W552-40 See response to W552-3.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

What About USDOE's "promise" of a waste import moratorium?

- USDOE says it promises not to import and bury waste at Hanford until Vitrification Plant is operational, around 2020 to 2022
- This is an unenforceable promise which USDOE will be free to ignore at any time
- Waiting a few years is designed to eliminate public concern now, but does NOTHING to eliminate all the harmful impacts
- USDOE's credibility is undermined by refusing to withdraw the existing decision to use Hanford as a national radioactive waste dump from 2004; and, refusal to say it would do a new environmental impact statement with hearings before attempting to import waste. Why would USDOE include Hanford NOW, if going to do new EIS and fresh analysis in 2022?

W552-40

Heart of America Northwest, Commenter ID No. W552 (cont'd)

USDOE's suggestion it might limit the Technetium and Iodine sent to Hanford in GTCC Waste, to avoid making cumulative impacts worse, is meaningless

- As TCWMEIS data shows, impacts from numerous other radionuclides and chemicals released to Hanford groundwater are projected to exceed Drinking Water and CERCLA / MTCA cleanup standards for thousands of years. GTCC and GTCC Like wastes include Plutonium, which is already projected to exceed the DWS at the Central Plateau Core Zone Boundary by 177 times and at the Rivershore by over 300 times. Chromium is projected to exceed DWS in the Core Zone by 16 x. The GTCC and GTCC like wastes include Plutonium mixed wastes – with chemicals that make the wastes more mobile. Removal of Tc99 and Iodine from GTCC wastes will not prevent unacceptable impacts to groundwater and health from GTCC disposal. Uranium alone is projected to reach levels resulting in doses of over 600 mrem/year from GTCC waste releases.
- USDOE presents no plan for how it would remove Tc99 and Iodine, where such treatment would occur and fails to discuss if treatment exists for the waste streams which would allow removal and disposal at a location other than Hanford.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

W552-41

W552-42

W552-43

W552-41 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts at this site will continue. DOE's ROD 78 FR 75913, dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions, as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

W552-42 See response to W552-5.

W552-43 The action alternatives evaluated in the GTCC EIS did not include interim storage of GTCC LLRW and GTCC-like wastes until a geologic repository, in granite or otherwise, for spent nuclear fuel and high-level radioactive waste becomes available because such interim storage is outside the scope of the GTCC EIS. The purpose of the GTCC EIS is to evaluate the range of reasonable alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes.

The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

DOE did not evaluate developing a geologic repository, such as in the granite shield, exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

W552-44 The primary radiological transportation risk to the public for any alternative is from the low level of radiation emanating from the transport vehicle. As discussed in Section 5.3.9.1, the collective population risk is a measure of the total risk posed to society as a whole. A comparison of the collective population risk provides a meaningful evaluation of the relative risks between disposal locations, as provided in Tables 2.7 5 and 2.7 6. The magnitude of the collective population risk is primarily determined by the number of routes, the length of each route, the number of shipments along each route, the external dose rate of each shipment, and the population density along a given route. The primary differences between alternatives from the standpoint of transportation are the lengths of the routes as determined by the location of the disposal sites (destination of the shipments). Thus, higher collective population risks are associated with alternatives that require transportation over longer distances. All alternatives involve routes that have similar characteristics, with no significant differences for comparison among alternatives, requiring transportation through a range of rural and urban areas. In addition, the routes used in the analysis are considered representative routes (as discussed in Appendix C, Section C.9.4.1.1, because the actual routes used would be determined in the future. For each disposal site, the routes most affected would be the interstate highways that are in closest proximity to the site.

W552-45 The EIS evaluated the transportation impacts from the shipments that would be required to dispose of all of the GTCC LLRW and GTCC-like wastes at the various disposal sites. The EIS addressed the collective population risks during routine conditions and accidents, the radiological risks to the highest exposed individuals during routine conditions, and the consequences to individuals and populations as a result of transportation accidents, including those that could release radioactive or hazardous chemical materials. About 12,600 shipments would be required to transport all of the GTCC LLRW and GTCC-like wastes to the Hanford Site for disposal. This would result in about 50 million km (30 million mi) of highway travel, with no significant addition to the cumulative risks (no expected LCFs and one fatality directly related to an accident might occur for GTCC LLRW and GTCC-like waste transport) (see Section 6.2.9.1).

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Key Comments continued:

5. USDOE needs to redo EIS and reissue for comment with the actual truck routes to Hanford through Oregon and WA and the cumulative risks from USDOE's other proposal to truck 3 million cubic feet of radioactive waste to Hanford W552-44
   - Would equal nearly 30,000 truckloads
   - 4 a day to Hanford for decades W552-45
   - USDOE needs to show dose and risks based on the maximum allowed radiation dose 1 & 2 meters from the trucks with exposure times based on actual inspection protocols and actual routes and parking.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Key Comments continued:

6. The cancer risks and groundwater contamination should disqualify use of Hanford for any more offsite wastes W552-46
7. USDOE has to disclose and consider the total (cumulative) risks from all proposals to add more waste to Hanford in one EIS and the public deserves right to review and comment on that EIS – not just have USDOE say it will combine in a final EIS without public comment. (The GTCC EIS and the TCWMEIS must both be revised to disclose and consider cumulative impacts from the related proposals) W552-47

W552-46 See response to W552-11.

W552-47 DOE has considered cumulative impacts at the Hanford Site in this GTCC EIS. The disposal of GTCC LLRW and GTCC-like waste at the Hanford Site could result in environmental impacts that may warrant mitigation for Tc-99 and I-129 through limiting receipt of these waste streams (see Table 6.2.4.2 and Figure 6.2.4.1 in this EIS).

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

A preferred alternative is not required to be included in a Draft EIS. The Council on Environmental Quality regulations in 40 CFR 1502.14(e) specify that the section on alternatives in an EIS shall identify the agency's preferred alternative or alternatives, if one or more exists, in the Draft EIS and identify such alternative(s) in the Final EIS unless another law prohibits the expression of such a preference; that is, a preferred alternative shall be identified in the Draft EIS if one exists. If no preferred alternative has been identified at the Draft EIS stage, a preferred alternative need not be included. By the time the Final EIS is filed, 40 CFR 1502.14(e) presumes the existence of a preferred alternative and requires its identification in the Final EIS unless another law prohibits the expression of such a preference.

DOE did not have a preferred alternative at the time of issuance of the Draft EIS because of the complex nature of the proposed action and the potential implications for disposal of GTCC LLRW and GTCC-like wastes. To seek public input on how to identify a preferred alternative for inclusion in the Final EIS, the Draft EIS presented considerations for developing a preferred alternative in the Summary (in Section S.6) and in Section 2.9. As required by 40 CFR 1502.14(e), the Final EIS contains a preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes (see Section 2.10). In developing the preferred alternative, DOE took into consideration public comments on the Draft EIS, public EIS scoping comments, and other factors identified in Sections S.6 and 2.9 of the EIS.

The publication by the EPA of a NOA of the Final EIS in the Federal Register initiated a 30-day public availability or "waiting" period. While the availability period is not a formal public comment period, the public can comment on the Final EIS, including the preferred alternative, prior to final agency action. Comments received will be addressed by DOE in a ROD. As required by the Energy Policy Act of 2005, DOE must submit a Report to Congress that includes the alternatives considered in the EIS and await Congressional action before making a final decision regarding which alternative(s) to implement. The Report to Congress will be made available to the public on the GTCC EIS website (http://www.gtcceis.anl.gov/).

W552-48 See response to W552-11.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Key Comments continued:

8. USDOE fails to properly disclose groundwater impacts and health risks:

   USDOE needs to include the groundwater contamination from the leaking adjacent commercial radioactive waste dump – which the State's EIS says will add 22 millirem dose to groundwater users from Uranium on top of USDOE's 48 millirem dose from GTCC waste. USDOE must also add in the contamination risks from projected releases from the adjoining IDF landfill. W552-48

W552-49 See response to W552-30.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Key Comments continued:

8. *Continued re groundwater and dose*

The GTCC EIS fails to utilize the more realistic modeling for Hanford groundwater contamination spread developed for the TCWMEIS. The result is that the GTCC EIS greatly underestimates contamination, the rate of spread of contamination, and the human health impacts. E.g., The GTCC EIS projects maximum Uranium levels after 10,000 years. More appropriate models show the releases would peak much sooner, increasing the maximum dose and cancer risks during the next ten thousand years. The GTCC EIS fails to report the cancer risk from the peak Uranium levels, because they are projected in the GTCC EIS after 10,000 years. The use of a simpler model that fails to take into account specific subsurface features at Hanford – and, which has been shown to fail to reflect reality – violates commitments made by USDOE that the newer, more detailed model would be used in all upcoming environmental impact statements and other USDOE documents requiring modeling.

W552-50 In accordance with Council on Environmental Quality NEPA implementing regulations, Federal agencies are required to address the environmental impacts of the proposed action and the range of reasonable alternatives, to identify any adverse environmental effects which cannot be avoided, the relationship between short-term uses of man's environment and maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources. The proposed action and alternatives evaluated in this GTCC EIS are specifically focused on determining a suitable location for siting a safe, secure disposal facility or facilities for the disposal of GTCC and GTCC-like waste. DOE has identified relevant laws that may have a bearing on the evaluations contained in the GTCC EIS (see Chapter 13, Applicable Laws, Regulations, and Other Requirements). In addition, Federal agencies are also required, and DOE has addressed, potential impacts of reasonably foreseeable actions, whether they be potentially adverse or beneficial. Accordingly, readers are referred to the cumulative impacts discussion found in Section 5.3.12 of the Evaluation Elements Common to Alternatives 3, 4, and 5 Chapter, and Section 6.4.2 of the Hanford Chapter.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Key Comments continued:

8. *Continued re groundwater and dose*

The GTCC EIS should present dose in comparison to cancer risk standards in federal and state cleanup laws (CERCLA and MTCA) and using the standard comparison of how many additional cancers will be caused from annual exposure to the projected dose over the lifetime of the exposed individuals; e.g., a dose of 48 millirem per year would result in 24 fatal cancers in adults out of every ten thousand exposed (24E-4).

-USDOE fails to meet NEPA requirements to disclose and present relevant standards from cleanup laws and compare impacts to those standards. W552-50

W552-51 See response to W552-26.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Key Comments continued:

9. 70 millirem dose projected from the cumulative dose from releases from trench disposal of GTCC plus the nearby commercial radioactive waste dump = **approximately 2% risk of fatal cancers in children using the groundwater.*** ***This is a genocidal decision for the Tribes with Treaty rights to live on site and use the water.***

*Based on BEIR VII (Biological Effects of Ionizing Radiation Report VII, 2005, National Research Council, National Academies of Science). USDOE should be utilizing BEIR VII as the basis for all reporting of potential cancers from projected doses, and reporting the projected cancer incidence per ten thousand exposed children and women, rather than using adult male based dose effect figures. 70 millirem dose does not include releases from adjacent IDF landfill, which USDOE proposes to use as a national radioactive waste dump for 3 million cubic feet of offsite LLW and MW. Those cumulative impacts need to be included in the GTCC EIS and vice a versa.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

W552-52 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts will continue.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Higher Ground Farm, Commenter ID No. W354

From: gtcceiswebmaster@anl.gov
Sent: Thursday, June 23, 2011 1:49 PM
To: gtcceiswebmaster@anl.gov
Subject: Receipt: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10354

Thank you for your comment, Walter Kloefkorn.

The comment tracking number that has been assigned to your comment is GTCC10354. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 23, 2011 01:48:43PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10354

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Comment Submitted:
The USDOE's environmental impact statement (EIS) on the proposal to use Hanford as a national radioactive waste dump for the extremely radioactive GTCC wastes admits that putting the waste in landfill trenches at Hanford would result in annual radiation doses of 48 millirem per year to the people who will be drinking the groundwater - which flows straight to the Columbia.

That's a radiation level which would cause fatal cancers in approximately 1 to 2.5% of the Native American children living in the area under Yakama, Umatilla and Nez Perce Treaty Rights. W354-1

Those cancer risks and radiation doses do NOT include the doses from the adjacent landfill. Nor does it include the risk from the adjacent state operated UNLINED, leaking soil trenches of the commercial radioactive waste dump at Hanford.

We can't cleanup Hanford and protect our Columbia River while more waste gets dumped at Hanford - Please put Cleanup First!

1.First rule when you're in a hole and can't get out: Stop Digging! Hanford can not be cleaned up if USDOE adds any more waste to be buried in landfills or boreholes - the wastes in existing soil trenches and ditches and from tank leaks need to be removed. W354-2

2. Extremely radioactive wastes belong in deep underground repositories, not in landfills, boreholes or vaults. W354-3

1

W354-1 DOE has considered cumulative impacts at the Hanford Site in this GTCC EIS. The disposal of GTCC LLRW and GTCC-like waste at the Hanford Site could result in environmental impacts that may warrant mitigation for Tc-99 and I-129 through limiting receipt of these waste streams (see Table 6.2.4.2 and Figure 6.2.4.1 in this EIS).

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

Disposition of the GTCC LLRW and GTCC-like wastes will be handled in a manner that is protective of human health and the environment and in compliance with applicable requirements and regulations. Doses to workers and the public will be minimized to the extent practical. The methodology used to estimate the radiological human health impacts in the EIS is based on standard practices that are subject to revision as our understanding of the effects of radiation on humans evolves. The same methodology is used in the evaluation of all alternatives; thus, any modification of this methodology (e.g. taking an even more conservative approach for assessment of the area children) would not affect the comparisons among alternatives and the identification of the preferred alternative.

W354-2 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts will continue.

W354-3 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

Higher Ground Farm, Commenter ID No. W354 (cont'd)

3. Perhaps the most important point: USDOE needs to consider in the EIS how to avoid making more of these highly radioactive wastes. W354-4

4. USDOE has to disclose and consider the total (cumulative) impacts of both of USDOE's separate proposals to use Hanford as a national radioactive waste dump, and all the risks from trucking wastes to Hanford, in one environmental impact statement for the public to review and comment on the full picture. The GTCC EIS needs to disclose that USDOE is also proposing to add 3 million cubic feet of radioactive and chemical wastes to be disposed at Hanford, in addition to the GTCC wastes. W354-5

Questions about submitting comments over the Web? Contact us at: gtccelswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

2

W354-4 Stopping the generation of nuclear waste is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

W354-5 The GTCC EIS evaluates the transportation impacts from the shipments that would be required to dispose of the entire inventory of GTCC LLRW and GTCC-like wastes at the Hanford Site and all the other sites being evaluated.

The GTCC EIS evaluates collective population risks during routine conditions and accidents, radiological risks to the highest exposed individuals during routine conditions, and consequences to individuals and populations as a result of transportation accidents, including the release of radioactive or hazardous chemical materials. For the truck option, it is estimated that about 12,600 shipments resulting in about 50 million km (30 million mi) of travel would be required. This transport of GTCC LLRW and GTCC-like wastes would not result in any LCFs, although one fatality directly related to an accident might occur (see Section 6.2.9.1).

In addition, Chapter 6 of the TC&WM EIS also has evaluated cumulative impacts addressing disposal of potential future wastes (including GTCC LLRW and GTCC-like waste) at the Hanford site.

