

Mendiola, Doris

Subject: FW: LLW Forum's DSWG Comments on Revised Draft Revision 1 of CA BTP
Attachments: Bladey Letter re LLW Forum Comments on Revised Draft CA BTP 10.6.12.pdf;
FinalLLWForumCommentsreRevisedDraftCABTPDated10.6.12.docx

From: Bladey, Cindy
Sent: Saturday, October 06, 2012 4:50 PM
To: Mendiola, Doris; Gallagher, Carol
Subject: Fw: LLW Forum's DSWG Comments on Revised Draft Revision 1 of CA BTP

6/11/2012
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From: llwforuminc@aol.com <llwforuminc@aol.com>
To: Bladey, Cindy
Cc: Kennedy, James; Ridge, Christianne; Suber, Gregory; Camper, Larry
Sent: Sat Oct 06 16:47:17 2012
Subject: LLW Forum's DSWG Comments on Revised Draft Revision 1 of CA BTP

(A)

1619 12th Street, NW
Washington, DC 20009

October 6, 2012

Cindy Bladey
Chief
Rules, Announcements, and Directives Branch (RADB)
Office of Administration
Mail Stop: TWB-05-B01M
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

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RULES AND DIRECTIVES
BRANCH
USNRC

Dear Cindy Bladey:

On behalf of the Low-Level Radioactive Waste Forum's (LLW Forum) Disused Sources Working Group (DSWG), please accept the attached comments on the U.S. Nuclear Regulatory Commission's (NRC) revised draft Revision 1 of its Branch Technical Position on Concentration Averaging and Encapsulation (Draft CA BTP). The comments have also been submitted via the federal rulemaking web site per the instructions in the associated *Federal Register* notice dated June 11, 2012.

The LLW Forum formed the DSWG in September 2011 at the request of and with financial support from the National Nuclear Security Administration (NNSA). The purpose of the working group is to study issues related to the management and disposition of sealed sources, using a holistic approach that considers both the front-end and back-end, and to develop a list of potential action items and recommendations to address the issues. The working group is composed of eight (8) members representing New York, Texas, Utah, Washington, Atlantic Compact, Midwest Compact, Rocky Mountain Compact, and Southeast Compact.

Due to the potential impact of the Draft CA BTP to significantly increase the disposal of sealed Sources, the DSWG members undertook a comprehensive review of the Draft CA BTP to develop comments for consideration by the NRC, which the working group then submitted by letter dated February 20, 2012. After publication of the revised document for

CONSE Review Complete
Template = ADM-013

¹ E-RIDS = ADM-03
Call = J. Kennedy (JEKI)

stakeholder comment in the *Federal Register* on June 11, 2012, the working group reviewed NRC's changes and developed the attached supplemental comments.

Given the role of the sited states in regulating low-level radioactive waste disposal facilities, DSWG members relied heavily upon input from representatives of the four sited states of South Carolina, Texas, Utah and Washington in conducting its initial and supplemental review of all elements of the Draft CA BTP.

In reviewing the attached document, please note that the original State or LLW Forum comment is presented in BLACK. The NRC staff's conclusion or resolution of the issue is then presented in GREEN and the LLW Forum's additional comments for further consideration by NRC staff are then presented in RED.

On behalf of the DSWG, I want to thank the NRC-including, in particular, James Kennedy and Christianne Ridge for their assistance during our review of the Draft CA BTP and for the agency's consideration of the DSWG's comments. We believe this is an important document that has potentially significant impacts on the disposal of sealed sources and other low-level radioactive wastes and we sincerely appreciate the opportunity to provide the attached feedback and comments.

If you have questions or require additional information, please feel free to contact me at (202) 265-7990 or at LLWForuminc@aol.com.

Regards,

Todd D. Lovinger, Esq.
Executive Director
LLW Forum, Inc.

Attachment

cc

Larry Camper, Division of Waste Management & Environmental Protection, Office of Federal & State Materials & Environmental Management Programs,
U.S. Nuclear Regulatory Commission

James Kennedy, Division of Waste Management & Environmental Protection, Office of Federal & State Materials & Environmental Management Programs,
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Feedback re NRC Staff Responses to Comments from the LLW Forum & Sited States on the Draft CA BTP

Submitted to NRC by the LLW Forum
October 2012

BACKGROUND

The U.S. Nuclear Regulatory Commission (NRC) received formal comments from the four States that regulate LLRW disposal facilities (Washington, South Carolina, Utah, and Texas) and the Low-Level Radioactive Waste Forum (LLW Forum) in February 2012. Each of their comments is addressed in this document.

NRC staff is treating their comments separately because the Agreement States are co-regulators of disposal of LLRW under the Atomic Energy Act of 1954.

ANALYSIS OF COMMENTS

NRC staff's analysis of comments for which additional feedback is being offered are listed in the sections below. The comments are grouped by organization.

The original State or LLW Forum comment is presented in BLACK. The NRC staff's conclusion or resolution of the issue is then presented in GREEN and the LLW Forum's additional comments for further consideration by NRC staff are then presented in RED.

South Carolina Department of Health and Environmental Control

1. The significant increase in the sealed-source activity limits:
 - a. Disposal fees and taxes at the Barnwell Disposal Facility are based on volume, not activity. An increase in the maximum activity for sealed sources per container would mean more source term for the Disposal Facility with no corresponding increase in funds for long-term care at the facility.

NRC Staff Response: The staff notes the State's comment. The State can determine the means by which funds are collected for long-term care of the facility. With respect to the increase in activity for sources in the BTP, the staff's revised position is based on protection of public health and safety.

LLW Forum Additional Comment: NRC should acknowledge that it may be difficult for states to raise fees in current economic conditions, and that the NRC would support the potential need for fee increases.

2. Public Outreach:

- a. Upon finalization of the revision to the BTP, would NRC consider conducting public meetings in sited states to assist states in addressing concerns of the stakeholders adjacent to the disposal sites?

