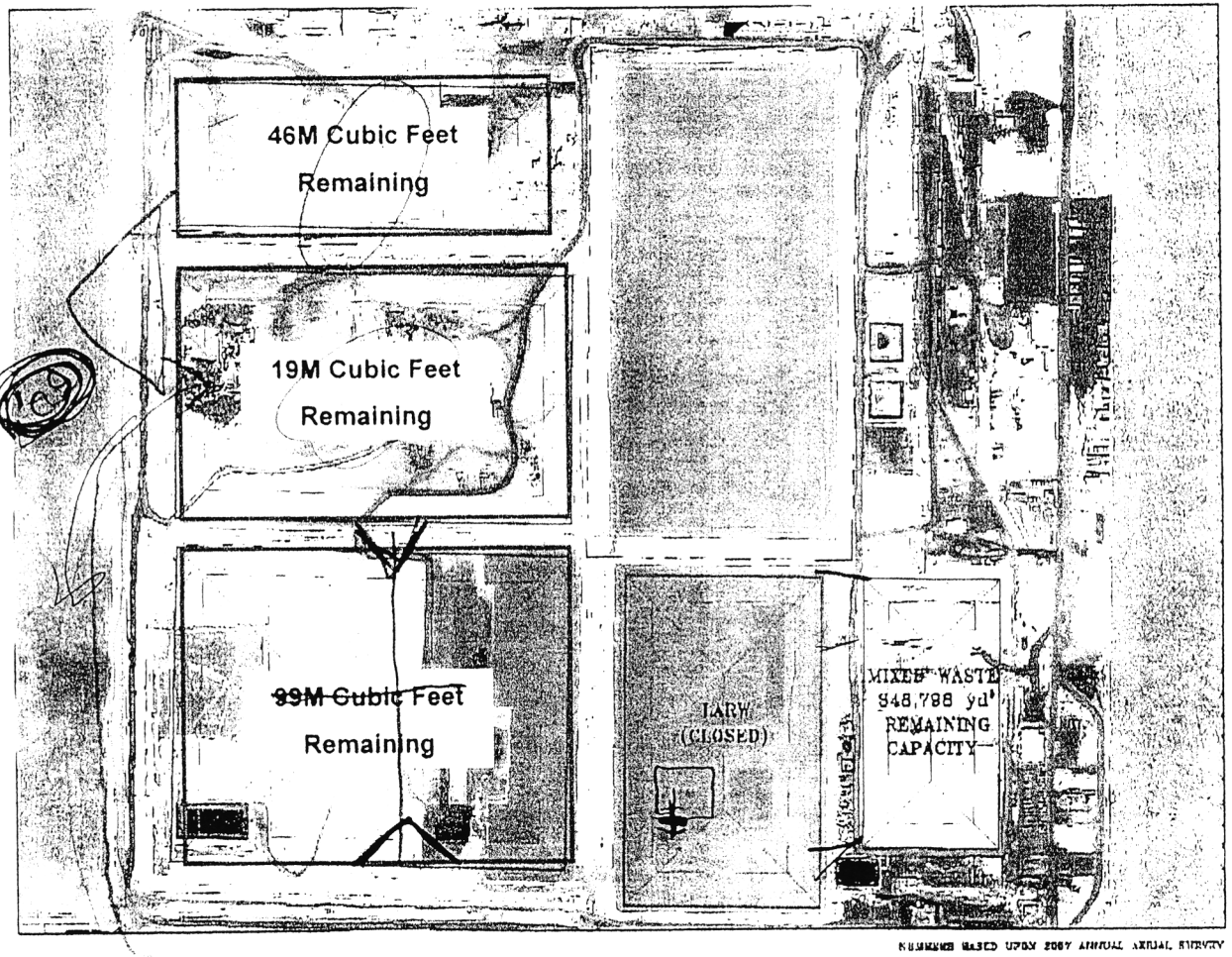
ENERGY SOLUTIONS

Clive Volume Trends



ENERGY SOLUTIONS

Clive Remaining Capacity



ENERGY SOLUTIONS

Clive Remaining Capacity

(~150M Cubic Feet Remaining)

Annual Receipt Approach

- 6M cubic feet received each year
- 4.5 M cubic feet of cell space used each year
- Over 33 years remaining

Total Amount of Waste Approach

- 104 Reactors
- 1M cubic feet of decommissioning waste for each reactor
    - Rip and Ship – Experienced with Maine and Connecticut Yankee
- Total Clive receipt if all came to Clive: 104M cubic feet
- Cell space used: 78M cubic feet
- 72M cubic feet remaining for Federal needs (96M cubic feet at receipt)