HOME, Commenter ID No. T45

33

MR. HADDER: Good evening. My name is Jonathan Hadder, H-A-D-D-E-R, and I'm representing an organization, 501-C3 Nonprofit, called "HOME," H-O-M-E, "Healing Ourselves and Mother Earth." We also watch out for nuclear issues in the region, and we will be submitting detailed comments later.

I just have a few general comments, at this time, that I want to put forward, for the record. You know, we recognize that there is a need to deal with Greater-than-Class C waste. Certainly, like, doesn't need to deal with spent nuclear fuel. We already have it. We have to figure out something to do with it.

However, we do feel like the process is a bit premature at this time. As has already been mentioned, the Blue Ribbon Commission has not issued their report to Congress. And, obviously, that document will have a lot to do with policy that follows it, and so we think we're a little premature on that. T45-1

Also, all of these sites do have policy implications because, as was already mentioned, you've got DOE-controlled sites versus places coming from commercial sources. So that's an -- that's an issue as well. T45-2

I guess if we were to have to select an T45-3

T45-1 The scope of this EIS is adequate to inform decision-making for the disposal of GTCC LLRW and GTCC-like waste. Sufficient information is available to support the current decision-making process to identify (an) appropriate site(s) and method(s) to dispose of the limited amount of GTCC LLRW and GTCC-like waste identified in the EIS.

DOE believes that this EIS process is not premature and is in compliance with NEPA. On the basis of an assumed starting date of 2019 for disposal operations, more than half (about 6,700 m^3 [240,000 ft^3] of the total GTCC LLRW and GTCC-like waste inventory of 12,000 m^3 [420,000 ft^3]) is projected to be available for disposal between 2019 and 2030. An additional 2,000 m^3 (71,000 ft^3) would become available for disposal between 2031 and 2035. This information is presented in Figure 3.4.2-1. DOE believes this EIS is timely, especially given the length of time necessary to develop a GTCC waste disposal facility.

The Blue Ribbon Commission (BRC) on America's Nuclear Future, in its final report to DOE on January 26, 2012, provided recommendations, which included the development of one or more permanent deep geologic facilities for the safe disposal of spent nuclear fuel and high-level radioactive waste and the development of one or more consolidated interim storage facilities as part of an integrated, comprehensive plan for managing the back end of the nuclear fuel cycle. In its Strategy for the Management and Disposal of Spent Nuclear Fuel and High Level Radioactive Waste (DOE 2013), developed in response to the BRC Report, the Administration agreed "that the development of geologic disposal capacity is currently the most cost-effective way of permanently disposing of used nuclear fuel and high-level radioactive waste while minimizing the burden on future generations" and proposed to "engage in a consent-based siting process and begin to conduct preliminary site investigations for a geologic repository." The Administration's goal is to have a repository constructed and its operations started by 2048. The Administration will work with Congress using the strategy as an actionable framework for building a national program for the management and disposal of the nation's used nuclear fuel and high-level radioactive waste (DOE 2013).

T45-2 The LLRWPAA (P.L. 99-240) assigns DOE responsibility for the disposal of GTCC LLRW generated by NRC and Agreement State licensees. The LLRWPAA (P.L. 99-240) specifies that GTCC LLRW, designated a federal responsibility under section 3(b)(1)(D) that results from activities licensed by the NRC, is to be disposed of in an NRC-licensed facility that has been determined to be adequate to protect public health and safety. However, unless specifically provided by law, the NRC does not have authority to license and regulate facilities operated by or on behalf of DOE. Further, the LLRWPAA does not limit DOE to using only non-DOE facilities or sites for GTCC LLRW disposal. Accordingly, if DOE selects a facility operated by or on behalf of DOE for disposal of GTCC LLRW for which it is responsible under section 3(b)(1)(D), clarification from Congress would be needed to determine NRC's role in licensing such a facility and related issues. In addition clarification from Congress may be needed on NRC's role if DOE selects a commercial GTCC LLRW disposal facility licensed by an Agreement State rather than by NRC.

T45-3 The No Action Alternative is evaluated in Chapter 3 of the EIS, and under this alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue. These practices are described in Sections 3.2 (GTCC LLRW) and 3.3 (GTCC-like wastes) in the Final EIS. It was necessary to make a number of simplifying assumptions to address the long-term impacts of this alternative, and these are described in Section 3.5. As part of this assessment, it was assumed that these wastes would remain in long-term storage indefinitely, including wastes from the West Valley Site as discussed in Section 3.5.3, and that no maintenance of either the storage facility or waste packages would occur after 100 years. These results indicate that very high radiation doses and cancer risks could occur under this alternative in the long term.

HOME, Commenter ID No. T45 (cont'd)

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1 alternative, we would have to select the No-Action
2 Alternative. We feel that -- we feel, as many others
3 have stated, that the Department of Energy needs to
4 either reevaluate or actually conduct a proper
5 environmental review of reinforced on-site storage for
6 a number of reasons.
7 This facility, as mentioned, could serve a
8 dual purpose, of course. It could handle spent nuclear
9 fuel, which we need to deal with which, as a reminder,
10 it is also in jeopardy now because it's very
11 dangerously stored at many radioactive -- excuse me --
12 at many nuclear sites across the country, packed very
13 densely. So we do need to find a better way to do the
14 on-site storage, period.
15 And the reenforced what they call "HOSS" is
16 one good way to do that. It certainly could handle the
17 Greater-than-Class C waste at the same time. And, also,
18 these facilities would be NRC sites, licensed sites.
19 So you wouldn't have the same kind of agency
20 machinations that we've talked about already here,
21 conflicts between the two.
22 Security is really one of the things that
23 seems to be driving this process a little bit, that the
24 sealed sources, which has been mentioned earlier, are a
25 terrorist risk. Well, again, this kind of facility can

T45-3 (Cont.)

T45-4

The No Action Alternative is evaluated in sufficient detail in the EIS as required by NEPA. Comparatively high potential radiation doses and cancer risks could occur should this alternative be selected. While a more detailed analysis could reduce the uncertainties associated with estimating these doses and risks, the conclusion of comparatively high impacts would not change for this alternative.

The No Action Alternative is evaluated in the EIS to provide a baseline for comparison with the action alternatives. This evaluation confirmed the risks posed by these wastes and the need to develop appropriate disposal capability. The potential radiation doses for the No Action Alternative covered a time period of 10,000 years in a manner comparable to that done for the action alternatives. Relatively high impacts could occur shortly after the 100-year institutional control period under this alternative.

T45-4 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

HOME, Commenter ID No. T45 (cont'd)

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be secured as well, and so it could handle all of those, all of those aspects of nuclear waste for the short term, which is what we need. T45-4 (Cont.)

We certainly need an intermediate term solution to the problem that we have now, and the reinforced on-site storage will buy us certainly 100 years, maybe a couple hundred years, to work on that. HOME, also, does not -- also supports dealing with waste as close to the source of generation, as close to the location of generation and to minimize transportation. And, again, this does this. T45-5

So we strongly encourage the Department of Energy to pursue environmental analysis of this alternative which certainly could be part of, in some way, the No-Action Alternative.

A couple of specifics I want to mention. The Draft EIS document, Environmental Impact Statement, does acknowledge, or at least it recognizes the existence of the Treaty of Ruby Valley between the Western Shoshoni Nation and the United States Government. And in that treaty, it outlines the land base of the Western Shoshoni people, which has actually gotten support in international law.

And the Draft EIS does not acknowledge or does not discuss how it's going to deal with the T45-6

T45-5 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

T45-6 DOE initiated consultation and communication with the 14 participating American Indian tribes that have cultural or historical ties to the DOE sites analyzed in the EIS. These interactions are summarized in Section 1.8 of the EIS, and they included several meetings, workshops, and the development of tribal narratives that were included in the EIS. In addition to including tribal narratives related to the four sites in the EIS, DOE inquired about tribal interests with regard to the WIPP/WIPP Vicinity and SRS. No tribes came forward in response to the inquiries regarding these two locations. It was not necessary to consult with American Indian tribes with regard to the generic regional locations, since the specific locations of the potential disposal facilities (and the affected tribes) were not known.

In terms of DOE tribal consultation with the Western Shoshone in 1991, the DOE/NNSA Nevada Site Office initiated an American Indian program based on an extensive literature review previously conducted to identify tribal groups with cultural affiliation to the NNSS. Since the inception of this program, NNSA has maintained government-to-government relations by working with each tribal government or designated representatives as a means of addressing areas of interest and providing project updates accordingly.

DOE would continue to consult with the site-affiliated American Indian tribes, as appropriate, during implementation of the selected alternative.

HOME, Commenter ID No. T45 (cont'd)

36

1 concerns raised by the Western Shoshoni Nation and that
2 land base being used to dispose of radioactive waste,
3 which it has historically opposed. And I think that
4 that was also mentioned earlier. So that should be
5 addressed more in detail in the document, and including
6 negotiations with the Western Shoshoni on that issue.
7 Another point, another point that's also been
8 raised is the transportation issues, specifically with
9 the National -- the Nevada Nuclear Security Site.
10 Also, the section which discussed potential
11 contamination from disturbing the soil in constructing
12 the site didn't -- there wasn't -- I didn't see very
13 much data on the radioactive inventory of the soil. I
14 think there should be. At least that should be
15 discussed. That should be in the document so that
16 people know whether it's there or not.
17 A number of years ago, there was supposed to
18 be a large explosion test called "Divine Strake" in
19 that test site. There was much more detailed analysis
20 there, and I think there should be -- that analysis
21 should be included in the EIS as well.
22 Also, I'd like to correct something in the
23 document. It does not acknowledge that groundwater is
24 a potential contamination pathway from the Nevada Test
25 Site, the NNSA site, NNSS. It's mostly a concern on

T45-6 (Cont.)

T45-7

T45-8

T45-7 In 2006, NNSA prepared an environmental assessment and determined that radioactively contaminated soils are not present within the vicinity of the proposed DIVINE STRAKE detonation, DOE 2006 Large-Scale, Open-Air Explosive Detonation, DIVINE STRAKE, at the Nevada Test Site.

T45-8 The NNSS SWEIS under Section 5.1.6.2.1.2 presents data on groundwater monitoring. Groundwater monitoring at the Area 5 RWMC indicates that no contamination of groundwater resources has occurred as a result of waste management activities. Annual modeling concludes that no groundwater pathway exists for this disposal facility. Given the depth to groundwater at the waste disposal facilities and the stringent operating controls and monitoring programs, LLW and MLLW disposal operations are not expected to adversely affect groundwater resources.

HOME, Commenter ID No. T45 (cont'd)

37

1 the west side from the underground testing period, and
2 it may not be a direct concerned site.
3 But in the site characterization section of
4 the Environmental Impact Statement, it does not
5 acknowledge that as a potential contamination pathway,
6 and it should acknowledge it. This is a public
7 document. So it's an opportunity for people to see
8 what's going on in the site and what kind of analysis
9 is there. So we definitely recommend that that be also
10 included.
11 That concludes our comments now. I
12 appreciate the time taken for this. We also support
13 that we shouldn't be creating more of what we don't
14 know what to do with.
15 Thank you very much.

T45-8 (Cont.)

T45-9

T45-9 Stopping the generation of nuclear waste is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

Honor our Pueblo Existence (HOPE), Commenter ID No. T87

Capital Reporting Company 32

MR. BROWN: Marian Naranjo is our next speaker and I think Beata Tsosie will follow you.

MS. NARANJO: Thank you.

My name is Marian Naranjo. I am the founder and director of Honor our Pueblo Existence or Hope.

Our organization is a community-based organization located at Khapo O'Wingate, or Santa Clara Pueblo.

One of our missions is to address environmental issues of concern because of our relationship to our ancestral homelands within the Pajarito Plateau or the Haemus Mountains, a place that has sustained our life ways since time immemorial, the place where DOE, NNSA, LANL now claims landlordship.

Because of time restraints for this hearing and for the record, I would like to state the HOPE will be sending in depth written comments. These comments | T87-1

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T87-1 The site-specific environmental factors identified by commenters such as seismic issues were evaluated in the EIS as appropriate. The results of the evaluation were taken into consideration in identifying the preferred alternative presented in the Final EIS.

DOE is performing environmental restoration activities at LANL. The ongoing cleanup efforts will continue.

DOE acknowledges that many of the adjacent lands surrounding the LANL site are sacred to the Pueblo people.

Honor our Pueblo Existence (HOPE), Commenter ID No. T87 (cont'd)

Capital Reporting Company 33

will oppose GTCC waste being transported to a place that has seismic issues, a place that the landlords have not made a decision on what to do with its current nuclear waste problem, and a place that is sacred to Pueblo people. T87-1 (Cont.)

I believe this act would further desecrate our sustainable life ways both environmentally and spiritually. Before the government agencies and for-profit corporate entities continue the nuclear power cycle, it would be wise to go back to the drawing boards and establish a complete plan that would include a safe, forever disposal of the waste that has been created and really think and consider and invest in alternative energy for the future. T87-2

This shell game of moving nuclear waste, whether it is ABC or GTCC, from place to place has been a practice in this country since day one of the nuclear age, and it's old school. It's time actually to be frank. This situation, as United States citizen, is quite embarrassing. If you have no place for it, then why make it? T87-3

If a state chooses nuclear power, then that T87-4

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T87-2 Even though it is beyond the scope of this GTCC EIS, the comment is noted. This GTCC EIS addresses the potential environmental impacts associated with the proposed development, operation, and long-term management of a disposal facility or facilities for GTCC low-level radioactive waste (LLRW) and DOE GTCC-like waste.

T87-3 Stopping the generation of nuclear waste is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

T87-4 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

Honor our Pueblo Existence (HOPE), Commenter ID No. T87 (cont'd)

Capital Reporting Company 34

1 state should deal with the whole cycle, which includes
2 the waste. We have no nuclear power plants here in New
3 Mexico. So why is this now our problem?

T87-4 (Cont.)

INL Site Environmental Management, Commenter ID No. L3

INL Site Environmental Management
CITIZENS ADVISORY BOARD

11-CAB-006

June 22, 2011

Arnold Edelman, EIS Document Manager
Office of Environmental Management
U.S. Department of Energy
Cloverleaf Building, EM-43
1000 Independence Avenue, SW
Washington D.C. 20585
arnold.edelman@em.doe.gov

Subject: Comments Draft Environmental Impact Statement (EIS) for the Disposal of Greater Than Class C (GTCC) Low-Level Radioactive Waste and GTCC Like Waste (DOE/EIS-0375-D)

Dear Mr. Edelman:

Please find attached the Idaho National Laboratory Environmental Management Citizens Advisory Board's recommendation regarding the Draft Environmental Impact Statement (EIS) for the Disposal of Greater Than Class C (GTCC) Low-Level Radioactive Waste and GTCC Like Waste.

We appreciate the opportunity to provide comments.

Best Regards,

Willie Preacher,
Chairman

cc: Cate Brennan, DOE-HQ
Jim Cooper, DOE-ID
Bob Pence, DOE-ID
INL EM CAB Members and Liaisons
Letter transmitted electronically

INL Site Environmental Management, Commenter ID No. L3 (cont'd)

INL Site Environmental Management
CITIZENS ADVISORY BOARD

Comments on the Draft Environmental Impact Statement (EIS) for the Disposal of Greater Than Class C (GTCC) Low-Level Radioactive Waste and GTCC Like Waste (DOE/EIS-0375-D)

The Department of Energy (DOE) recently released the Draft Environmental Impact Statement (EIS) for the Disposal of Greater-Than-Class-C (GTCC) Low-Level Radioactive Waste and GTCC Like Waste (DOE/EIS-0375-D). In conjunction with the release of this draft EIS, the DOE also has conducted public meetings in Idaho Falls, ID, as well as opening a 120-day public comment period.