NRC Staff Response: Yes, the NRC staff believes this would be beneficial and would be willing to conduct or participate in meetings on the BTP revisions with stakeholders in the vicinity of the disposal sites, assuming availability of funds and upon request by the affected States.

LLW Forum Additional Comment: In the future NRC should also agree to attend and support sited state public involvement meetings during their proposal phase.

3. Enforceability:

- a. We are never able to absolutely verify the waste classification or homogeneity even under the current BTP. We currently must rely on generators' process knowledge and analytical results (typically dose-to-curie conversions using scaling factors). We require the disposal facility to review the paperwork to confirm that the methodology and calculations are satisfactory. Additionally, since about 1997, the Barnwell Disposal Facility is required to forward for SC DHEC review all Class C waste disposal requests whether applying the guidance in the CA BTP or not (although we only require a cover letter describing the request and the classification documentation (i.e., RadmanTM analysis) and not the entire voluminous paperwork package). If we have questions after our review, we may ask to see the entire package or other supporting data.

It would be helpful if a disposal facility's waste acceptance criteria (as approved by the state regulator) required the generator to identify what sections of the guidance in the CA BTP, if any, are being applied in the waste classification process for each waste package. It could be in the form of a checklist. This is an approach that sited states could use to help identify these waste packages and associated generators thereby providing opportunity for paperwork auditing at the least. Including such guidance in the CA BTP would be helpful to sited states as well.

NRC Staff Response: The staff acknowledges this comment and several others by States in which the issue of obtaining additional assurance in the waste classification performed

by waste generators and processors shipping to disposal facilities is raised. As the State has noted, this issue is not unique to the revised BTP. Currently, the paperwork required of generators shipping waste to a disposal facility is specified in Appendix G, 10 CFR Part 20, the uniform manifest provisions. The staff cannot require additional paperwork with a shipment without changing the rule.

The staff is aware of at least several tools that sited States can use to have reasonable assurance that waste is classified correctly. These include:

- The Washington Department of Health (DOH) began the Point-of-Origin Inspection Program in 1992. The goal of the program is to identify any deficiencies at generator facilities prior to waste being shipped for disposal. Identifying deficiencies before the waste is shipped will reduce subsequent packaging or waste form violations upon receipt at the commercial LLRW disposal site. DOH achieves this goal through random inspections of generator facilities. Washington is currently the only state in the nation that conducts point-of-origin inspections. This program was used as a basis for a Model Inspection and Verification Program (DOE/LLRW-185) that was developed as guidance for other states.
- The Utah Department of Environmental Quality implements a Generator Site Access Permit program that provides additional assurance that generators have classified their waste appropriately. See Utah Radiation Control Rules R313-26.
- The U.S. Department of Energy published a report, "Methods for Verifying Compliance with Low-Level Radioactive Waste Acceptance Criteria," (DOE/LLRW-185) that may also have useful information. This report was based on the Washington Department of Health generator inspection program.
- Waste Controls Specialists has developed a Waste Acceptance Plan that addresses oversight of waste generators' classification of radioactive waste. The State of Texas has authority to oversee the implementation of this plan.

The Agreement States regulate all of the LLRW disposal sites in the United States, and as noted above, have implemented several requirements to obtain assurance that generators classify waste appropriately. The staff believes that the States, given their experience in implementing the BTP, are in a better position to address this issue, by, for example, incorporating requirements into the disposal facility waste acceptance criteria. To the extent that the BTP can provide useful guidance on this topic, the staff is open to suggestions for specific language that might be added to the BTP. The staff is also willing to participate in discussions with the States on any discussions related to this issue with the goal of providing additional assurance to sited States that waste has been appropriately classified.

LLW Forum's Additional Comment: It is understood that the NRC staff cannot *require* additional paperwork with a shipment without changing the rule. It has been stated many times that the BTP is guidance, and not a requirement. As such, it seems to be an

appropriate document in which to not only provide technical guidance but to encourage the concurrent use of administrative tools (such as additional documentation to accompany the manifest) that may increase stakeholder confidence. Also, not all states have the resources to conduct site visits to generator and processing facilities. Since the public may perceive the revisions to the BTP as being less restrictive for generators and processors, language that guides these facilities to substantiate waste classification determinations under the new guidance would provide a reasonable balance to the proposed revisions. Therefore, NRC should consider adding language to the BTP that would strongly encourage generators to provide additional documentation as necessary to aid sited states in confirming the proper waste classification for each shipment.

Suggested draft language is as follows:

"Generators and processors should work closely with disposal facilities and state regulators to develop supporting documentation that would accompany the waste shipment manifest for shipments where the CA BTP is utilized in classifying the waste shipment. This documentation may include information such as the following: identification of the parts of the guidance that were used in the waste classification; a summary of pertinent data, calculations and/or processes used in classifying the waste; a certification statement that all data and calculations have been verified as correct and that the classification was performed in accordance with the guidance; a written signature by a company official."

While this approach alone does not guarantee appropriate waste classification, it enhances communication, increases confidence, and provides for generator/processor accountability.

4. Benefit to very large generators

- a. As stated previously, the current disposal facility license is more stringent than the 1995 BTP with regards to sealed source activity. Disposal is limited to 0.35 Bq (10 Ci) per container without special approval. Currently in SC, there are only three licensed Cs-137 sources greater than 0.35 TBq (10 Ci). There is one licensed source between .35 TBq (10 Ci) and 1.1 TBq (30 Ci), one between 1.1 TBq (30Ci) and 4.8 TBq (130 Ci), and one that is greater than 4.8 TBq (130 Ci). The first two would require special approval for disposal at Barnwell even under the new BTP. (We have not collected information from Connecticut and New Jersey - the other states in the Atlantic Compact). What is expected to be the impact to sited states as far as number of sources that potentially will be disposed based on the new guidance compared to the current? If it is a small number, could these be approved on a case-by-case basis instead?