ENERGY SOLUTIONS

Summary

- Key Issues Affecting Disposal Capacity
  - Barnwell June 30, 2008 cutoff for out-of-compact waste
    - Affects Class B/C waste decisions for commercial generators
    - No apparent affect on Class A waste
  - NTS Mixed Waste Capacity
    - Optimal for Class B/C MW
- HLW – Yucca Mountain, Reprocessing
- No short-term problem for largest volume generated (NORM, Class A LLRW, DOE > Class A LLRW)

V. Radioactive Waste Disposal

b. Consideration of a License Amendment for Depleted Uranium Disposal at Energy*Solutions* (Board Action Item)

Condition 35. Depleted Uranium:

A. Background: The Nuclear Regulatory Commission (NRC) has acknowledged some inadequacies in its past analyses and possibly its current regulatory structure with respect to disposal of substantial quantities of depleted uranium (DU). As a result, it has started a rulemaking process to determine the conditions under which DU and other unique wastes may be safely disposed of in near surface facilities. NRC has stated that new regulatory standards and guidance will be the likely result from that rulemaking process, and that new performance assessments will likely also be required. Rulemaking by the Division of Radiation Control (DRC) would also likely be follow. EnergySolutions has indicated to the Division that it would prefer not to wait until the completion of the NRC's and DRC's rulemaking processes or until completion of the resulting performance analysis that will likely be required before it begins to dispose of depleted uranium at the Clive facility. The additional license conditions in this Condition 35 are therefore required.

B. Burial Depth: The Licensee shall place all wastes with DU concentrations greater than 5 percent (by weight) a minimum of 10 feet below the top of the cover.

C. Performance assessment: A performance assessment, in general conformance with the approach used by the Nuclear Regulatory Commission (NRC) in SECY-08-0147, shall be submitted for Executive Secretary review and approval no later than December 31, 2010. The performance assessment shall be revised as needed to reflect ongoing guidance and rulemaking from NRC. For purposes of this performance assessment, the compliance period will be a minimum of 10,000 years. Additional simulations will be performed for a minimum of a 1,000,000-year time frame for qualitative analysis.

D. Revised disposal embankment design: If the performance assessment specified in paragraph 35C indicates that changes to disposal operations and cover design are necessary to ensure compliance with the requirements of 10 CFR Part 61 or Utah Administrative Code R313, EnergySolutions will provide a revised design that does meet those requirements, for all wastes that have been and are reasonably anticipated to be disposed of at the facility, within 180 days of Executive Secretary approval of the performance assessment.

E. Remediation: If, following the completion of NRC's and DRC's regulatory processes described in paragraph 35A, the disposal of DU as performed after the date of this license condition would not have met the requirements of those new regulatory and performance standards, the facility will undertake remediation to ensure that those new regulatory and performance standards are met, or, if that is not possible, shall remove the DU and transport it off-site to licensed facility. Before accepting substantial quantities of DU for disposal after the effective date of this license condition, EnergySolutions shall provide evidence that it is feasible

to meet this condition 35.E. Compliance with this provision is required even if EnergySolutions has complied with paragraph 35D.

F. Surety: The Licensee shall fund the surety for the remediation, in License Condition 35 E. Within 30-days of the effective date of this license condition, the licensee shall submit for Executive Secretary review and approval, the surety cost estimates for remediation of existing Savannah River DU waste disposal and planned, similar, large quantity DU waste disposal. .

VII. Other Division Issues (Board Information Item)

a. Division Activities Report

Division of Radiation Control
Activities Report

September, 2009 Violations Assigned a Severity Level I, II, or III or where a Monetary Penalty has been proposed.

Central Utah Clinic, Provo, Utah; Severity Level III

A Notice of Violation was issued because the licensee failed to secure licensed radioactive material from unauthorized removal or access. The inspector detected radioactive material in trash cans that were only supposed to contain ordinary, non-radioactive trash.

EnergySolutions, Salt Lake City, Utah; Severity Level III

A Notice of Violation was issued on June 30, 2009, because the licensee released a C-Van container from the facility that did not meet removable contamination limits.

3rd Quarter Report

X-Ray Program

Current Registrations: 2534
Inspection Conducted: 137
Inspections Conducted by Qualified Experts: 40

Radioactive Materials Program

Current Licensees: 193 representing 179 licenses, a decrease of three
Radioactive Material Inspection: 20
One new license was issued, ten licenses were renewed and 16 license amendment were completed.

Low-Level Radioactive Waste Program

Seventeen inspections were conducted at EnergySolutions in the following areas:11-general radiation safety, 4-engineering and 2-groundwater permit.

Uranium Mill Program

Seventeen inspections were conducted at two facilities: Denison Mines, Blanding, Utah, 13 inspections; Rio Algom, Lisbon Valley, 3 inspections and Uranium One, Ticaboo, Utah, 1 inspection.

Generator Site Access Permit Program

Four hundred thirty eight manifested shipments were inspected.