The Environmental Management (EM) Site-Specific Advisory Board in Idaho, locally known as the Idaho National Laboratory Site EM Citizens Advisory Board (CAB) has been briefed on this draft EIS, and a CAB member attended the public meeting held in Idaho Falls, ID. The CAB had also provided comments on this EIS as part of the scoping process in 2007 (Recommendation #133).

The purpose of this recommendation is to provide the CAB's comments on this draft EIS.

The CAB notes that no preferred alternative has been identified in this draft EIS, but it does identify the INL as a potential site for the disposal of these waste forms.

The INL has a long history of involvement in the management of radioactive waste generated by DOE and its predecessor agencies. In general, the citizens of Idaho have supported the INL role in managing the agency's waste. In 1988, due to the amount and types of waste being brought into the INL from outside the state, and the lack of long-term disposal strategies for some of these wastes, then Governor Cecil Andrus instituted a moratorium on DOE waste shipment into the state. This moratorium ultimately resulted in a Settlement Agreement between the DOE and the State of Idaho (1995). This agreement set forth conditions under which radioactive wastes at the INL would be managed. It also defined a framework under which spent nuclear fuel could be received and managed at the INL. The Settlement Agreement has never identified GTCC Low-Level Radioactive Waste and GTCC Like Waste to be brought into the state of Idaho–INL.

The action by Governor Andrus received wide-spread public support at the time. It has also been supported by all subsequent governors. It also continues to be supported by the public.

The current EM mission at the INL is to complete the clean-up of EM facilities, and to meet the requirements of both the Idaho Settlement Agreement and the current Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) records of decision. The current plans call for completing the EM mission at INL by the end of 2015. Completion of the EM mission early at INL has been identified by DOE as having the potential for significant cost saving. L3-1

In addition, the neighboring Shoshone-Bannock Tribes do not support the idea of having the INL as a potential disposal location for the GTCC Low-Level Radioactive Waste and GTCC Like Waste.

In conclusion, the INL EM CAB is opposed to consideration of the INL as a potential disposal location for GTCC Low-Level Radioactive Waste and GTCC Like Waste because: L3-2

- Such action would be in conflict with previously negotiated agreements between DOE and the State of Idaho.
- Based on the experience of the INL EM CAB, the citizens of the State of Idaho do not support such an action.
- Such action would be in conflict with the current EM mission for the INL.

RECOMMENDATION #148 June 22, 2011
Page 1

L3-1 DOE is performing environmental restoration activities at INL. The ongoing cleanup efforts will continue.

L3-2 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

International Source Suppliers and Producers Association (ISSPA), Commenter ID No. L100

17 June 2011

Dr. Ines Triay, Assistant Secretary for Environmental Management
U.S. Department of Energy
1000 Independence Ave. SW
Washington, DC, 20585

Dear Dr. Triay:

The International Source Suppliers and Producers Association (ISSPA) is an association that is comprised of companies who are international industry leaders in the manufacture, production and supply of sealed radioactive sources and/or equipment that contain sealed radioactive sources as an integral component of the radiation processing or treatment system, device, gauge or camera.

ISSPA strongly supports the need for a GTCC waste repository in the USA. As an integral part of the safety infrastructure of the US, many sealed sources that are utilized in beneficial applications in the medical and industrial sectors meet the greater than Class C disposal criteria. If there is no available final waste repository for these sources at the end of their useful life, companies that manufacture these sources may elect to not support these vital activities.

If no action is taken to address the disposal challenges associated with GTCC waste, disused sealed sources will likely be stored at generator sites creating an increased security risk. L100-1

As part of its Code of Good Practice, ISSPA members commit to safely manage the cradle to grave life cycle of the sealed sources. One key aspect of this is assuring the final disposal of the source. A GTCC repository is necessary to ensure the continued safe management of sealed sources.

We would be happy to discuss in more detail or provide additional information if needed.

Sincerely,

Grant Malkoske
Chairman, ISSPA

447 March Road, Ottawa, Ontario K2K 1X8 Canada TEL +1 613 762 0282 FAX +1 613 592 9001

L100-1 Comment noted. The alternatives presented in the GTCC EIS address the disposal of sealed sources.

ISSUE, Commenter ID No. T115

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MR. FERGUSON: I've got three minutes to discuss the next 30,000 years or more, so I'll make it quick. I was hoping to speak when there was more people in the room, but thanks for everybody coming out on this beautiful evening to sit in a windowless room.

How many would come out to help me block a train track or a railroad? Get them up there (indicating). I mean, that's what -- so obviously nobody said, oh yeah, ship it to Hanford. So nobody wants it, and if the DOE is not going to listen to the public here, we're going to bear witness to an injustice, and we're going to get out there and stop these shipments, nonviolently, peacefully, and with love in our hearts. So can I see those hands again? You can make a little tally. T115-1

So shut them down. Shut the plants down. Stop creating the waste. Keep it on site. No action as far as the EIS is concerned. Take no action. No transporting those wastes. Let's end nuclear power. Let's stop doing any sort of fission whatsoever. We've got alternatives. Clean, renewal energy. The roadblocks are political. Take that message back to Washington, D.C. That's what everybody says around T115-2 T115-3 T115-4

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T115-1 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

T115-2 Stopping the generation of nuclear waste is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

T115-3 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

T115-4 The No Action Alternative is evaluated in Chapter 3 of the EIS, and under these alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue. These practices are described in Sections 3.2 (GTCC LLRW) and 3.3 (GTCC-like wastes) in the Final EIS. It was necessary to make a number of simplifying assumptions to address the long-term impacts of this alternative, and these are described in Section 3.5. As part of this assessment, it was assumed that these wastes would remain in long-term storage indefinitely, including wastes from the West Valley Site as discussed in Section 3.5.3, and that no maintenance of either the storage facility or waste packages would occur after 100 years. These results indicate that very high radiation doses and cancer risks could occur under this alternative in the long term.

The No Action Alternative is evaluated in sufficient detail in the EIS as required by NEPA. Comparatively high potential radiation doses and cancer risks could occur should this alternative be selected. While a more detailed analysis could reduce the uncertainties associated with estimating these doses and risks, the conclusion of comparatively high impacts would not change for this alternative.

The No Action Alternative is evaluated in the EIS to provide a baseline for comparison with the action alternatives. This evaluation confirmed the risks posed by these wastes and the need to develop appropriate disposal capability. The potential radiation doses for the No Action Alternative covered a time period of 10,000 years in a manner comparable to that done for the action alternatives. Relatively high impacts could occur shortly after the 100-year institutional control period under this alternative.

ISSUE, Commenter ID No. T115 (cont'd)

Capital Reporting Company 68

here, not just me.

I also represent a newly formed student group at Portland State called, ISSUE, the International Students Supporting Universal Equality. Check us out at orgzynz.org. That's O-R-G-S-Y-N-Z.O-R-G, and that's open to, you know, anybody in the community. So thanks for coming out, and have a good evening.

League of Women Voters, South Carolina, Commenter ID No. T1

5

MS. SUZANNE RHODES: Thank you very much, Holmes and Mr. Edelman. Whoever picked this location gets an A-plus. It is the most beautiful public meeting I've been to. It's a nice place to even walk around. I am Suzanne Rhodes. I am here today representing the League of Women Voters in South Carolina. The League has a long history of leadership and citizen action and education on nuclear issues in South Carolina. Currently we are concerned regarding proposals to bring even more of the nation's greater-than-class C waste to Savannah River. The SR team already has extensive health and safety responsibilities for much of the nation's legacy curies and there are no exit strategies really. The site is large but the soil could allow rapid contamination and movement of groundwater in T1-1

T1-1 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE is performing environmental restoration activities at the Hanford Site, INL, LANL, NNSS, and SRS. The ongoing cleanup efforts at these sites will continue.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

League of Women Voters, South Carolina, Commenter ID No. T1 (cont'd)

6

event of accidents, and that was obviously recognized in EIS. More than 30 years ago South Carolinians stood almost alone in urging federal attention for the permanent management of defense waste accumulated at Savannah River Site and elsewhere. Actually several of the governments got together and tried to apply some leverage in connection with another project. The League was part of the concerned community in South Carolina and today the League strongly opposes proposals that suggest we become a storage site for even more defense waste as well as commercial nuclear waste which so far we pretty well kept off the SRS site. We wish to credit the managers of the site as they have made important progresses from the legacy waste at SRS and also the movement of plutonium and other weapons materials from other nations to the SRS for safekeeping. We did not oppose that by any means and it has serious challenges. The League applauds the ingenious strategy that was taken to expedite waste management by taking advantage of funds from the American Recovery and Reinvestment Act, the stimulus monies. Using those monies SRS trained local workers, some previously unemployed, to repack the transuranic waste among other activities. Much of this TRU waste has been or will be shipped to the only permanent nuclear waste geologic storage site in the world. I

League of Women Voters, South Carolina, Commenter ID No. T1 (cont'd)

7

hope I haven't picked my words too carefully but U.S. really does have the only permanent site, and that of course is New Mexico in Carlsbad. Well, that's great but many other TRU wastes are at SRS and they're not ship-able and will remain there indefinitely. The League definitely supports proper management of existing waste for on-site storage at SRS. We anticipate that those greater-than-class C waste already at SRS will remain there in a safe manner and that's reasonable. We think it's reasonable. But we think transporting more waste to SRS is neither fair nor reasonable and I'm really glad that Mr. Edelman mentioned the Nuclear Waste Policy Act limitation. But I think a combination of a no-action alternative and some sort of HOSS consideration should be considered for these greater-than-class C waste. Nothing in the act is sacred. We've already broken several of the pieces for very good reasons and this would be another one that deserves some serious consideration. Because although not part of the original plan the current practice of default nuclear waste storage at existing defense and commercial sites has been our goal for the most part. Professionals at these sites are knowledgeable and respectful of their responsibilities. Transporting waste generates more wastes. It creates citizen concern and it's expensive. Unless there is a site

T1-2

T1-3

T1-2 Same response as for T1-1

T1-3 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

The No Action Alternative is evaluated in Chapter 3 of the EIS, and under this alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue. These practices are described in Sections 3.2 (GTCC LLRW) and 3.3 (GTCC-like wastes) in the Final EIS. It was necessary to make a number of simplifying assumptions to address the long-term impacts of this alternative, and these are described in Section 3.5. As part of this assessment, it was assumed that these wastes would remain in long-term storage indefinitely, including wastes from the West Valley Site as discussed in Section 3.5.3, and that no maintenance of either the storage facility or waste packages would occur after 100 years. These results indicate that very high radiation doses and cancer risks could occur under this alternative in the long term.

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League of Women Voters, South Carolina, Commenter ID No. T1 (cont'd)

8

1 specific safety issue all nuclear waste should remain
2 where they are until we have a permanent plan and it's
3 been demonstrated and South Carolina should surely not
4 receive any more of the nation's nuclear waste. Thank
5 you very much.

Legions of Living Light, Commenter ID No. L294

DRAFT ENVIRONMENTAL IMPACT STATEMENT for the DISPOSAL OF GREATER THAN-CLASS C (GTCC) LOW-LEVEL RADIOACTIVE WASTE AND GTCC-LIKE WASTE (DOE/EIS-0375-D)
U.S. Department of Energy

WRITTEN COMMENT FORM
Must be received on or before June 27, 2011

Mr. ____ Mrs. ____ Ms. X Mr. & Mrs. ____ Dr. ____

Name: Bonnie Bonneau

Title: General Secretary

Organization: Legions of Living Light

Address: PO Box 351

City: El Prado State: N. Mex Zip Code: 87529

Phone: 575-737-5099 E-Mail Address: ____

Comment: P1-3 L.34-6 "The decision to protect the general public for up to 10,000 years" was demonished to 500 years of theoretical safety. Neither time is adequate for poison lasting millions of years. None of this plan is based on existing knowledge of the accelerated rate of deterioration of any material contaminated by radiation. The baseline data is missing, and trying to extrapolate 65 years of experience into 500 or 10,000 years is beyond impossible. L294-1

Please use other side if more space is needed.

WITHHOLDING OF PERSONAL INFORMATION: Information you provide on this form may be published as part of the public record for this project, including publication on the Internet. Individual respondents may request confidentiality by checking one of the two boxes below. The DOE will honor such requests to the extent allowed by law. All submission from organizations and businesses, or from individuals identifying themselves as representatives or officials of organizations or businesses, will be available to the public in their entirety.

☐ Withhold my name and address from the public record.

☐ Withhold only my address from the public record

Comment forms may be mailed to:
Mr. Arnold Edelman
Document Manager
Office of Regulatory Compliance (EM-43)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0119

Hi again

Comment form may be faxed to:
(301) 903-4303

or sent by electronic mail to:
gtcceis@anl.gov

L294-1 DOE recognizes that some of the waste considered contains radionuclides that pose potential human health risks for extended periods of time and that modeling potential releases of these radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. In performing these evaluations, a number of engineering measures were included in the conceptual facility designs to minimize the likelihood of contaminant migration from the disposal units. No facility design can guarantee that radionuclide migration from the facility would not occur over and beyond a 10,000-year time period. Sufficient detail was included in the proposed conceptual land disposal facility designs for use in the EIS analyses, consistent with the current stage of this process. Some of the waste form and site characteristic input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

DOE believes that 500 years is not an unrealistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS (Phifer et al. 2007) that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study. DOE believes that the assumptions made to support the long-term modeling calculations for the groundwater pathway are reasonable and enable a comparative evaluation of the impacts between alternatives. The results of the evaluation presented in the EIS are sufficient to inform the selection of sites and methods for disposal. Follow-on project-specific and site-specific NEPA reviews would be conducted as needed.

Legions of Living Light, Commenter ID No. L294 (cont'd)

2/2

How long vitrification will last is also theory.
Disposal is a lazy option when the need is to neutralize the elements. DOE spends billions to produce these toxins and needs to have a new ~~pay~~ project to find ways to make them safe again. Hiding them anywhere for a short fraction of the time they are lethal, ~~to~~ is a short term answer but does not truly protect our earth or lives. Can you project the impacts when the 500 years is over? By then none can hold you responsible.
How will the earth change? Oceans rising, plates shifting, volcanoes erupting, population migrations, mutant species ... ? The Rocky Mountains will once under water. Change is a constant and any plan presuming the status quo as a basis is inadequate.
Before telephones, electric wires, gas pipe lines and such infrastructure, life was perhaps not so leisurely, but it was good in these free ways we cannot know.
What was learned from Fukushima? WTS? does the trend to pride, greed and denial have a way to evolve into caring or understanding?
You need to re-examine this proposal in a sustainable, long term perspective and rethink the options and variables with better data and less politics. Thanks

Bonnie Bonnell

L294-2

L294-2 The EIS considered the range of reasonable alternatives for disposal of the inventory of GTCC LLRW and GTCC-like wastes identified for inclusion in these analyses. Treatment options, such as trying to "neutralize" the elements, was considered to be outside the scope of the EIS because the purpose of the EIS is to show the disposal alternatives of GTCC versus treatment of GTCC.

DOE recognizes that modeling potential releases of radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. Sufficient detail was included in these designs for use in the EIS analyses, consistent with the current stage of this process. Some of the input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

Loretto Community, Commenter ID No. E76

Picel, Mary H.