NRC Staff Response: The staff determined that the sealed source activity limits can be safely increased in the BTP to facilitate disposal of a significant number of sources. For example, the DOE Offsite Source Recovery Project (OSRP) stated in its April 18, 2011, letter to NRC that the current BTP is having the unintended result of preventing a large number of non-GTCC radioactive sources from being disposed of in commercial LLRW

disposal sites. It noted that these sources are some of the sources that are of greatest concern from a national security perspective. Aside from sources in storage at the OSRP, commercial licensees have more than 2000 Category 1 and 2 Cesium 137 sources currently in use that will eventually be retired and need a disposal option. Nearly 200 are between the 1995 BTP recommended limit of 1.1 TBq (30 Ci), and the revised BTP recommended limit of 4.8 TBq (130 Ci). Future users of sources will need disposal options as well.

With respect to the use of alternative approaches, as noted above the number of sources is not small, and a large number of case-by-case approvals may be needed. In addition, given the potential national security issues associated with sealed sources, the staff believes that the process for authorizing disposal should not only be safe, but also efficient. The BTP's position that sources below a certain activity can be safely disposed of in any disposal facility, based on the generic analysis in the Appendix B of the BTP, will facilitate the safe disposal of the sources and eliminates the need for a case-by-case review.

LLW Forum Additional Comment: NRC should add that this is guidance and does not force sited state to accept larger sources.

Utah Division of Radiation Control

1. Increase in Sealed Source Activity

- a. We are concerned about the dramatic increase in the allowed sealed source concentration limit, e.g., from 1.1 TBq (30 Ci) to 4.8 TBq (130 Ci) for Cs-137. While we recognize that the August 2011 draft BTP was based on a "carry-away" scenario, it is unclear how a sealed source concentration limit could be derived, given that:
 - Less Shielding Present—considering short term direct skin contact with the source (and not the drum) for 4 hours while in transit to the residence [an assumption used in the revised draft of the BTP] and the longer term exposure, less dense intervening materials (less than cement) to shield the intruder while inside his/her residence.
 - Greater exposure time—in that now the intruder would reside in the home for about 16 hours/day for many years, and not 8 hours during a temporary excavation project.

Additional explanation and justification seems warranted to address the increased sealed source concentration limit. Careful coordination is also needed to ensure the back-calculations are consistent with the inadvertent intruder scenarios.

NRC Staff Response: The staff has used reasonable, yet conservative assumptions for the current draft BTP that are somewhat less conservative than those used in the 1995 BTP. Enclosure 2 of the 1995 BTP describes in detail the assumptions for the radiation exposures. An exposure time of 2360 hours at a distance of one meter was used in both of the scenarios that are the bases for the 1995 BTP positions. Appendix B of the revised

draft similarly describes the assumptions for the “carry-away” scenario that exposes the intruder to radiation. The staff assumed that the exposure to a source would be for 4 hours at 3 cm, plus 15 hours/week at two meters. Thus, both the 1995 BTP and revised draft use scenarios that involve lengthy exposure times and which are more conservative than the “intruder-discovery” scenario in the DEIS, which involved an exposure time of only a few hours. The differences in assumptions, as described here and in more detail in the two versions of the BTP, accounts for the difference in recommended limits for sealed source disposal. The calculations for the 4.8 TBq (130 Ci) limit in the revised draft were verified. It should also be noted that if these additional scenarios had not been used, 34 TBq (920 Ci) of Cs-137 could be disposed of as Class C waste when encapsulated in a 0.2 m³ (55 gallon) drum, using the 10 CFR § 61.55 concentration limits.

LLW Forum Additional Comment: NRC should add that this is guidance and does not force sited state to accept larger (higher activity) sources.

- b. Sealed sources are of a concern in that they generally constitute large activity, small volume sources of radioactivity, and thus appear to conflict with the original mission and purpose of the Clive facility (large volume, low activity). Thus, increased Class A activity limits resulting from the proposed sealed source disposal have potential to be in conflict with Clive’s original mission, and deserve careful consideration. Review of the historic NRC findings on sealed sources is also in order. In the 1981 NRC DEIS the inadvertent intruder analysis concluded that elimination of sealed sources from LLRW classification would result in a decrease of dose on the order of more than 2-orders of magnitude.

NRC Staff Response: The NRC staff is aware that the Clive facility was originally licensed for disposal of naturally occurring radionuclides and bulk waste, and that the license has been amended over the years to accept other kinds of radioactive waste. The State, as an NRC Agreement State, has the authority to amend the license to accept other types of waste. With respect to the BTP, it is NRC guidance and the State is not required to use it.

With respect to increased Class A activity limits, only one radionuclide in the sealed source tables increased in the revised draft. Cs-137 increased from 111 MBq (0.003 Ci) in 1995 to 266 MBq (0.0072 Ci) in the revised draft. The rest of the radionuclide limits remained the same, except for Co-60, which was significantly reduced.

With respect to sealed sources, the DEIS analysis for 10 CFR Part 61 included large americium-241 sources which are now classified as greater-than-class C waste and not currently permitted to be disposed of in a 10 CFR Part 61 facility. The high doses modeled in the DEIS from sealed sources were specifically from Am-241, which was modeled at a concentration 3600 times higher than the concentration limit in the final Part 61 regulations. Disposal of sources in accordance with the guidance in the revised BTP will ensure the safety of an inadvertent intruder and compliance with inadvertent intruder performance objective in 10 CFR § 61.42.

LLW Forum Additional Comment: NRC should add that this is guidance and does not force sited state to accept larger (higher activity) sources.

2. Factor of 10:

- a. This is a more complex classification process and doing away with the Factor of 10 Rule and substituting instead a 2 page, 13 step decision tree adds more complexity to waste classification, and provides more opportunities for generators to err. It also places more burden for generators and State regulators to inspect waste treatment and classification.

NRC Staff Response: The Factor of 10 that was eliminated from the BTP constrained the blending of mixable waste (i.e., non-discrete items). It was replaced with a performance-based homogeneity test, and is reflected in the 1-page 4-node decision process in Figure 3. Most of the decision tree the commenter refers to relates to the classification of discrete items.