From:	penny mcmullen <pmsl@cybermesa.com>
Sent:	Monday, June 27, 2011 12:35 PM
To:	gtcceis@anl.gov
Cc:	Congressman Ben R Lujan; Senator Jeff Bingaman; Matt (Tom Udall) Miller
Subject:	DOE GTCC EIS

Arnold Edelman, Document Manager
DOE GTCC EIS
Cloverleaf Bld., EM-43
1000 Independence Avenue, SW
Washington, DE 20585

Dear Mr. Edelman:

Please accept these comments from the Loretto Community of Sisters and comembers. I have been working on nuclear issues for 33 years, and am authorized to speak for the Loretto Community on these issues.

The Loretto Community opposes disposing Greater-Than-Class-C (GTCC) waste at the Waste Isolation Pilot Project (WIPP), the Los Alamos National Lab (LANL), or anywhere in New Mexico, for a number of reasons.

WIPP

The Federal Government agreed NOT to bring commercial waste to WIPP in exchange for New Mexico agreeing to receive the transuranic waste (plutonium-contaminated from weapons work). Allowing GTCC waste in WIPP would open the door for commercial waste. As one speaker said in the Jan. 28 public meeting, New Mexico kept its part of the bargain by allowing WIPP to open for transuranic waste, and now the Federal Government is considering breaking its agreement. E76-1

If the Department of Energy (DOE) breaks its promise, then the State of New Mexico would no longer be bound by its agreement to accept ANY waste in WIPP.

The theory that salt will safely encase waste containers is based on the salt being dry. But the salt at WIPP is not dry, and wet salt will eventually corrode the waste containers. E76-2

The karst formations at WIPP could quickly spread any leakage into the ground water and Pecos River, affecting not only New Mexico but also Texas and the nation of Mexico.

Some WIPP officials testified to the safety of transportation. It is good that no WIPP truck drivers were responsible for an accident. But New Mexico has a high drunk driver accident rate. There was an accident near Las Vegas where it took 90 minutes for first responders to arrive, and they didn't have any radiation detectors. Such equipment is not provided for every community along every route to WIPP. So how can anyone claim that there was never any radiation leakage? E76-3

Several proclaimed at the public meeting that the WIPP model "worked" and "is successful." First of all, I wonder if that is true -- I have heard stories from people in Carlsbad that at least one worker died there from radiation exposure. Even if it were true, the fact that it has "worked" so far wouldn't mean it will continue to "work" for many generations into the future, especially with wet salt and karst formations. E76-4

Supporters mentioned several times in the Albuquerque meeting that people clapped and cheered during the first shipment. I believe those people were from the Carlsbad area. They didn't mention the many people who demonstrated against it, wailing along the route, which I witnessed.

1

E76-1 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

E76-2 The WIPP has been certified by the EPA as an acceptable facility for the disposal of defense-generated TRU waste. The physical and chemical characteristics of the GTCC LLRW and GTCC-like wastes proposed for disposal in the WIPP repository are comparable to the TRU wastes currently being disposed of in the repository.

Dissolution has occurred outside of the WIPP Land Withdrawal Boundary, as shown by karst features in the Nash Draw area. The EPA has noted that it is possible that dissolution occurred at the WIPP site sometime in the distant past (i.e., millions of years ago for strata-bound features) but was associated with a geologic setting other than that currently present at WIPP. However, dissolution in the underlying geology is not an ongoing process at the WIPP site. The EPA, as part of its compliance certification process, concurred with the modeling performed by DOE (which assumed that there was no karst within the WIPP site boundary) and indicated that this was consistent with existing borehole data and other geologic information.

Loretto Community, Commenter ID No. E76 (cont'd)

ting, 33 people raised their hands to show opposition to GTCC coming to WIPP. Given the number of industry and government officials attending, that is a substantial percentage of the public. It is true that no one from the public living in Carlsbad spoke against it, but when I visited Carlsbad, I was told by Carlsbad citizens that they are afraid to speak up because of violent retaliation in the past. E76-4 (Cont.)

LANL

The GTCC waste should not be shipped to LANL, either, because of the many seismic, fire, safety and security problems at the Lab. E76-5

The Lab sits atop a complex 29-mile-long fault system. As a result of a new study mapping earthquake danger in the area, the Defense Nuclear Facilities Safety Board, in a unanimous decision, reported that there is a 5% chance of a big earthquake within 50 years, and that the potential fatal public doses from a plutonium release during earthquake-induced fires have been estimated to exceed DOE guidelines by more than 100-fold. E76-6

In 2004 nuclear operations at Los Alamos were suspended for six months due to grave safety concerns, and yet long-standing safety issues remain unresolved. One example: the Institute for Energy and Environmental Research has found that about 300 kilograms of plutonium (enough to make 60 bombs) is missing from LANL's nuclear materials records, increasing the possibility that it could get into the hands of terrorists.

Former Pennsylvania State Police Commissioner Glenn Walp was hired to investigate lapsed security after 9/11. In his recent book Implosion at Los Alamos, Walp describes a lax security culture of corruption, crime, coverups and whistleblower retaliation, where the Lab's "image" is more important than safety or security. E76-7

And now, in order to cut costs, Los Alamos is considering the elimination of some of the facility's fire suppression systems and ventilation equipment intended to prevent plutonium from leaking in the event of an earthquake and fire! Today as I write this, a huge fast-moving fire is burning just one mile from the LANL property. If the fire enters the property, the waste there could be affected, potentially harming everyone downwind. With global warming, we can expect more dry weather and fires in New Mexico, and the waste sitting up at LANL is a serious hazard. The current waste needs to be removed ASAP, rather than bringing more waste to an already contaminated area.

NEW MEXICO

The Loretto Community's position is that no GTCC waste should be dumped anywhere in New Mexico. New Mexico already has more than its share of risks from the nuclear industry. The Rio Grande and our ground water already contain radionuclides and other toxins from the Los Alamos and Sandia Labs. While some people living near the WIPP site see this proposal as a chance to provide a few more jobs, we see it as environmental injustice – dumping toxic and radioactive waste on minority and low-income populations. E76-8

One of the BRC members mentioned that there were agreements to generator sites that the waste would be moved off-site and the BRC doesn't want to break those agreements. Why are those states more important than New Mexico? Those promises should not have been given when there was no known site available. DOE can tell those sites that they tried to find a suitable repository but were unsuccessful. E76-9

NEW EIS WITH HOSS ALTERNATIVE

DOE needs to write a new Environmental Impact Statement that includes Hardened On-Site Storage (HOSS) to encase current waste on site where it is generated, rather than risking transportation through American communities and into our state which is already too contaminated, and especially not in such unsafe locations as WIPP and LANL. E76-10

NO MORE NUCLEAR ENERGY

GTCC waste comes from the production of nuclear power, and it is time we stop creating it. While nuclear power is promoted as clean because it doesn't emit much carbon dioxide when the consumer uses it, every aspect of producing nuclear energy contributes to global warming. Instead, we need to invest in sustainable energy that does not present such huge waste disposal problems. France, often touted as an example of a nation using nuclear energy, has found that the waste problem is monumental. European nations are beginning to move away from nuclear energy into alternative sources such as wind, solar and biomass. By the time any new nuclear power plants can be operational in our country, nuclear energy will be obsolete. E76-11

2

WIPP is located in a salt formation, and moisture (brine) is naturally present. The brine makes up about 1% of the rock volume. The brine comes in two forms: interstitial and included. Interstitial brine is trapped between crystal facies (between fracture boundaries at the microscopic scale). Included brine is inside small cavities called inclusions trapped within the crystals themselves. Samples of brine collected from locations just inches apart from one another show different chemical and isotopic compositions, indicating that the brine did not move more than a few inches from where it was trapped when an ancient tidal flat dried up 250 million years ago. This indicates the extremely slow movement of water in this salt formation. In addition, the current design for operating WIPP involves sealing the shafts to ensure that no fresh water can enter and affect the disposed-of wastes.

WIPP is surrounded by various natural resources – including potash, oil, and natural gas – as identified in Section 4.2.2.2 of this EIS. Resource considerations were included in the site selection process for WIPP and are documented in the Final Environmental Impact Statement, (Waste Isolation Pilot Plant, in Section 7.3.7). Disposal of GTCC LLRW and GTCC-like wastes at WIPP would not invalidate the WIPP site selection decision

E76-3 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

The EIS evaluates the transportation impacts from the shipments that would be required to dispose of all of the GTCC LLRW and GTCC-like wastes at each of the reference locations evaluated. The EIS addresses the collective population risks during routine conditions and accidents, the radiological risks to the highest exposed individuals during routine conditions, and the consequences to individuals and populations as a result of transportation accidents, including those that could release radioactive or hazardous chemical contaminants. The EIS also evaluated the impact of intentional destructive acts that could occur during waste handling, transportation, and disposal (see Section 2.7.4.3 of the EIS). The potential risk of such destructive acts is estimated to be low. DOE sites considered in the EIS are secure, and the packaging for the GTCC LLRW and GTCC-like wastes would be robust. Because GTCC LLRW and GTCC-like wastes are not readily dispersible, the potential physical impacts from an intentional destructive act (e.g., an explosive blast) would be no greater than those from the release of any radioactivity from a severe accident during waste handling, transportation, and disposal.

DOE's requirements for transportation of radioactive waste are developed and continually revised to ensure maximum protection of public health and the environment, thereby minimizing the risk of a traffic accident. DOE has established a comprehensive emergency management program that provides detailed, hazard specific planning and preparedness measures to minimize the health impacts of accidents involving loss of control over radioactive material or toxic chemicals. DOE's transportation emergency preparedness program was established to ensure that DOE and its contractors, state, tribal, and local emergency responders are prepared to respond promptly, efficiently, and effectively to accidents involving DOE shipments of radioactive materials. Should an accident occur that involves a release of radioactive material to the environment, it would be promptly remediated in accordance with these procedures. These measures would help DOE to minimize and mitigate any impacts on the environment.

Loretto Community, Commenter ID No. E76 (cont'd)

The production of nuclear energy presents all the same hazards to workers and the environment that go with producing nuclear weapons. For this reason the Loretto Community in 1979 made working to end the production of both nuclear weapons and nuclear energy one of our main missions as "an urgent moral imperative."

At the Albuquerque hearing, Bob Neill compared the number of people exposed to radiation for medical reasons to those exposed from power plants, saying people accept the risks for the benefits. There are two problems with this analogy. First, it's not the number of people that matter as the amount of radiation exposure. And second, many in the medical profession now admit that people are receiving too much radiation from medical tests -- the human race is waking up to the cumulative danger of radiation. E76-11 (Cont.)

So what can we do? First, stop creating nuclear waste and develop truly clean energy. I urge DOE to go to the website for the Institute for Energy and Environmental Research (ieer.org) and study the report called "Carbon-Free and Nuclear-Free" -- we don't need nuclear energy. Second, use the HOSS alternative for current waste.

The Loretto Community has been serving the people of New Mexico for 159 years, and the health of this Land of Enchantment and the health of future generations of New Mexicans is one of our highest social justice priorities. I hope you will listen to the public, not just to the nuclear industry and government officials, and take our comments seriously.

Sincerely,

Penelope McMullen, SL
Regional Justice and Peace Coordinator
Loretto Community
113 Camino Santiago
Santa Fe, NM 87501

505-983-1251
pmsl@cybermesa.com

cc: President Obama
Senator Tom Udall
Senator Jeff Bingaman
Congressman Ben Ray Lujan

3

E76-4 Detailed exploration and sampling of the subsurface area surrounding the WIPP repository prior to and subsequent to construction, in conjunction with detailed modeling, provide evidence that WIPP will continue to 'work' for many generations. Dissolution has occurred outside of the WIPP Land Withdrawal Boundary, as shown by karst features in the Nash Draw area. The EPA has noted that it is possible that dissolution occurred at the WIPP site sometime in the distant past (i.e., millions of years ago for strata-bound features) but was associated with a geologic setting other than that currently present at WIPP.

However, dissolution in the underlying geology is not an ongoing process at the WIPP site. The EPA, as part of its compliance certification process, concurred with the modeling performed by DOE (which assumed that there was no karst within the WIPP site boundary) and indicated that this was consistent with existing borehole data and other geologic information.

Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

Comments on the Draft GTCC EIS could be made by letter, e-mail, or in person at the public meetings held near the potential disposal sites. Any person fearing reprisal based on their opinions could have requested that their name be withheld from identification when submitting comments by letter or e-mail.

E76-5 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository. Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

E76-6 Site-specific environmental factors, such as seismic or other natural features, as identified by commenters for all of the DOE sites, were taken into account and evaluated in the EIS as appropriate. The results of the evaluation were taken into consideration in identifying the preferred alternative presented in the Final EIS.

E76-7 DOE is performing environmental restoration activities at the LANL. The ongoing cleanup efforts will continue.

Site-specific environmental factors, including wildfires, were taken into account and evaluated in the EIS as appropriate. The results of the evaluation were taken into consideration in identifying the preferred alternative presented in the Final EIS.

Loretto Community, Commenter ID No. E76 (cont'd)

E76-8 All relevant potential exposure pathways were considered in the analyses presented in the EIS. These analyses addressed a range of reasonable scenarios and estimated the potential impacts on all environmental resources, including environmental justice, consistent with NEPA requirements. Environmental justice impacts to residents of New Mexico were addressed in Sections 4.2.7, 8.2.7, and 11.2.7 in the EIS.

E76-9 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

E76-10 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

E76-11 Stopping the generation of nuclear waste, ensuring the safety of nuclear power plants, and promoting alternative energy sources are outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

Loretto Community, Commenter ID No. T100

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MR. BROWN: Is Bonnie here?

Okay. There were two sign-up sheets. So okay. We'll make sure your name is on the other sheet to receive printed materials. Okay.

Penelope McMullen, and then Teresa Schreck is after Penelope.

MS. McMULLEN: I'm Penelope McMullen with the Loretto community, and my comments will be brief because I will be submitting longer written, extensive comments.

The State of New Mexico agreed to allow the opening of WIPP for weapons related waste on the condition that waste from commercial power plants would never be allowed in the waste isolation pilot plant. Allowing greater-than-Class-C waste in WIPP would open the door for commercial waste, and the promise DOE made will be broken. T100-1

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T100-1 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

Loretto Community, Commenter ID No. T100 (cont'd)

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The State of New Mexico and New Mexico citizens would never again trust federal government promises and will resist any future agreements with the Department of Energy. And if DOE breaks its promise, then the State of New Mexico would no longer be bound by its agreement to accept any waste at WIPP. T100-1 (Cont.)

The Loretto community's position is that DOE should develop a new environmental impact statement that includes hardened on-site storage which is safer than trucking the waste through our neighborhoods and safer than putting the waste in WIPP, which is not really as safe as DOE would like us to believe. T100-2

The salt beds in WIPP are not dry, and wet salt corrodes containers and harsh conditions would eventually cause radioactive leaks into the Pecos River. T100-3

Also, most GTCC waste is from nuclear power plants, and it is time to retire those plants and put government subsidy into renewable energy sources. T100-4

(Applause.)

MS. McMULLEN: Which some European nations are now doing precisely because the waste is too big a

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T100-2 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

T100-3 The WIPP has been certified by the EPA as an acceptable facility for the disposal of defense-generated TRU waste. The physical and chemical characteristics of the GTCC LLRW and GTCC-like wastes proposed for disposal in the WIPP repository are comparable to the TRU wastes currently being disposed of in the repository.

Dissolution has occurred outside of the WIPP Land Withdrawal Boundary, as shown by karst features in the Nash Draw area. The EPA has noted that it is possible that dissolution occurred at the WIPP site sometime in the distant past (i.e., millions of years ago for strata-bound features) but was associated with a geologic setting other than that currently present at WIPP. However, dissolution in the underlying geology is not an ongoing process at the WIPP site. The EPA, as part of its compliance certification process, concurred with the modeling performed by DOE (which assumed that there was no karst within the WIPP site boundary) and indicated that this was consistent with existing borehole data and other geologic information.

WIPP is located in a salt formation, and moisture (brine) is naturally present. The brine makes up about 1% of the rock volume. The brine comes in two forms: interstitial and included. Interstitial brine is trapped between crystal facies (between fracture boundaries at the microscopic scale). Included brine is inside small cavities called inclusions trapped within the crystals themselves. Samples of brine collected from locations just inches apart from one another show different chemical and isotopic compositions, indicating that the brine did not move more than a few inches from where it was trapped when an ancient tidal flat dried up 250 million years ago. This indicates the extremely slow movement of water in this salt formation. In addition, the current design for operating WIPP involves sealing the shafts to ensure that no fresh water can enter and affect the disposed-of wastes.

T100-4 Stopping the generation of nuclear waste and promoting alternative energy sources are outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

Loretto Community, Commenter ID No. T100 (cont'd)

Capital Reporting Company 76

1 problem. It's time we wake up.

2 Thank you.

Mayor's Office, City of Carlsbad, New Mexico, Commenter ID No. T28

16

1 MR. JANWAY: Good evening. I'm Dale Janway. I'm
2 mayor of the city of Carlsbad. Thank you for the
3 opportunity to offer your views on this extremely
4 important matter.
5 The federal government is responsible to find a
6 disposal facility for GTCC waste, a type of low-level
7 waste generated through medical isotope production,
8 environmental clean-up, deep space exploration, and other
9 programs.
10 Given our current national financial crisis,
11 using an existing facility rather than constructing and
12 operating a new one is clearly the smartest move. I urge
13 you to consider WIPP as the preferred alternative for
14 disposal of Greater-Than-Class-C waste.
15 GTCC waste is similar to what's already at WIPP.
16 WIPP provides a ready-to-go solution for most of the WIPPs
17 being discussed, which emits low levels of radiation
18 comparable to what is now being disposed of at WIPP. T28-1
19 Greater-Than-Class-C waste can safely be disposed
20 of at WIPP using procedures that have been in place for
21 the last 12 years. WIPP has a proven record of the
22 disposal options being considered. WIPP already has an
23 established record of safe operations. WIPP has a
24 transportation system in place responsible for more than
25 11 million loaded miles without a serious accident or

T28-1 Based on the GTCC EIS evaluation and WIPP's operating record, DOE believes that the WIPP repository would be a safe location for the disposal of GTCC LLRW and GTCC-like wastes, some of which include long-lived radionuclides. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require modification to existing law. In addition, it would be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit.

The State of New Mexico has indicated a willingness to accept GTCC LLRW and GTCC-like wastes for disposal at WIPP. Twenty-eight New Mexico State Senators signed a proclamation made in the Fiftieth Legislature, First Session, 2011, stating: "Be it resolved that we, the undersigned, support the opportunity for other potential missions in southeast New Mexico to adequately address the disposal of defense high-level waste, commercial high-level waste, Greater Than Class C LLRW and surplus plutonium waste, as well as the interim storage of spent nuclear fuel." In response to the Draft GTCC EIS, Secretary David Martin, Secretary of the New Mexico Environment Department, sent a letter to DOE on June 27, 2011, stating that "the Department encourages DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type." In addition, the Governor of New Mexico, in a letter to DOE Secretary Steven Chu on September 1, 2011, stated that the State of New Mexico encourages DOE to support the proposed location of WIPP as the preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes.

Mayor's Office, City of Carlsbad, New Mexico, Commenter ID No. T28 (cont'd)

1 release of radioactive material. WIPP also has a
2 highly-skilled workforce in place to safely dispose of
3 GTCC waste.
4 Having a supportive community is also important,
5 and members of the Carlsbad community and residents of
6 southeastern New Mexico are very much in favor of using
7 WIPP's unique repository to better assist the nation.
8 It's the safest option for the nation.
9 The other options being considered by the DOE do
10 not isolate GTCC waste to the same degree. WIPP's depth,
11 nearly half a mile underground, and its geologic stability
12 make it an ideal option for disposal of such waste.
13 Remote isolation of salt is a permanent way to
14 reduce risk to human health and the environment. Thank
15 you.

T28-1 (Cont.)

Mayor's Office, City of Carlsbad, New Mexico, Commenter ID No. T35

Our next speaker is Bob Forrest.

MR. FORREST: Yeah, thank you very much. My name is Bob Forrest. I've been the mayor of Carlsbad for the last 16 years and a City Councilor for five years, involved for 25 years, but lived in Carlsbad for the last 65 years. Probably the best part of Carlsbad is to see people come out like tonight and talk from their heart. We try give them brief notes to read off of. They just get away from it and just speak from the heart. It's just unbelievable, our success. I kind of wish sometimes I would have written a book to see how this happened, and we've been doing it for 30 years. This is why we've been holding over 200 hearings, and the first ones were pretty tough up in Santa Fe.

Everybody likes a success story, and when we started with WIPP, I guess in 1975, '76, probably 35 percent of the people approved of the project, and today it's close to 95 percent, and that just doesn't happen. When you look at Carlsbad and when you look at WIPP and the success story, then you look at Yucca Mountain and see all the failures, and you say, "What happened?"

Well, it was one thing. It's called the community, and they never had that community support that we have here in Carlsbad, and it's stronger all the time. And people ask me all the time, they say, "What one thing

Mayor's Office, City of Carlsbad, New Mexico, Commenter ID No. T35 (cont'd)

1 makes WIPP successful?"
2 And I just have to say, "It's those salt beds out
3 there. They're 250 million years old."
4 I'm a salesman. To be a good salesman, you've
5 got to have a product to sell. And when you're selling
6 projects like this, safety is the number one issue. And
7 if you can sell it to the public and convince them, you're
8 going to get a lot of support, and that's what's
9 happened.
10 I can remember being in Santa Fe in 1990 when the
11 halls were packed with people in Sweeney Hall. Had five
12 hearings going on at one time. And I come home and I told
13 my wife, "These people are going to lay down in front of
14 the trucks." I said, "We'll never get WIPP open."
15 We overcame that. I can remember all the signs
16 in Santa Fe that set another business against WIPP.
17 They're all gone today. I can remember standing in Santa
18 Fe and almost looking up and seeing Los Alamos and seeing
19 those trucks of transuranic waste sitting on asphalt
20 pads. And today they're down near 2,100 feet
21 underground. I remember when Rocky Flats was on fire,
22 literally on fire 10 miles from downtown Denver. Today
23 it's a wild refuge. You couldn't ask for a cleaner area.
24 I remember when Cecil Andrus, the governor of
25 Idaho closed the border, said, "No more waste."

Mayor's Office, City of Carlsbad, New Mexico, Commenter ID No. T35 (cont'd)

All that waste is now at WIPP. And then you see the RH permit, that happened seven years after it took 30 years to get WIPP open. We had the hearing officer. We had our hearings, and I never will forget what the hearing officer said. He said, "The one thing that impresses me most about Carlsbad is the knowledge of the citizens of the workforce."

And you got a dose of Norbert tonight. He corrects everybody. Having people like that in our community, we probably have more Ph.Ds per capita other than Los Alamos. We've got some of the highest capital income. It's just changed the lifestyle of Carlsbad. But still, it's a safe project. We got the RH permit passed, and now this is the next step, and I think the Greater-Than-Class-C waste will fit the WIPP site. We'll treat it like we have the rest of it. We'll dot all the I's, cross all the T's, and we take this very serious.

The Japan accident, what happened over there, you know, I thought there'd be an uproar, maybe a little backlash in Carlsbad, "See, I told you what would happen."

But today, we look at that, and we look at their mistakes and what happened, and the two things that come out of that accident are, you better watch where you put it. If it's close to earthquakes or tsunamis, well, hell, you couldn't get further from it than southeastern New

Mayor's Office, City of Carlsbad, New Mexico, Commenter ID No. T35 (cont'd)

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Mexico.

And infrared is going to be part of our future. When I first became mayor in '86, Ben Johnson, the most powerful senator in Congress, the senate came to Carlsbad, and he was at Yucca Mountainside. And he looked at West Texas, and he looked at Yucca Mountain, and he looked at Hanford. He came to the WIPP site and he saw that, and he said, "This is the place to put it."

We got Governor Carruthers down here. This was '86 or '87, and he went back to Washington, Pete Domenici, and Senator Bingaman had a stroke, get back to Carlsbad and said, "Hey, let's take it one step at a time. Let's get WIPP open, then we can go for the RH."

And I think the third step is this Greater-Than-Class-C, but to me, to put this waste in Los Alamos when we're trying to clean Los Alamos up doesn't make much sense. Next to WIPP -- you know, it has to be out of the questions. We have the infrastructure. We have the knowledge, we have the expertise and the workforce, and we have everything going for us right here in Carlsbad, so I think it's a no-brainer. But I do appreciate you having the hearing and giving us a chance to show you Carlsbad and see what we're doing. But thank you very much for coming. T35-1

T35-1 Based on the GTCC EIS evaluation and WIPP's operating record, DOE believes that the WIPP repository would be a safe location for the disposal of GTCC LLRW and GTCC-like wastes, some of which include long-lived radionuclides. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require modification to existing law. In addition, it would be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit.

The State of New Mexico has indicated a willingness to accept GTCC LLRW and GTCC-like wastes for disposal at WIPP. Twenty-eight New Mexico State Senators signed a proclamation made in the Fiftieth Legislature, First Session, 2011, stating: "Be it resolved that we, the undersigned, support the opportunity for other potential missions in southeast New Mexico to adequately address the disposal of defense high-level waste, commercial high-level waste, Greater Than Class C LLRW and surplus plutonium waste, as well as the interim storage of spent nuclear fuel." In response to the Draft GTCC EIS, Secretary David Martin, Secretary of the New Mexico Environment Department, sent a letter to DOE on June 27, 2011, stating that "the Department encourages DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type." In addition, the Governor of New Mexico, in a letter to DOE Secretary Steven Chu on September 1, 2011, stated that the State of New Mexico encourages DOE to support the proposed location of WIPP as the preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes.

Native Community Action Council, Commenter ID No. T47

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20 MR. BROWN: Thanks very much.
21 Next speaker. I forgot my reading glasses at
22 home. So if you can you spell your name, for the court
23 reporter. Thanks.
24 MR. ZABARTE: I didn't write legibly.
25 Good evening. My name is Ian Zabarte. That's

Native Community Action Council, Commenter ID No. T47 (cont'd)

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I-A-N. Last name is Zabarte, Z as in zebra, -A-B, as in boy, -A-R-T-E.

I'm the Vice President of the Native Community Action Council, which is composed of Western Shoshoni and Southern Paiute. It's a nonprofit. The address for the Native Community Action Council is Post Office Box 140, Baker, Nevada 89311.

I also have comments on behalf of the Traditional Government of the Western Shoshoni, the government of Newe Sogobia under Chief Raymond Yowell. For those of you who think that the Western Shoshone National Council is a legitimate government, it is not. I was formally the Secretary of State. I have a new government. Chief Yowell is the chief of that government and was formerly the chief of the Western Shoshoni National Council. T47-1

Now, for those of you who like to talk on behalf of the Western Shoshoni, just stop it. That includes the Department of Energy. Just stop it. It's not helpful.

First, the Native Community Action Council would like a point of contact with the Department of Energy sufficiently high enough that we can have some meaningful communication. Meeting with the Secretary T47-2

T47-1 DOE initiated consultation and communication with the 14 participating American Indian tribes that have cultural or historical ties to the DOE sites analyzed in the EIS. These interactions are summarized in Section 1.8 of the EIS, and they included several meetings, workshops, and the development of tribal narratives that were included in the EIS. In addition to including tribal narratives related to the four sites in the EIS, DOE inquired about tribal interests with regard to the WIPP/WIPP Vicinity and SRS. No tribes came forward in response to the inquiries regarding these two locations. It was not necessary to consult with American Indian tribes with regard to the generic regional locations, since the specific locations of the potential disposal facilities (and the affected tribes) were not known.

In 1991, the DOE/NNSA Nevada Site Office initiated an American Indian program based on an extensive literature review previously conducted to identify tribal groups with cultural affiliation to the NNSS. Since the inception of this program, NNSA has maintained government-to-government relations by working with each tribal government or designated representatives as a means of addressing areas of interest and providing project updates accordingly.

DOE would continue to consult with the site-affiliated American Indian tribes, as appropriate, during implementation of the selected alternative.

T47-2 The responsible officer within the Department of Energy when dealing with Tribal Governments is the Secretary of Energy. U.S. Department of Energy, 1000 Independence Avenue, SW Washington, DC 20585

Native Community Action Council, Commenter ID No. T47 (cont'd)

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of Energy is preferable. We would like to know who the responsible officer of the United States Government is in dealing with Native Americans. T47-2

Because we contacted the headquarter's office for the point of contact there, and it just goes around, whether it's the web page or the telephone. You call, and it doesn't go anywhere. That is the problem we've had. And Action Council seeks greater involvement and participation in DOE waste management activities.

Now, these comments that I'm starting are on behalf of the Western Shoshoni Traditional Government. If there is a so-called representation of Western Shoshoni National Council, then they should come and speak. Unfortunately, their so-called chief has accepted money for the payment of land, and that's not the government that I'm a part of and most of the traditional people that I represent are a part of.

The tribal IRA, federally recognized under Title 25 of the United States Code are U.S. government protectors. They do not speak on behalf of the legitimate government of the Newe Sogobia. No Newe -- no non-Newe is able to speak on behalf of the government of Newe Sogobia. That means no non-Shoshoni. The government of Newe Sogobia T47-3

T47-3 The No Action Alternative is evaluated in Chapter 3 of the EIS, and under this alternative, current practice for storing GTCC LLRW and GTCC-like wastes would continue. These practices are described in Sections 3.2 (GTCC LLRW) and 3.3 (GTCC-like wastes) in the Final EIS. It was necessary to make a number of simplifying assumptions to address the long-term impacts of this alternative, and these are described in Section 3.5. As part of this assessment, it was assumed that these wastes would remain in long-term storage indefinitely, including wastes from the West Valley Site as discussed in Section 3.5.3, and that no maintenance of either the storage facility or waste packages would occur after 100 years. These results indicate that very high radiation doses and cancer risks could occur under this alternative in the long term.

The No Action Alternative is evaluated in sufficient detail in the EIS as required by NEPA. Comparatively high potential radiation doses and cancer risks could occur should this alternative be selected. While a more detailed analysis could reduce the uncertainties associated with estimating these doses and risks, the conclusion of comparatively high impacts would not change for this alternative.

The No Action Alternative is evaluated in the EIS to provide a baseline for comparison with the action alternatives. This evaluation confirmed the risks posed by these wastes and the need to develop appropriate disposal capability. The potential radiation doses for the No Action Alternative covered a time period of 10,000 years in a manner comparable to that done for the action alternatives. Relatively high impacts could occur shortly after the 100-year institutional control period under this alternative.