In general, the NRC staff understands concerns about the complexity of the BTP and has tried to make the draft revised BTP less complicated than the current 1995 BTP. For example, the 1995 BTP includes separate positions for mixtures of activated metals, and mixtures of contaminated materials, and mixtures of cartridge filters; whereas the 2011 draft of the BTP combines these three sets of guidance into a single position. Additionally the bases for the 2011 positions are all clearly described in Appendix B of 2011 draft BTP, whereas the 1995 BTP does not always justify its positions in Enclosure 2 (e.g., the basis for the Table B values are not described in Enclosure 2 of the 1995 BTP). The 1995 BTP, similar to the current draft, contains a 2 page 14 step decision tree.

LLW Forum Additional Comment: NRC should add that this is guidance and does not force sited state to accept larger (higher activity) sources.

3. Benefit to Very Large Generators:

- a. Larger sealed source owners will benefit from the new guidance, and not disposal States. CAE BTP Figure 1 flowchart shows how “coffee cup” sized items with certain activity levels are separated from the waste form, and then undergo another series of tests. In turn, the NRC Figure 2 tests allow “coffee cup” sized items to be diluted by encapsulation and averaging over a larger volume container. This dilution provides a potential for generators to segregate small items with elevated activity and down-grade their classification. Taken to an extreme, GTCC equivalent material could be downgraded to Class C, or Class B/C equivalent materials could become Class A. This potentially would benefit generators with GTCC sources or who are mandated by law to manage GTCC waste.

NRC Staff Response: The encapsulation position in the BTP that provides for averaging of sources and other small items over the volume of a 0.2 m³ (55 gallon) drum is the same in the 1995 BTP. It is a widely used practice, and provides for stability of the

waste, makes movement of the waste by an inadvertent intruder more difficult because of its increased bulk, and provides for improved isolation of the radionuclides from water infiltration. At the same time, the 0.2 m³ (55 gallon) drum volume limits the amount of credit for averaging. This approach has been widely used by States and is widely accepted as an appropriate waste management practice.

The revised draft of the BTP increases the allowable source size from 1.1 TBq (30 Ci) to 4.8 TBq (130 Ci) for Cs-137, e.g., still well below the 34 TBq (920 Ci) limit that would be allowed using the Class C limit for Cs-137. This revision will benefit the entire country by providing that a larger number of sealed sources can be permanently disposed of, the safest and most secure method for their management.

LLW Forum Additional Comment: NRC should add that this is guidance and does not force sited states to accept larger (higher activity) sources.

4. Alternative Approaches:

- a. Use of PA model analysis for alternative approaches has the potential to exploit an inherent disconnect between host States and generator States. If this “off-ramp” is used, host States will need to develop detailed Waste Acceptance Criteria (WAC) to ensure that generators properly prepare, package and ship their waste to be consistent with the specific intruder scenarios and waste form (physical/chemical) assumptions used in the approved PA model analysis for each disposal site. This could lead to extensive WAC guidelines that could vary from host State to host State, and waste class to waste class. This has the potential for additional burden on disposal States to communicate and educate generators and their regulators on how to comply with new WAC guidelines.

NRC Staff Response: The staff acknowledges the concern. As noted above, the Commission has directed the staff to develop a rulemaking that would require site-specific intruder assessments to be performed by licensees. As with any new rule, States will have to invest resources in implementing the rule, including addressing stakeholder concerns raised during the States’ rulemaking processes. The staff is willing to participate in public workshops to explain changes to the BTP in the sited States, consistent with available resources.

LLW Forum Additional Response: NRC could address this concern by adding Waste Processors as a non-common performance indicator to IMPEP and including sited state staff as IMPEP team members.

5. Enforceability Issue:

- a. To a large degree the CAE BTP has the same flaw as the 1995 BTP guidance; in that separate regulatory jurisdictions govern different activities (generators vs. disposal), have different interests and motivations, and are separate and independent of one another. As such, generator States are more apt to worry about elimination and transfer of the waste from their jurisdiction, and pay less attention to disposal site considerations (e.g. design / site factors, PA analysis results, etc.). Because disposal States will live with the long-

term fate and consequences of LLRW disposal, they are more likely to be concerned about adverse effects that waste treatment, classification, and packaging may have on their local environment and public health from the perspective of both near term and “deep time”; but are without legal jurisdiction or reach to oversee or enforce waste characterization/classification by the generator.

In addition, the CAE BTP (Figures 1 and 2) classification guidance for each waste container is just that - guidance. There is no guarantee that it will be uniformly applied in all generator States. Utah will be dependent on each generator State agency to voluntarily implement the new guidance for each generator. NRC will not be able to compel the generator Agreement States to invoke the guidance. It is likely that there will be a high degree of variability on if, how and when, the new guidance is implemented in generator States. While the CAE BTP calls for generator States to cooperate with disposal State regulators (*ibid.*, p, 4); there is no guarantee it will happen.

NRC Staff Response: A basic premise of the Atomic Energy Act Agreement State program is that each State will have a program that is adequate and compatible with NRC’s regulations, ensuring protection of the public health and safety. NRC conducts periodic reviews of Agreement State programs to determine if they remain adequate and compatible. Thus, whatever different interests States might have regarding LLRW management cannot affect their responsibility to protect public health and safety. This responsibility includes ensuring that requirements relevant to intruder protection are appropriately implemented.

The staff disagrees in part that Utah will be dependent on generator Agreement States to implement the new guidance, since Utah has the authority to establish conditions for acceptance of waste at their regulated facility. Incoming waste must meet these requirements, even if the States in which the generators are located have different requirements for waste classification.

The staff understands that States with disposal facilities may want to have increased assurance and documentation that waste shipped from other States has been appropriately classified. As noted in response to comment no. 6.a from the State of South Carolina, there are several possible approaches for increasing this assurance, such as the State of Washington’s use of point-of-origin inspections. Additionally, the staff is willing to work with States on this issue.