Prior to making a final decision on disposal of GTCC waste, consultations with affected tribal governments will take place.

Native Community Action Council, Commenter ID No. T47 (cont'd)

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1 proposes no action, the No-Action Alternative.
2 The U.S. does not own Newe Sogobia, which
3 includes the Nevada Test Site, Nellis Air Force bombing
4 gunnery raids, so-called Nye County, White Pine,
5 Lincoln, Humboldt, and a few other counties. About
6 40,000 square miles to the west, including parts of
7 California, Idaho, and Southern Utah. I use those
8 state names for reference purposes and not to suggest
9 or imply that they are included into the boundaries or
10 jurisdiction of Newe Sogobia.
11 For those of you who need more history, you
12 can look at the federal statute creating the territory
13 of Nevada. The Nevada Organizing Act in 1861 states
14 that no portion of Indian country will be included in
15 the boundaries and jurisdiction of any state or
16 territory, blah, blah, blah. So long as such shall not
17 -- as long as there's a treaty, blah, blah, blah.
18 We'll submit this in writing.
19 And for those of you who need to see what
20 this means and how or what affect this federal statute
21 has, you should look at the 1883 Nevada Supreme Court
22 case, "State vs. McKinney." That is controlling here,
23 Folks, and it plays out the issue.
24 There is the Treaty of Ruby Valley. What
25 happened was in 1864, when Nevada became a state, the

T47-3 (Cont.)

T47-4

T47-4 See response to T47-1.

Native Community Action Council, Commenter ID No. T47 (cont'd)

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1 Nevada State Act required that the citizens of Nevada
2 forever disclaim all rights, title to the
3 unappropriated public lands. Unfortunately, the treaty
4 lands were not surveyed under the Nevada Organizing
5 Act, as they should have been.
6 The DOE -- this is our NEPA contention now.
7 That was the legal contention to this EIS process. Now
8 I have a NEPA contention. The DOE continues to use the
9 consolidated group of tribes as a tool to undermine the
10 traditional Newe people. The process was developed by
11 Dr. Richard Stoffel (phonetic) who continues to
12 orchestrate the systematic dismantlement of the living
13 culture of the Newe. This is a focused process designed
14 to systematically destroy the ethnic Western Shoshoni.
15 The current involvement process for Native
16 Americans is for the benefit of the United States and
17 profit of the nuclear industry -- all of those
18 industries, whether they be medical or commercial, the
19 process is a violation of the U.N. Convention on
20 prevention and punishment of the crime of genocide and
21 the U.S. Act, the Proxmire Act.
22 As far as nuclear technology, I view nuclear
23 technology and in discussions with my Traditional
24 Elders, we view the technology, whether it's coal or
25 oil or nuclear, the problem is the large-scale

T47-4 (Cont.)

Native Community Action Council, Commenter ID No. T47 (cont'd)

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1 deployment of these technology, we cannot see what is
2 going to happen. We have global warming. We have
3 Fukushima. We have Chernobyl. We have three --
4 UNIDENTIFIED SPEAKER: Two-mile Island?
5 MR. ZABARTE: Place back in Pennsylvania.
6 Yeah, Two-Mile Island.
7 Anyway, you know, that -- Two-Mile Island was
8 three days -- or excuse me. That was three months, a
9 newly refueled reactor. It had six hours or so with no
10 coolant and lost 30 percent of the core. Fukushima had
11 six to ten days with no coolant and a four-year-running
12 thermally hot reactor. Apples and oranges as far as
13 accidents go, but these are serious events. We cannot
14 foresee what is going to happen with these types of
15 technology.
16 So when I look at these, they exist. Nuclear
17 exists. Coal, oil, these things are cheap. They need
18 to be viewed as transition technologies until we can
19 get to the safe and sustainable technologies. They are
20 not safe and sustainable, and we need to get there
21 before it's too late. We'll have to use them. The
22 sustainable technologies are solar and wind.
23 Those are the end of my comments. We're
24 looking for a point of contact. We're going to T47-5
25 prosecute our -- we're going to prosecute these issues

T47-5 See response to T47-2.

Native Community Action Council, Commenter ID No. T47 (cont'd)

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1 with the United States.

2 Thank you.

T47-5 (Cont.)

Natural Resources Defense Council (NRDC), Commenter ID No. W556

Abplanalp, Jennifer Marie

From:	gtcceiswebmaster@anl.gov
Sent:	Monday, June 27, 2011 8:04 PM
To:	mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtcceis@anl.gov
Subject:	Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10556
Attachments:	saltstone_RAIs_dec2010_GTCC10556.pdf

Thank you for your comment, Geoffrey Fettus.

The comment tracking number that has been assigned to your comment is GTCC10556. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 27, 2011 08:04:08PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10556

First Name: Geoffrey
Middle Initial: H
Last Name: Fettus
Organization: Natural Resources Defense Council
Address: 1152 15th Street, NW
Address 2: Suite 300
City: Washington
State: DC
Zip: 20005
Country: USA
Email: gfettus@nrdc.org
Privacy Preference: Don't withhold name or address from public record
Attachment: saltstone RAIs dec2010.pdf

Comment Submitted:
Please see attached.

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

1

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

NRDC
THE EARTH'S BEST DEFENSE

June 27, 2011

Via Electronic Mail

Mr. Arnold M. Edelman
EIS Document Manager
U.S. Department of Energy
GTCC EIS
Cloverleaf Building, EM-43
1000 Independence Ave., S.W.
Washington, D.C. 20585

RE: NRDC Comments on the Draft Environmental Impact Statement for the Disposal of Greater-Than-Class-C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D)

Dear Mr. Edelman:

In 2007 the Natural Resources Defense Council (NRDC) wrote the Department of Energy (DOE) to withdraw its Notice of Intent Prepare an Environmental Impact Statement (EIS) for the Disposal of Greater-Than-Class-C Low-Level Radioactive Waste. 72 Fed. Reg. 40135, July 23, 2007. We stated that the Notice of Intent (NOI) failed to comply with the requirements of the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321, et seq. and failed to provide any comprehensible description of the waste inventory to be managed, the regulatory structure to be in place for the management and disposal process, the criteria for site selection or methods of disposal, and the range of alternatives being considered. After we suggested withdrawing the NOI, we urged the agency to promptly work on issuing an Advanced Notice of Intent to Prepare a Programmatic Environmental Impact Statement (PEIS).

Unfortunately, DOE has, in significant measure, ignored the comments we filed in 2007 and issued a Draft Environmental Impact Statement for the Disposal of Greater-Than-Class-C Low-Level Radioactive Waste and GTCC-Like Waste (Draft GTCC DEIS, DOE/EIS-0375-D) that is legally and technically deficient. As with the original NOI notice, the GTCC DEIS fails to comply with the requirements of the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321, et seq. and specifically fails to provide the necessary hard look at the potential environmental impacts of the (too limited) alternatives considered. As we suggested in 2007, after withdrawal of this Draft GTCC EIS and in order to be in compliance with NEPA, the agency should promptly work to issue an Advanced Notice of Intent to Prepare a Programmatic Environmental Impact Statement (PEIS). W556-1

W556-1 The scope of this EIS is adequate to inform decision-making for the disposal of GTCC LLRW and GTCC-like waste. Sufficient information is available to support the current decision-making process to identify (an) appropriate site(s) and method(s) to dispose of the limited amount of GTCC LLRW and GTCC-like waste identified in the EIS.

DOE believes that this EIS process is not premature and is in compliance with NEPA. On the basis of an assumed starting date of 2019 for disposal operations, more than half (about 6,700 m^3 [240,000 ft^3] of the total GTCC LLRW and GTCC-like waste inventory of 12,000 m^3 [420,000 ft^3]) is projected to be available for disposal between 2019 and 2030. An additional 2,000 m^3 (71,000 ft^3) would become available for disposal between 2031 and 2035. This information is presented in Figure 3.4.2-1. DOE believes this EIS is timely, especially given the length of time necessary to develop a GTCC waste disposal facility.

DOE developed this EIS to support a decision on selecting a disposal facility or facilities for GTCC LLRW and GTCC-like waste, to address legislative requirements, to address national security concerns (especially for sealed sources), and to protect public health and safety. The purpose and need for the proposed action, as discussed above, is stated in the EIS (Section 1.1). The scope of the EIS is focused on addressing the need for developing a disposal capability for the identified inventory of GTCC LLRW and GTCC-like wastes. DOE plans a tiered decision-making process, in which DOE would conduct further site-specific NEPA reviews before implementing an alternative ultimately selected on the basis of this EIS.

DOE explained in the WM PEIS (DOE, 1997, *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste*, DOE/EIS-0200-F, Office of Environmental Management, Washington, D.C.) that additional analyses would be prepared to implement DOE's programmatic decisions. The GTCC EIS analyzes the potential environmental impacts associated with the disposal of GTCC LLRW and GTCC-like (DOE) wastes. Since the WM PEIS relates only to DOE waste, the inclusion of commercial waste in the WM PEIS is premature until the GTCC EIS is finalized and a ROD is issued. Depending on the outcome of this ROD, DOE will evaluate whether additional programmatic or site-specific NEPA reviews or updates to previous decisions are needed, as appropriate. Any additional NEPA reviews or considerations will be conducted with full opportunity for public input, consistent with Council on Environmental Quality and DOE NEPA requirements.

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

Mr. Arnold Edelman
Department of Energy
June 27, 2011
Page 2

For decades, it has been an accepted premise that Greater-Than-Class-C Low-Level Radioactive Waste (GTCC LLW) is not suitable for near-surface disposal. *See* 10 C.F.R. § (a)(2)(iv). In May of 2005, DOE broached the matter of GTCC LLW disposal with an Advanced Notice of Intent to Prepare an EIS for the Disposal of GTCC LLW. In its July 2007 NOI, DOE proposed a number of disposal sites that were limited solely to DOE sites, selection of which were not based upon a set of objective and protective environmental criteria. DOE also proposed to create a new construct of waste classification, defense-derived "GTCC-like waste," and to construct and operate either a new facility, or, in the alternative, multiple facilities at these pre-selected DOE sites to dispose of both commingled GTCC LLW and GTCC-like waste. And now in the Draft GTCC EIS, DOE has purportedly analyzed a "no-action" alternative and four disposal alternatives:

> (1) deep geologic disposal, (2) intermediate-depth borehole disposal, (3) enhanced near-surface trench disposal, and (4) above-grade vault disposal. The latter three methods are hereinafter referred to as the borehole, trench, and vault disposal methods, as appropriate. The effectiveness of these disposal methods is evaluated at an existing repository and at various GTCC land disposal locations.

Draft GTCC EIS at 1-4.

As explained below, DOE's examination of the presented alternatives is both truncated and seriously deficient. DOE should reverse course and commence work on a PEIS, with the express understanding that significant additional NEPA work will need to be done (i.e., singular tiered EIS's for specific site decisions) after all the parties have had an opportunity to weigh in on the wider programmatic decisions.

W556-1 (Cont.)

NRDC Statement of Interest

NRDC is a national non-profit membership environmental organization with offices in Washington, D.C., New York City, San Francisco, Chicago, Los Angeles and Beijing. NRDC has a nationwide membership of over one million combined members and activists. NRDC's activities include maintaining and enhancing environmental quality and monitoring federal agency actions to ensure that federal statutes enacted to protect human health and the environment are fully and properly implemented. Since its inception in 1970, NRDC has sought to improve the environmental, health, and safety conditions at the nuclear facilities operated by DOE and the civil nuclear facilities licensed by the NRC and their predecessor agencies.

DOE Should Prepare a PEIS To Meaningfully Examine the Range of Alternatives.

In response to our request for a PEIS, the Draft GTCC EIS states that those comments were considered to be outside the scope of the EIS. The Department noted:

W556-2

> This EIS has been scoped to provide adequate environmental information to support the decision-making process to identify an appropriate site(s) and technology(s) to dispose of a limited amount of GTCC LLRW and GTCC-like

W556-2 DOE does not agree that a programmatic EIS as described in this comment must be prepared before this EIS is completed. DOE tailored the scope of this EIS to ensure the analyses will adequately inform the decisions at issue, including the selection of sites and technologies for the disposal of GTCC and GTCC- like waste. This EIS presents the environmental information needed to adequately inform decision makers regarding many of the questions and points raised in this comment; other questions and points raised remain outside of the scope of this document. DOE plans a tiered decision making process in which DOE would conduct further site-specific NEPA reviews before implementing an alternative ultimately selected on the basis of this EIS.

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

Mr. Arnold Edelman
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June 27, 2011
Page 3

> waste. If appropriate, DOE would conduct further NEPA review, tiered from this EIS, before implementing decisions."

Draft GTCC EIS at A-12. W556-2 (Cont.)

That response is inadequate and fails to describe matters that have been raised in support of a PEIS, let alone providing a reasoned basis for DOE's failure to draft the requested PEIS. Moreover, what kind of EIS is required also is certainly not outside the scope of an EIS.

As the Department is well aware, NEPA requires an impact statement on all "proposals for legislation and other major Federal action" that significantly affect the environment. 42 U.S.C. § 4332(C). In fact, Council on Environmental Quality regulations explicitly include the adoption of programs as one category of "Federal action" requiring an EIS. 40 C.F.R. § 1502.4(b). Moreover, agencies have an obligation under NEPA to evaluate not only programs involving the siting and construction of new facilities, but also "federal or federally assisted research, development, or demonstration programs for new technologies which, if applied, could significantly affect the quality of the human environment." 40 C.F.R. § 1502.4 (emphasis added). With the potential range of disposal configuration and siting issues that could arise in this matter – deep borehole injection, vaults, repositories, multiple vs. single disposal sites, and the difficulty of developing defensible and rational life-cycle cost estimates – a programmatic EIS is precisely the required evaluation of the government's full proposal for ambitious plans that could involve multiple sites, diverse waste streams, and new technologies. Indeed, the single (and currently) only path that would not necessarily require significant statutory alteration is disposal of GTCC and GTCC like waste pursuant to the Nuclear Waste Policy Act, 42 U.S.C. § 10101 et seq., and that option is not even addressed in this Draft.

As we noted several years ago on this matter, DOE must initiate a broad, comprehensive and technically searching review of the environmental impacts of the entire range of issues presented by this as yet speculative set of related actions for both commercial and defense radioactive waste. This analysis must include a full range of reasonable alternatives for achieving the government's purpose and need for action, thereby ensuring that the agency embarks on a legally compliant path toward fulfilling its NEPA obligations. In 2007 we stated that DOE must address in any initial PEIS on these matters a full and clear accounting of the waste inventory of GTCC LLW and GTCC-like waste. This is seemingly the one area where DOE actually responded to our comments. While there needs to be substantial improvement with respect to information on the waste that is to be generated from reactor decommissioning, the specificity with respect to sealed sources and activated metals is an improvement over past DOE documents. W556-3

Moving beyond matters of waste inventory, DOE must analyze the full range of disposal and storage options. And with the range of disposal options presented, DOE must clearly account for the environmental standards and the associated life-cycle costs that will be necessary and implemented for each potential disposal or storage method. And it is here that DOE is (1) ignoring the alternative of substantially improved hardened onsite storage and artificially truncating the list of potential alternatives; and (2) presenting a legally deficient analysis of the range of alternatives and the requisite "hard look" at their respective impacts (discussed later in these comments).

W556-3 The EIS considered the range of reasonable alternatives for disposal of the inventory of GTCC LLRW and GTCC-like wastes identified for inclusion in these analyses. The Secretary of Energy determined that a permanent repository for high-level waste and spent nuclear fuel at Yucca Mountain, Nevada, is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of the EIS. DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

As part of this EIS process, DOE solicited technical capability statements from commercial vendors that might be interested in constructing and operating a GTCC waste disposal facility. Although several commercial vendors expressed interest, no vendors provided specific information on disposal locations and methods that could have been analyzed in the EIS. Hence, this option was analyzed generically. The analysis provided in this EIS could be used to support a decision for disposing of GTCC LLRW and GTCC-like waste in one or more commercial facilities, if such facilities are identified in the future. Site-specific NEPA reviews would be conducted as needed.

Long-term storage and a retrievable "disposal" option were considered to be outside the scope of the EIS because neither would provide a permanent disposal solution. Regarding the use of mined cavities, DOE does not believe it is reasonable to dispose of GTCC LLRW and GTCC like waste in a new mined cavity (other than the existing WIPP facility) because of the potential cost and time it would take to develop such an alternative in comparison to the relatively small amount of waste. With regard to existing mines, no specific mine has been identified as having the proper characteristics for disposal of GTCC LLRW and GTCC-like wastes.

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More specifically, as was suggested in the 2007 scoping document, the Draft GTCC EIS considers that DOE geologic repositories are not the only reasonable alternatives for disposal. The Draft includes two "Waste Isolation Pilot Plant Vicinity" sites, and four "generic regional commercial disposal sites." Yet the Draft does not include any of the eight commercial LLW disposal sites as reasonable alternatives. As the DOE is well aware, disposal of LLW has occurred at a number of sites around the country (examples include Barnwell, SC; Energy Solutions, Clive, UT; Maxey Flats, KY). In addition, Waste Control Specialists, Andrews, TX may receive LLW in the future. And GTCC waste will be generated by commercial nuclear reactors and other sites around the country over the next several decades. Yet none of those specific locations are considered reasonable alternatives for disposal.

W556-3 (Cont.)

Further, the Draft GTCC EIS fails to analyze whether any of the commercial LLW disposal sites (active and/or closed) could be used for the inventory that may not require geologic disposal. And the document even fails to consider whether at least one of the many commercial generation and storage sites could be used for the technologies that may not require geologic disposal. That no one has volunteered to host such a facility does not mean that a generic analysis should not take place. Ultimately, the "generic" sites included in the Draft GTCC EIS are more appropriately analyzed in a PEIS.

The Alternatives Fail NEPA's Hard Look Test

NEPA directs that DOE take a "hard look" at the environmental impacts of its proposed program and compare them to alternative means of fulfilling the same purpose and need for agency action that may avoid or mitigate environmental harms or risks posed by the Proposed Program. "What constitutes a 'hard look' cannot be outlined with rule-like precision, but it at least encompasses a thorough investigation into the environmental impacts of an agency's action and a candid acknowledgement of the risks that those impacts entail." Nat'l Audubon Soc. V. Dept of the Navy, 422 F.3d 174, 185 (4th Cir. 2005).[1]

W556-4

The Draft GTCC EIS fails NEPA's hard look test, most clearly on the issue of "reasonably foreseeable" impacts. As one example, Alternative 5, disposal of GTCC in a new vault facility, is discussed in a scant few paragraphs. See Draft GTCC EIS, Vol. 1, 2.5, at page 2-8. Appendix D goes on to describe the conceptual design of such a vault. Id. at Vol 2, App. D, 3.3 at pages D-8 to D-12. There is no discussion of DOE's long history of failures, leaks, and cracks with radioactive waste vaults in the nuclear weapons complex and how, this time, such problems will be avoided. See Attachment 1, the Nuclear Regulatory Commission's "Second Request for Additional Information on the 2009 Performance Assessment for the Saltstone Disposal Facility at the

[1] NEPA is clear in its well-established mandates. NEPA characterizes environmental impacts broadly to include not only ecological effects, such as physical, chemical, radiological and biological effects, but also aesthetic, historic, cultural, economic, and social effects. 40 C.F.R. § 1508.8. NEPA requires an agency to consider both the direct effects caused by an action and any indirect effects that are reasonably foreseeable. Effects include direct effects caused by the action and occurring at the same time and place and indirect effects caused by the action, but later in time or farther removed in distance, but still reasonably foreseeable. 40 C.F.R. § 1508.8

W556-4 The EIS considered the range of reasonable alternatives for disposal of the inventory of GTCC LLRW and GTCC-like wastes identified for inclusion in these analyses. An analysis of borehole and trench disposal methods is provided in Chapter 5 and Appendix D.

Savannah River Site," Docket No. PROJ0734. The same paucity of analysis is evident with respect to the issue of boreholes and trenches.[2] W556-4 (Cont.)

Ultimately, the Draft GTCC EIS suggests repeatedly that a significant near-term issue and the primary driver for action is the protection and disposal of commercial sealed sources, which comprise less than one percent of the activity and volume of GTCC waste. But the Draft fails to demonstrate that current (or, one might hope, improved) storage methods are inadequate. And further, DOE provides no analysis that hardened onsite storage is not sufficient for the relevant wastes for the next several decades, a time period that allows for the President's Blue Ribbon Commission on America's Nuclear Future to conclude its work and even the U.S. Congress to respond accordingly. Instead, the Draft GTCC EIS presents a deficient analysis of disposal options and improperly assumes that proposed alternative methods (boreholes, trenches, vaults) will be approved by NRC. The Draft GTCC EIS states: "NRC regulations at 10 CFR 61.55 (a)(2)(iv) require that GTCC LLRW must be disposed of in a geologic repository unless alternative methods of disposal are proposed to the NRC and approved by the Commission." Draft GTCC EIS at 1-20. Especially in light of DOE's history of leaking, cracked vaults and improperly designed trenches, the agency fails to present information or evidence to support an assumption of reasonable alternatives approved by the NRC. In short, an adequate Draft GTCC EIS would analyze the assumption that some or all of the GTCC waste would not be approved for the alternative methods and be structured accordingly. W556-5

If you have questions, please do not hesitate to contact me at (202) 289-6868. Thank you for considering our views on these important matters.

Sincerely,

/s/

Geoffrey H. Fettus
Senior Project Attorney
Natural Resources Defense Council
1152 15th Street, NW
Suite 300
Washington, DC 20005
(202) 289-6868

[2] See, e.g., http://www.amanuclear.org/Portals/0/documents/Water%20Report/waterreportexecsummary.pdf, or http://www.ieer.org/reports/poison/toc.html.

W556-5 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

From: gtcceiswebmaster@anl.gov
Sent: Monday, June 27, 2011 8:06 PM
To: mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtcceis@anl.gov
Subject: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10558
Attachments: NRDCGTCCcomments27June11FINAL#1_GTCC10558.docx

Thank you for your comment, Geoffrey Fettus.

The comment tracking number that has been assigned to your comment is GTCC10558. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 27, 2011 08:06:07PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10558

First Name: Geoffrey
Middle Initial: H
Last Name: Fettus
Organization: Natural Resources Defense Council
Address: 1152 15th St. NW
Address 2: Suite 300
City: Washington
State: DC
Zip: 20005
Country: USA
Email: gfettus@nrdc.org
Privacy Preference: Don't withhold name or address from public record
Attachment: NRDCGTCCcomments27June11FINAL#1.docx

Comment Submitted:
See attached file

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

1

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

December 15, 2010

Mr. Thomas Gutmann, Director
Waste Disposition Programs Division
U.S. Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, SC 29802

SUBJECT: SECOND REQUEST FOR ADDITIONAL INFORMATION ON THE 2009 PERFORMANCE ASSESSMENT FOR THE SALTSTONE DISPOSAL FACILITY AT THE SAVANNAH RIVER SITE, DOCKET NUMBER PROJ0734

Dear Mr. Gutmann:

The U.S. Nuclear Regulatory Commission (NRC) staff is currently reviewing the "2009 Performance Assessment for the Saltstone Disposal Facility at the Savannah River Site" (PA) dated October 2009, and the associated documentation. This review is being conducted in accordance with Section 3116 (b) of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005, which requires NRC to monitor disposal actions taken by the U.S. Department of Energy (DOE) for the purpose of assessing compliance with the performance objectives set out in 10 CFR Part 61, Subpart C. The PA is an update to the Performance Assessment performed in support of the "Draft Section 3116 Determination, Salt Waste Disposal, Savannah River Site," dated February 28, 2005.

We have enclosed a second Request for Additional Information (RAI), RAI-2009-02, which is a list of comments for which the NRC staff needs responses from DOE before the NRC can complete its review. The first RAI, RAI-2009-01, was submitted to DOE on March 31, 2010, and DOE provided a response to that RAI on July 22, 2010. The staff's initial assessment of the adequacy of the responses to that RAI was discussed at a public teleconference between NRC and DOE on September 2, 2010.

As was expressed in the September 2, 2010, public teleconference, the staff reviewed the responses to RAI-2009-01 and, though several of the responses adequately addressed NRC staff comments, a number of them either did not provide enough information, or did not fully address all the NRC comments. From the review of the information provided by DOE thus far, the staff cannot yet determine whether or not the Saltstone disposal actions will comply with the performance objectives in Part 61. The staff is particularly interested in the expected degradation case, or the "base case." It appears that the base case may not sufficiently reflect relevant known conditions, may not adequately account for uncertainty and variability, and may not be supported by an adequate technical basis. Several of the NRC comments in the enclosure explore this issue further.

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

T. Gutmann 2

To meet the current schedule for NRC to complete its review of the 2009 PA by June 15, 2011, we are requesting your response to the RAI by March 15, 2011, in order to provide NRC adequate time to review your response and document our findings. It is important that DOE provide a comprehensive response to the enclosed RAI to avoid another round of questions from the NRC, which could substantially delay the scheduled completion of our review. Please let us know if you believe more time is needed to respond to any of the enclosed comments, after you have had a chance to review them. It may be worthwhile to spend a little more time now to provide a comprehensive response, which could result in a short delay in completing our review, in order to prevent a much longer delay that could result from NRC asking another round of questions. To facilitate preparation of your response to the RAI, the NRC staff would be happy to meet with your staff and your contractors to clarify the RAI, or discuss proposed responses, as soon as you have had a chance to review the enclosed RAI comments.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS Accession Number ML100820097). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

If you have any questions, please contact Nishka Devaser, Project Manager in the Division of Waste Management and Environmental Protection, by email at Nishka.Devaser@nrc.gov, or by phone at (301) 415-5196.

Sincerely,

/RA/

David L. Skeen, Acting Deputy Director
Environmental Protection
and Performance Assessment Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Enclosure: RAI

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

T. Gutmann 2

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If you have any questions, please contact Nishka Devaser, Project Manager in the Division of Waste Management and Environmental Protection, by email at Nishka.Devaser@nrc.gov, or by phone at (301) 415-5196.

Sincerely,

David L. Skeen, Acting Deputy Director
Environmental Protection
and Performance Assessment Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Enclosure: RAI

ML103400571

OFC	DWMEP:PM	DWMEP:LA	DWMEP:BC	DWMEP:BC	DWMEP
NAME	NDevaser	AWalker-Smith	CMcKenney	GSuber	DSkeen
DATE	12/07/10	12/07/10	12/14/10	12/14/10	12/15/10

OFFICIAL RECORD COPY

RAI-2009-02
Second Request for Additional Information for the 2009 Performance Assessment for the Saltstone Disposal Facility at the Savannah River Site

December 2010

Structure of Comments

The U.S. Nuclear Regulatory Commission (NRC) staff's review comments are separated into topical areas to facilitate the U.S. Department of Energy's (DOE's) responses (SRR-CWDA-2010-00033). Documents published by DOE are referenced by number. Section or table references provided without an associated document title or reference refer to sections or tables in the document "*Performance Assessment for the Saltstone Disposal Facility at the Savannah River Site, SRR-CWDA-2009-00017*" (SRR-CWDA-2009-00017). DOE responses to the first Request for Additional Information (RAI), *RAI-2009-01* (NRC, 2010b), can be found in the "*Comment Response Matrix for NRC RAIs on the Saltstone Disposal Facility Performance Assessment, SRR-CWDA-2010-00033*" (SRR-CWDA-2010-00033) and are referred to in this document as "DOE RAI response".

All comments have been combined in this document; the same naming and numbering system is used as was provided in the first RAI. Comments from RAI-2009-01 maintain their original name and number and where new comments are introduced in a section, the next sequential number is used. Table 2 below lists all the comments with a "Status of Comment" designation assigned for simpler navigation. "Status of Comment" designations are defined in Table 1 below. The format for the follow-up comments, which are continued comments from RAI-2009-01, is to provide the original comment and identification, a discussion of the inadequacy of the DOE response, and a path forward. New information requests have the same format as in the first RAI package. Clarifying comments from RAI-2009-01 that received adequate responses are not repeated in this document, the Clarifying Comments section of this document consists only of new comments and those from RAI-2009-01 that require additional clarification.

Individual comments may have multiple items for which NRC is seeking additional information. Extra care should be taken to ensure that all items are addressed in the responses to ensure that further additional information is not needed. If items are not addressed, the NRC will be unable to complete its technical evaluation report, or will not be able to reach conclusions on the DOE analysis.

The path forward provided for each comment is one recommended approach to resolution; the NRC staff understands that there may be more than one method for adequately addressing the technical issues raised in the comments. Appropriate responses to some comments may depend on the nature of the resolution of other comments. It will be important for DOE to ensure internal consistency of the responses, especially if any changes are made to analyses supporting the performance assessment (PA).

Enclosure

New Research

During previous onsite monitoring visits and meetings with DOE, site staff stated that ongoing research was being performed in a number of areas. If any new documents have been published by DOE or its contractors in the areas listed below, please provide these documents to the NRC.