LLW Forum Additional Comment: NRC should add Waste Processors as a non-common performance indicator to IMPEP, and include sited state staff as IMPEP team members. The sited state member could then ensure that the waste processor has appropriate license conditions and operating procedures.

- b. It is true that the CAE BTP suggests that in the case of conflict between disposal site waste acceptance criteria (WAC)/License requirements and the generating State waste treatment process/requirements, that the disposal State requirements should prevail (*ibid.*, p. 24). Unfortunately, this posture is unenforceable, in that the disposal State has no legal

jurisdiction over the out-of-State generator, and cannot directly enforce its WAC/License requirements beyond its borders.

NRC Staff Response: The State can enforce its requirements for waste that has been shipped to the disposal site. In addition, the State of Utah has a Generator Site Access Permit program. That program requires that generator's permit applications include a certification to the State that the shipper shall comply with all applicable State or Federal laws, administrative rules and regulations, licenses, or license conditions of the land disposal facility regarding the packaging, transportation, storage, disposal and delivery of radioactive wastes. In addition, generators that ship waste must meet the manifesting requirements of 10 CFR § 20.2006, which references Appendix G, 10 CFR Part 20, "Requirements for Transfers of Low-Level Waste Intended for Disposal at Licensed Land Disposal Facilities and Manifests." Among many requirements in this Appendix are that generators must certify that material transported to the disposal site is properly classified.

LLW Forum Additional Comment: NRC could address this concern by adding Waste Processors as a non-common performance indicator to IMPEP and including sited state staff as IMPEP team members.

- c. The current EnergySolutions (ES) License requires ES to apply the existing 1983 and 1995 NRC guidance documents via the waste prohibitions in License Condition 16.L, that stipulate that ES not accept a package of LLRW unless it has been:

- "i. Classified in accordance with R313-15-1009, "Classification and Characteristics of Low-Level Radioactive Waste." In addition, the Licensee shall require that all radioactive waste received for disposal meet the requirements specified in the Nuclear Regulatory Commission, "Branch Technical Position on Concentration Averaging and Encapsulation", as amended.*
- ii. Marked as either Class A Stable or Class A Unstable as defined in the most recent version of the "Low-Level Waste Licensing Branch Technical Position on Radioactive Waste Classification." originally issued May, 1983 by the U.S. Nuclear Regulatory Commission. ..."*

From the first paragraph, the intent of the License is to indirectly mandate that generators properly package and classify the LLRW in accordance with the 1995 NRC BTP requirements. However well-meaning this requirement, it is currently un-inspectable; in that the Utah DRC (UDRC) has no authority in the generator States, nor are we easily able to independently verify if generators actually classify their waste as required. Instead UDRC is dependent on the generators to perform and the NRC or other Agreement States to confirm this. UDRC is without legal power or reach to independently verify if generators actually comply with the NRC classification guidelines.

NRC Staff Response: See response to previous question 6.a. The staff is aware of at least several methods that sited States can use to have reasonable assurance that waste is classified correctly. These include:

- The Washington Department of Health (DOH) began the Point-of-Origin Inspection Program in 1992. The goal of the program is to identify any deficiencies at generator facilities prior to waste being shipped for disposal. Identifying deficiencies before the waste is shipped will reduce subsequent packaging or waste form violations upon receipt at the commercial LLRW disposal site. DOH achieves this goal through random inspections of generator facilities. This program was used as a basis for a Model Inspection and Verification Program (DOE/LLRW-185) that was developed as guidance for other states.
- The Utah Department of Environmental Quality implements a Generator Site Access Permit program that provides additional assurance that generators have classified their waste appropriately. See Utah Radiation Control Rules R313-26.
- The U.S. Department of Energy (DOE) published a report, “Methods for Verifying Compliance with Low-Level Radioactive Waste Acceptance Criteria” (DOE/LLRW-185) that may also have useful information. This report was based on the Washington Department of Health generator inspection program.

The States regulate all of the LLRW disposal sites in the U.S., and as noted above, have implemented several requirements to obtain assurance that generators classify waste appropriately. The staff believes that the States, given their experience in implementing the BTP, are in a better position to address this issue, by for example, incorporating requirements into the disposal facility waste acceptance criteria. To the extent that the BTP can provide useful guidance on this topic, the staff is open to suggestions for specific language that might be added to the BTP.

LLW Forum Additional Comment: NRC should add Waste Processors as a non-common performance indicator to IMPEP, and include sited state staff as IMPEP team members. The sited state member could then ensure that the waste processor has appropriate license conditions and operating procedures to comply with their requirements.

6. NRC/ACRS:

- a. Comment - “... it appears the ACRS prefers NRC use a short period of performance... In contrast, NRC staff appears to view the problem in terms of “deep time” ...”

NRC Staff Response: Staff agrees with ACRS that a shorter period of performance is appropriate. In the 1995 BTP and in the August 2011 draft revision to the BTP, NRC staff used 100, 300 and 500 year timeframes, identical to those timeframes used in the 1981 DEIS and the 1982 FEIS for Part 61, to ensure that intruder doses are within acceptable limits, consistent with the technical bases for the waste classification tables in 10 CFR § 61.55.

LLW Forum Additional Comment: We agree that historically the NRC has used consistent timeframes for inadvertent intruder analysis, construction of the waste classification tables in 10 CFR 61.55, and development of agency guidance. However, the existing NRC rule at 10 CFR 61.42 mandates that the disposal facility ensure that an inadvertent intruder, a site occupant, or those persons that might contact the waste be protected “ ... *at any time after active institutional controls over the disposal site are removed.*” For Class A and B waste ¹, the active institutional control period is defined as a maximum of 100 years [see 10 CFR 61.7(b)(4)]. In contrast, it appears that the existing 10 CFR 61.42 requirement could be applied to a much longer period of time for inadvertent intruder analysis for low-level radioactive waste with long-lived isotopes and especially for wastes such as depleted uranium that exhibit significant in-growth of daughter products.

- b. Comment - “...Opposite Behavior of Depleted Uranium ...From the ACRS letter, it appears the advisory group prefers a shorter 1,000 year period of performance ...”

NRC Staff Response: The BTP does not specifically address disposal of depleted uranium. Concentration averaging is not a significant issue in the disposal of depleted uranium tails from enrichment plants.

Although the staff and ACRS agreed on a number of issues, as noted earlier, there is no requirement that the ACRS and the staff agree on all issues. The ACRS provides its views to the Commission, as an organization independent from the NRC staff.

LLW Forum Additional Comment: NRC should acknowledge the significant in-growth of DU progeny over extended periods of time (10,000 years or greater), and the increased public health risk that comes with it.

7. Waste Acceptance Criteria (WAC):

- a. The proposed guidance relies on disposal site WAC's (founded on site-specific PA analysis) to guide generators in the waste classification process. This added complexity for generators (and their regulators) could lead to increased errors in waste preparation, packaging, and classification for disposal.

NRC Staff Response: NRC staff and stakeholders found the existing 1995 BTP to be difficult to understand and the staff has improved its clarity which should reduce errors and misinterpretations. That said, site-specific WAC's can implement all, or none, or part of the BTP. For example, if a site-specific assessment demonstrates that some of the BTP's underlying intruder scenarios are highly unlikely, the associated averaging constraints may not be needed.

¹ Class C waste is defined as that material that will remain hazardous to an intruder beyond 100 years (see 10 CFR 61.7(b)(5)).

In any case, generators need to take steps necessary to ensure that preparation, packaging, and classification are performed in accordance with the WAC. They may be subject to enforcement action if they did not meet the waste acceptance criteria.

LLW Forum Additional Comment: NRC should add Waste Processors as a non-common performance indicator to IMPEP, and include sited state staff as IMPEP team members. The sited state member could then ensure that the waste processor has appropriate license conditions and operating procedures to comply with their requirements.

- b. When disposal states lack legal reach on generators, such errors can increase potential jeopardy for disposal state public health and environment.

NRC Staff Response: As noted in response to an earlier comment (No. 6.a from the State of South Carolina), a basic premise of the Atomic Energy Act Agreement State program is that each State will have a program that is adequate and compatible with NRC's regulations, and that will ensure protection of the public health and safety. NRC conducts periodic reviews of Agreement State programs to determine if they remain adequate and compatible.

In addition, Utah has the authority to establish conditions for acceptance of waste at the Clive facility. These requirements must be met by generators from other States that ship waste for disposal, even if the States in which the generators are located have different requirements for waste classification.

The staff understands that States with disposal facilities may want to have increased assurance and documentation that waste shipped from other States has been appropriately classified. As noted in response to South Carolina comment 6.a, there are several possible approaches for increasing this assurance, such as the State of Washington Point-of-Origin inspections. The staff is willing to work with States on this issue.

LLW Forum Additional Comment: NRC should add Waste Processors as a non-common performance indicator to IMPEP, and include sited state staff as IMPEP team members. The sited state member could then ensure that the waste processor has appropriate license conditions and operating procedures to comply with their requirements.

- c. Disposal states should have the ability to promulgate rules that are more stringent than NRC to protect their public health and environment.

NRC Staff Response: NRC has various categories of compatibility that are defined in an internal procedure "*Compatibility Categories and Health and Safety Identification for NRC Regulations and Other Program Elements - SA-200*" (ADAMS Accession No. ML042820600). The compatibility of rule provisions can range from essentially identical requirements with the NRC rule, to no compatibility requirements. The NRC coordinates with States in the development of rules, including the assignment of compatibility categories. The BTP is NRC guidance and is not subject to compatibility requirements.

LLW Forum Additional Comment: NRC should work directly and specifically with sited states on compatibility issues that relate to disposal of LLRW.

- d. In deciding compatibility categories for new rules, NRC must provide flexibility in order to allow disposal states to afford this protection to its citizens.

NRC Staff Response: As noted above, NRC's has a detailed procedure for assigning compatibility categories. Some flexibility is afforded to the States, depending upon the specific rule provision. See NRC's internal procedure SA-200 (ADAMS Accession No. ML042820600).

LLW Forum Additional Comment: NRC should work directly and specifically with sited states on compatibility issues that relate to disposal of LLRW.

Texas Commission on Environmental Quality Comments

1. General:

- a. Although the draft BTP adds a sentence in the introduction in response to comment that it is expected that Agreement States that regulate processing and those that regulate disposal "would consult one another," this is the only reference to how this will be applied across the States. Without NRC leading the way to foster this cooperative approach, the statement falls short of having any impact. There is a disconnect between the regulation and inspection at the point of waste generation/processing and the implications for the regulation at the disposal sites. A passive approach to coordination will leave a disconnect related to classification of waste and regulation of that waste from the handling/processing licensee to the disposal licensee.

NRC Staff Response: The staff is willing to discuss approaches for ensuring that regulatory agencies appropriately coordinate in ensuring that waste is classified appropriately. As noted in response to the State of South Carolina's comment No. 6.a, Agreement States have implemented programs for better ensuring that waste that is received by disposal facilities is appropriately classified. The staff also notes that this issue has not been created by the revisions to the BTP, but is an issue that existed previous to the NRC's revision of the BTP.

LLW Forum Additional Comment: NRC should add Waste Processors as an uncommon indicator to IMPEP, and include sited state staff as IMPEP team members. The sited state member could then ensure that the waste processor has appropriate license conditions and operating procedures to comply with their requirements.

2. Blending:

- a. A related issue in the blending discussion is the attribution of waste generator to a processor. This is a possible side-effect of blending that is problematic for disposal

States. There are State requirements for identification and record-keeping of each original waste generator. The possible attribution to another entity at any point in the waste processing cycle complicates the disposal State fulfilling its responsibility for identification of waste generator.

NRC Staff Response: NRC regulations address attribution of waste in 10 CFR Part 20, Appendix G, "Requirements for Transfers of Low-Level Radioactive Waste Intended for Disposal at Licensed Land Disposal Facilities and Manifests." Specifically, Appendix G defines the term, "residual waste" as "LLRW resulting from processing or decontamination activities that cannot be easily separated into distinct batches attributable to specific waste generators. This waste is attributable to the processor or decontamination facility, as applicable." The NRC requirements for attribution, which are based on health and safety considerations, do not always satisfy the needs of the sited States and Compacts who may want to know the origin of waste. The staff understands that States with operating disposal facilities have been able to obtain the additional information on the origin of waste from waste processors. This issue was addressed in the staff's paper on LLRW blending, SECY-10-0043.

LLW Forum Additional Comment: NRC should add Waste Processors as an uncommon indicator to IMPEP, and include sited state staff as IMPEP team members. The sited state member could then ensure that the waste processor has appropriate license conditions and operating procedures to comply with their requirements.

3. Increase in Sealed Source Activity:

- a. It appears the focus is on changes for larger commercial sealed source disposal in sited states. The scope of this issue should not solely focus on the back-end disposal remedy for sealed sources. If front-end issues are not also addressed in recognition of their impact to future available options, the problem will not be solved.

NRC Staff Response: The Federal government has other initiatives to address front end issues associated with sealed sources, such as financial assurance for disposal of the disused sources. The *Energy Policy Act of 2005* directed the Radiation Source Protection and Security Task Force, to evaluate and provide recommendations relating to the security of radiation sources in the United States from potential terrorist threats, including acts of sabotage, theft, or use of a radiation source in a radiological dispersal device. The task force is comprised of independent experts from 14 Federal agencies and two State organizations, the Conference of Radiation Control Program Directors and Organization of Agreement States, and is chaired by the NRC. The independent task force members represent agencies with broad authority over all aspects of radioactive source control, including regulatory, security, intelligence, and international activities. The Task Force report addresses improvements in source tracking, licensing, transportation and import/export, along with disposal.

The Task Force published a 257 page report in August 2006 (ADAMS Accession No. ML062440453) with numerous findings and recommendations, and updated the report in

August 2010 (ADAMS Accession No. ML101890508). At an October 19, 2011, meeting in Santa Fe, New Mexico, the NRC staff briefed the LLRW Forum's Disused Source Working Group, including members from the sited States, on how front end sealed source issues are being addressed.

The staff agrees that front-end issues are important, but believes they are being appropriately addressed.

LLW Forum Additional Comment: NRC's continued commitment to addressing front end issues will address this concern.

4. Alternative Approaches:

- a. Although NRC has opened up these alternative options in the revised BTP, it does not address the underlying reasons why sited States have not taken these considerations up to this point. By less reliance on standard acceptance criteria approved by sited State regulators, there is a level of confidence given to the abilities and resources available to every waste generator/processor shipping for disposal. For sited States, these are licensed entities which they largely do not regulate nor have impact over waste handling and classification decisions.

NRC Staff Response: The staff appreciates the sited States' desire to have assurance that waste shipped for disposal is appropriately classified. Potential methods for gaining assurance are addressed in response to comment 6.a from the State of South Carolina. At the same time, other approaches for averaging can provide for safe disposal of wastes that would otherwise have to be stored, including sealed sources that potentially pose a national security threat. One of NRC's goals in revising the BTP is to make it more performance-based, i.e., to allow for a variety of approaches that achieve one of the desired outcomes, the protection of an inadvertent intruder.

LLW Forum Additional Comment: NRC should add Waste Processors as an uncommon indicator to IMPEP, and include sited state staff as IMPEP team members. The sited state member could then ensure that the waste processor has appropriate license conditions and operating procedures to comply with their requirements.

5. Regulation by Disposal States:

- a. For disposal States, waste for disposal comes from generators/processors that they do not regulate nor have impact over waste handling and classification decisions. Other State regulators and the NRC, who do have authority over generators/processors, have different regulatory emphasis than the sited States and are independent. Even if it is assumed that the NRC-prescribed consultation occurs among regulators on each decision, there are inherent drivers that will always impact how disposal concerns from disposal States regulators are considered and potentially acted upon.

NRC Staff Response: As noted in an earlier response to a comment, a basic premise of the Atomic Energy Act Agreement State program is that each State will have a program that is adequate and compatible with NRC's regulations, ensuring protection of the public health and safety. NRC's policy on adequacy and compatibility also provides for flexibility in Agreement State program implementation to accommodate individual State preferences, State legislative direction, and local needs and conditions. NRC conducts periodic reviews of Agreement State programs to determine if Agreement State programs remain adequate and compatible. Thus, whatever different interests and regulatory emphasis NRC and other States might have regarding LLRW management cannot affect their responsibility to protect public health and safety.

The staff understands that States with disposal facilities may want to have increased assurance and documentation that waste shipped from other States has been appropriately classified. As noted in response to Comment 6.a from the State of South Carolina, there are several possible approaches for increasing this assurance, such as the State of Washington point-of-origin inspections. Additionally, the staff is willing to work with States on this issue.

LLW Forum Additional Comment: NRC should add Waste Processors as an uncommon indicator to IMPEP, and include sited state staff as IMPEP team members. The sited state member could then ensure that the waste processor has appropriate license conditions and operating procedures to comply with their requirements.

6. Recommendations for Consideration:

- a. There should be a more focused public outreach in each of the disposal states, in order to discuss the practical implications of the changes and possible waste disposal alternatives to be considered. The NRC could hold public meetings in each of the disposal states and should use the sited state interested party notification lists to alert the public and other stakeholders.

NRC Staff Response: The staff will participate in meetings in the sited States to discuss the final version of the revised BTP, if requested by the States and subject to available resources. The staff can describe changes to the 1995 version, the reasons for them, the variety of views received from stakeholders, and benefits of the changes, such as increased disposal options for sources if the CA BTP is used by the States. With respect to the interested party notification, the staff will work with the States if a public meeting is requested to ensure that as many of the potentially interested stakeholders are notified of a meeting as possible.

LLW Forum Additional Comment: In the future NRC should also agree to attend and support sited state public involvement meetings during the proposal phase.

- b. The draft BTP should discuss and support independent or joint point-of-origin inspections of waste processors by the sited States. The NRC should sponsor BTP regulatory oversight training classes for sited State personnel and for States with waste

processors. The NRC should include sited State personnel as IMPEP team members for audits of states with waste processors.

NRC Staff Response: The purpose of the BTP is not to prescribe inspection and oversight procedures, which are designed to ensure that regulations and guidance are being appropriately implemented. The BTP is a guidance document to assist both regulators and regulated entities with waste classification. Given the States' interest in obtaining additional assurance that the BTP provisions are being appropriately implemented, however, the staff is willing to participate in training classes. As noted in earlier comment responses (Comment 6.a from the State of South Carolina), there are a variety of methods that sited States could use to increase oversight, and more focused discussion among the sited States is probably warranted. The staff is also willing to participate in these discussions.

With respect to IMPEP reviews, FSME Procedure SA-120, "*Agreement State Participation as IMPEP Team Members*" contains specific guidance on Agreement State participants in IMPEP. IMPEP frequently uses Agreement State technical expertise in LLRW as part of the team.

LLW Forum Additional Comment: NRC should add Waste Processors as an uncommon indicator to IMPEP, and include sited state staff as IMPEP team members. The sited state member could then ensure that the waste processor has appropriate license conditions and operating procedures to comply with their requirements.

LLRW Forum Disused Source Working Group Comments (Note that comments that were already addressed above in sited States' letters are not included here.)

1. Increase in Sealed Source Activity:
 - a. The BTP should clearly make a statement against the destruction of sealed sources in order to meet the blending definition and requirements.

NRC Staff Response: The staff will consider this recommendation but believes it is premature to take this position in the BTP on this waste management technique. The Department of Homeland Security Nuclear Government Coordinating Council and Nuclear Sector Coordinating Council on the Removal and Disposal of Disused Sources published a report on June 30, 2010, entitled "Sealed Source Disposal and National Security: Recommendations and Messaging Strategy." The report recommended that NRC and the Agreement States consider expanded physical destruction of sources. The staff is seeking additional views on this issue from stakeholders on this technique, especially in the context of concentration averaging, given the recommendations in the above report.

LLW Forum Additional Comment: Since the NRC desires to receive additional views from stakeholders on the physical destruction of sealed sources, especially in the context of concentration averaging, you should provide more details. In order for stakeholders to

provide meaningful responses, the BTP should include a detailed scenario that discusses the physical destruction techniques, source criteria, and any limitations being considered by the Federal Government.

2. Performance Assessment:

- a. Sited State stakeholders could challenge the new performance assessment's (PA) generic exposure scenarios for being too conservative or not conservative enough.

NRC Staff Response: The staff acknowledges the comment. The staff has received substantial input from stakeholders with a wide variety of views, and carefully considered each comment. Some, such as the Advisory Committee on Reactor Safeguards, have advocated for less stringent provisions than the staff has adopted in the revised draft BTP. The staff does not expect to eliminate every stakeholder concern, but is committed to documenting how each stakeholder comment has been addressed and how protection of public health and safety is being maintained.

LLW Forum Additional Comment: NRC should consider using the sited states interested party notification lists to ensure that interested parties and stakeholder groups in each of the sited state are notified of proposed changes.

3. Enforceability Issue:

- a. Although the NRC guidance in the revised BTP is primarily designed for generators, who are required to certify that they meet the Class A, B, or C waste classifications in Part 61, it should be noted that the sited States may be burdened with increased costs to ensure compliance.

NRC Staff Response: The number of constraints is approximately the same and all would require review to ensure compliance. States currently review waste classification by generators to ensure compliance with the applicable regulations and license conditions. Only the Alternative Approaches section is new and could be used by licensees to request regulators to approve other methods of averaging.

LLW Forum Additional Comment: NRC should add Waste Processors as an uncommon indicator to IMPEP, and include sited state staff as IMPEP team members. The sited state member could then ensure that the waste processor has appropriate license conditions and operating procedures to comply with their requirements.

4. Waste Acceptance Criteria (WAC):

- a. The NRC should consider adding a new non-common indicator to the Integrated Materials Performance Evaluation Program (IMPEP) for the revised BTP.

NRC Staff Response: The staff does not believe that the BTP warrants the status as a non-common performance indicator in the IMPEP program. IMPEP indicators are for

large programmatic areas such as low-level waste disposal and uranium recovery. The BTP is a single guidance document covering a limited aspect of the overall LLRW management and disposal program. Implementation of the BTP could be selected for review of an Agreement State program by the IMPEP team.

LLW Forum Additional Comment: NRC should add Waste Processors as an uncommon indicator to IMPEP, and include sited state staff as IMPEP team members. The sited state member could then ensure that the waste processor has appropriate license conditions and operating procedures to comply with their requirements.

- b. The BTP should discuss and support independent or joint point-of-origin inspections of waste processors by the sited States.

NRC Staff Response: See response to State of South Carolina Comment 6.a.

LLW Forum Additional Comment: NRC should add Waste Processors as an uncommon indicator to IMPEP, and include sited state staff as IMPEP team members. The sited state member could then ensure that the waste processor has appropriate license conditions and operating procedures to comply with their requirements.

- c. There should be a more focused public outreach in each of the sited States, in order to discuss the practical implications of the changes and possible waste disposal alternatives to be considered.

NRC Staff Response: The staff will participate in public meetings upon request of the sited States, consistent with available resources.

LLW Forum Additional Comment: NRC should consider using the sited states interested party notification lists to ensure that interested parties and stakeholder groups in each of the sited state are notified of proposed changes.