- Saltstone variability testing and product quality assurance
- Vault degradation - hydraulic properties
- Reduction and sorption of Tc in the saltstone wasteform
- Vault cracking and transport through cracks
- Drainage layer plugging
- Engineered cap performance
- Results of studies performed with the core samples removed from Vault 4
- Current inventory of all radionuclides in Vault 4

Common Acronyms

FDC	Future Disposal Cell
LFRG	Low-Level Waste Disposal Facility Federal Review Group
MOP	Member of the Public
NDAA	Sect. 3116, National Defense Authorization Act Fiscal Year 2005
PA	Performance Assessment
SCDHEC	South Carolina Department of Health and Environmental Control
SDF	Saltstone Disposal Facility
SPF	Saltstone Production Facility
SRS	Savannah River Site
TER	Technical Evaluation Report
WD	Waste Determination

Comment Topics

Performance Assessment Methods (PA)
Inventory (IN)
Infiltration and Erosion Control (IEC)
Saltstone Performance (SP)
Vault Performance (VP)
Far-field transport (FFT)
Air Pathway (AP)
Inadvertent Intrusion (II)
Biosphere (B)
ALARA analysis (A)
Clarifying Questions (C)

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

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Table 1: Status of Comment Classification Definitions

Status of Comment	Classification Definition
New	New
Complete	Comment addressed; no further questions needed
Incomplete	Additional information requested
Monitoring	Accounted for in monitoring
Clarify	Additional clarification requested

Table 2: Comment Status

Comment	Description	Status
PA-1	Individual Radionuclides Dose Contribution in Sensitivity Cases	Complete
PA-2	Probabilistic Sensitivity Analyses for Bulk Saltstone Degradation	Complete
PA-3	Determination of Key Radionuclides	Incomplete
PA-4	GoldSim Benchmarking Based Only on Key Radionuclides	Incomplete
PA-5	GoldSim Benchmarking Factors and Parameter Adjustments	Incomplete
PA-6	Analyses to Times Beyond Performance Period Based only on Key Radionuclides	Clarify
PA-7	Limited Model Support for PA	New
PA-8	Base Case Assumptions inconsistent with Current and Expected Future Conditions	New
PA-9	Conservatism of the Synergistic Case Assumptions is not Clear	New
PA-10	Saltstone System Flow Assumptions Appear to be Optimistic	New
PA-11	GoldSim Model for Uncertainty and Sensitivity Analyses may not Accurately Assess Dose	New
PA-12	Dose from Vault 1 Containerized Waste From Vault 4 Leaching	New
PA-13	Dose Consequences from Vault Releases Prior to Completion of Closure Cap	New
PA-14	Calcareous Zones	New
IN-1	Exceedance of Assumed Total Inventory in Vaults 1 and 4	Complete
IN-2	Uncertainty Distributions for Radionuclide Inventories in GoldSim Calculations	Incomplete
IN-3	Distribution of Radionuclide Inventory Among FDCs	Incomplete
IN-4	Inventory in Sheet Drain Systems and Transfer Lines At Closure	Incomplete
IN-5	Th-230 and Ra-226 Inventory and Identification of Key Radionuclides	New
IN-6	Potential Changes to SDF Feed Tank and Sampling	New
IEC-1	Infiltration of Water from Perimeter Drainage Channel	Complete
IEC-2	Materials Used to Backfill Around Disposal Cells	Complete
IEC-3	Long-Term Performance of Closure Cap Side Slopes	Monitoring
IEC-4	Effect of Transition from Bahia Grass to Pine Tree Forest on Closure Cap	Monitoring
IEC-5	Differential Settlement of Backfill	Complete
IEC-6	Hydraulic Conductivity of Infiltration and Erosion Cap Foundation Layer	Complete
IEC-7	Implications of Saturated Conditions Above The Lateral Drainage Layer	New
IEC-8	Long-Term Performance of Filter Fabric and Lateral Drainage Layers	New
SP-1	Basis for Assuming Saltstone is Hydraulically Undegraded for 20,000 Years	Incomplete
SP-2	Basis for Assumed Extent of Saltstone Fracturing	Incomplete

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

4

Comment	Description	Status
SP-3	Basis for Assumed Moisture Characteristic Curve for Saltstone	Incomplete
SP-4	Characteristic Curves Do Not Reflect Non-Equilibrium Flow	Incomplete
SP-5	Support Needed for Intact Saltstone Hydraulic Conductivity	Incomplete
SP-6	Basis for Effective Diffusivity of Intact and Degraded Saltstone	Incomplete
SP-7	Basis for Assumptions in Simulation of Sulfate Attack using STADIUM	Incomplete
SP-8	Initial Grout Mineralogy Assumed in Expansive Phase Precipitation Study Inconsistent with Other Research	Incomplete
SP-9	Groundwater Composition Uncertainty Not Considered in Estimation of Eh & Ph Transitions	Complete
SP-10	Plutonium and Neptunium Sorption Coefficients in Cementitious Materials	Incomplete
SP-11	Evaluation of K_d Values for "Middle" and "Old" Age Cementitious Materials	Monitoring
SP-12	Model Support for Eh–pH Evolution in Cementitious Materials	Incomplete
SP-13	Effect of Limiting The Shrinking-Core Model for Eh Evolution to Tc	Incomplete
SP-14	Basis for Assumed Iodine and Radium K_d Values in Cementitious Materials	Incomplete
SP-15	Basis for Assumed Tc Pseudo-K_d of 1,000 mL/g	Incomplete
SP-16	Basis for Reduction Capacity Used for Tc Transitions in Shrinking-Core Model	Complete
SP-17	Basis for Neglecting Gas-Phase Diffusion of Oxygen in Saltstone	Incomplete
SP-18	Basis for Uncertainty Ranges Used for K_d Values of Cementitious Materials	Incomplete
SP-19	Research on Tc-99 Release From Saltstone Inconsistent With Releases in PA	New
VP-1	Applicability of Vault 1 and 4 Degradation Mechanisms to FDCs	Complete
VP-2	Neglecting of Disposal Unit Degradation Mechanisms Other than Sulfate Attack	Incomplete
VP-3	Assumption of Completely Reducing Disposal Unit Floors	Incomplete
VP-4	Effect of Inventory Effects in Vault 1 and 4 Floors	Complete
VP-5	Incorporation of FDC Hydrotest Observations in PA	New
VP-6	No Physical Basis for Bypassing of Flow Through Vault 1 and 4 Walls	New
FFT-1	Uncertainty Ranges Used for Site Soils K_d Values	Incomplete
FFT-2	Site-Specific K_d Value Measurements for Sorption of Radium to Soil	Complete
FFT-3	K_d of Selenium in Vadose and Backfill Soils	Incomplete
FFT-4	Effect of Calcareous Zones on Far Field Transport	New
AP-1	Inclusion of Dose from Radon in Air Pathway Dose Assessment	Complete
AP-2	Consideration of Saltstone Degradation and Cover Moisture Content in Air Pathway Dose Calculation	Complete
II-1	Potential Pathways of Exposure for An Inadvertent Intruder	Incomplete
II-2	Calculation of Intruder Dose Calculated Based on the Unrealistic Case A	Incomplete
B-1	Exclusion of Biotic Transfer Factors from Uncertainty Analysis	Incomplete
B-2	Exclusion of Poultry and Eggs in Dose Assessment	Incomplete
B-3	Radionuclide Build-Up in Irrigated Soils	Incomplete
B-4	Soil to Plant Transfer Factors	New
B-5	Drinking Water Ingestion Rate Inconsistent With Assumed Receptor and Scenario	New
A-1	ALARA Considerations	Incomplete
C-4	Consideration of Presence of Selenium as Selenate in Solution	Clarify

Comment	Description	Status
C-8	Radionuclides included in PORFLOW Cases B - E	Incomplete
C-22	PORFLOW Hydraulic Conductivity	New
C-23	Geomembrane Placement Quality	New

Performance Assessment Methods

PA-1 **Comment:** The contribution of individual radionuclides to the dose was not provided for several deterministic sensitivity cases.

NRC Response: The answer to this RAI was adequate.

PA-2 **Comment:** Probabilistic sensitivity analyses were not provided for cases representing bulk saltstone degradation.

NRC Response: The answer to this RAI was adequate, but note that the NRC staff have concerns about the methodology used in the GoldSim analyses (see PA-11).

PA-3 **Comment:** The determination of key radionuclides described in Section 5.2.2 of the PA may not have captured all of the risk significant radionuclides. The determination of key radionuclides is significant to the results of the PA because many of the analyses used to support the PA only include the key radionuclides (e.g., the PORFLOW analyses for Cases B-E).

NRC Response: The NRC discussion on PA-3 has been combined with PA-4. See below for details.

PA-4 **Comment:** Benchmarking based only on key radionuclides identified in the base case analysis does not provide adequate support for the interpretation of alternate-case GoldSim model results.

DOE Response Discussion: In the DOE RAI response for PA-3, DOE indicated that the inventory list used in the GoldSim model included the less mobile radionuclides even if they were not determined to be key radionuclides. This aspect of the response was adequate.

However the response went on to indicate that the dose comparisons for the three key radionuclides Ra-226, Tc-99, and I-129 show good agreement, providing assurance that the behavior of additional radionuclides simulated in the GoldSim model for alternate cases is appropriate. NRC disagrees with this conclusion for two reasons. First, the code comparisons do not show particularly good agreement. The charts are presented with logarithmic scales starting from very low values. The many order of magnitude presentation of very low fluxes and concentrations makes the peak differences appear to be smaller. Examination of the flux curves for the radionuclides that have been benchmarked show differences of a factor of 10 to 30 or more, depending on the time period selected. The confidence in the non-benchmarked GoldSim radionuclides should necessarily be less than this, because

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they have not undergone the benchmarking exercise. Second, as discussed below for comment PA-5, the benchmarking process itself is not sufficiently transparent to allow NRC to have confidence in the adjustments that were made.

Path Forward: The following options represent acceptable approaches to *addressing this issue:*

1) Perform a blind comparison of some radionuclides not included in the previous benchmarking (such as Np-237, Pb-210, U-234) for PORFLOW and GoldSim results for some alternate cases to demonstrate the level of confidence that should be assigned to non-benchmarked radionuclides. The blind comparison would be done by running each model for given radionuclides without iteration on benchmarking factors
2) Perform PORFLOW analyses with the additional radionuclides for the alternate cases.
3) Incorporate an appropriate amount of uncertainty in conclusions regarding the non-benchmarked radionuclides in the alternate cases (least recommended) that factors in the level of agreement achieved between the GoldSim and PORFLOW results and that the additional radionuclides will not have been benchmarked.

PA-5 **Comment:** Additional information is needed about the benchmarking factors and other GoldSim parameter adjustments based on benchmarking to the PORFLOW model.

DOE Response Discussion: DOE provided additional information discussing the changes that were made in the benchmarking exercise including the basis for some of the changes. The modifications made to account for the different release modeling of Tc was clear, as was the need to make modifications based on the different dimensionality of the flow fields. However, DOE did not sufficiently address the modifications to the saturated zone in reference to the PORFLOW "dilution" provided in the original NRC comment.

Although the PORFLOW model is being used for the base (compliance) case, the GoldSim model is used to understand the impact of key uncertainties. Some of those uncertainities, as discussed above, NRC believes should be represented in the base case. Conceptually, the benchmarking process was used to achieve better agreement between the results for the different models. The NRC concern is if the modifications cannot be clearly explained as having a physical basis tied to the conceptual representation of the two different models, then neither model representation may have sufficient predictive power of the future risks from the disposal facility. The benchmarking should increase confidence that each calculation appropriately represents the physical processes and therefore that the risks to future receptors has been appropriately estimated, and it should not be an exercise in getting the results of computer programs to match.

Path Forward: Provide greater transparency in the benchmarking adjustments. For example, one acceptable approach would be to provide a comparison of the results

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(unbenchmarked) then a stepwise comparison after each benchmarking change, with each change linked to the conceptual model explaining the physical basis for the change. A diagram of the model, such as a cross section, with the benchmarking changes and the magnitude of the changes would be very useful to help the NRC develop the confidence in the benchmarked model results that the DOE has.

PA-6 **Comment:** Results of analyses run to times beyond or far beyond the performance period appear to underestimate dose by excluding radionuclides and pathways based on their contribution to the base case analysis at 10,000 or 20,000 years. Although an estimate of the dose at extremely long times is not likely to be necessary for a compliance determination, it is important to understand the basis for any reported results and, when reporting the information, to note important limitations.

DOE Response Discussion: The answer to this RAI was mostly adequate, but NRC staff has one clarifying question about this RAI response. The first sentence in Section 5.5.1.5 of the PA states, "The peak groundwater pathways doses associated with key radionuclides are calculated for 40,000 years in order that the dose behavior well past the performance period can be evaluated". However, the RAI response implies that the calculation described in this section included all radionuclides. Although the dose at 40,000 years is outside of the period of compliance, the information presented in Figure 5.5-9 may be misleading if all radionuclides were not included in this PORFLOW calculation.

Path Forward: Please provide a list of the radionuclides that were included in the PORFLOW calculation described in Section 5.5.1.5.

PA-7 **Comment (New):** Model support for the PA is limited and plans for development of additional support are not provided.

Basis: Model support is essential to developing confidence that the PA provides for decisions that are protective of public health and safety. Model support is intended to develop confidence that an appropriate model was used. DOE has done a much better job at explaining the calculations. However, with respect to model support, DOE has referenced ongoing research or provided sensitivity analyses. NRC acknowledges the ongoing research and is fully supportive of it. The sensitivity analysis is useful to understand how the results may change with changes in data or models. However they are of limited use in determining whether the current representation is appropriate and sufficient. The likelihood of making a poor decision increases if model support is limited. NUREG-1854 (NRC, 2007) provides information on appropriate forms of model support.

Path Forward: Provide acceptable model support for the PA model. If research is ongoing, provide a description of the plans to develop model support including when the information is scheduled to be developed. Consult NUREG-1854 (NRC, 2007) for additional information regarding approaches acceptable to NRC.

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PA-8 **Comment (New):** The base case does not represent the current and reasonably expected future conditions.

Basis: The PA base case scenario is unrealistic and non-conservative in that it (i) does not reflect relevant known conditions, (ii) does not adequately account for uncertainty and variability, and (iii) does not have adequate technical bases.

The base case model is inconsistent with known conditions. Significant site characteristics that have not been adequately incorporated into the model include the following:

- *Fractured saltstone is not considered in the base case even though fracturing* of saltstone has been observed. In addition, shrinkage has been observed and is not included in the model. (Comment SP-2)
- The PA models appear to be inconsistent with observed, advective contaminant releases from Vault 4. (Comments SP-6)
- Material interfaces have shown to be relevant to performance; however they are not considered in the PORFLOW model. (Comment VP-5)

The base case model does not adequately account for uncertainty in initial, temporal, and spatial conditions. NRC concerns with parameter and conceptual model uncertainty include the following:

- The hydraulic conductivity and effective diffusion coefficient for saltstone are time-invariant as the base case model does not adequately account for temporal variation. (Comment SP-1; SP-6)
- The initial hydraulic conductivity of saltstone does not fully account for uncertainty in scaling from laboratory conditions to full-scale, as-emplaced saltstone. (Comment SP-5)
- The PA does not account for uncertainty in the predictions of Eh-pH evolution for cementitious materials. (Comment SP-12)
- The PA does not account for uncertainty with respect to vault degradation mechanisms. (Comment VP-2)

The base case does not have adequate technical bases. NRC concerns with limited model support include the following:

- Model support for geotextile filter fabrics and the lateral drainage layers is not commensurate with their expected long-term performance and risk significance. (Comment IEC-8)
- The moisture characteristic curves implemented in the base case for intact and fractured cementitious materials, which significantly reduce flow, lack adequate support considering their risk significance. (Comments SP-3; SP-4)

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- The chemical stability of saltstone provides a significant barrier to transport; however, the basis for the Eh-pH evolution of cementitious materials is very limited. (Comment SP-12)
- The basis for the adopted technetium pseudo-K_d of 1,000 mL/g is inaccurate and insufficient. (Comment SP-15)
- The selected biotic transfer factors lack site-specific data and have very limited support. (Comment B-1)
- There is not a sufficient technical basis to exclude the chicken and egg pathway. (Comment B-2)
- The effects of radionuclide build-up in irrigated soils may be underestimated. (Comment B-3)
- The soil to plant transfer factors may be too low due to the elimination of the leafy plant component. (Comment B-4)

DOE has supported the base case with alternative scenarios and one-off sensitivity analyses. Alternative scenarios can be considered towards compliance determination; however, limitations with the assumptions and parameterization make the conservatism of the alternate cases and the synergistic case unclear (see Comment PA-9).

DOE has used one-off sensitivity analyses to evaluate the risk significance of certain parameters that are not incorporated into the base case model to demonstrate that the individual parameters do not appreciably impact the estimated dose to the Member of the Public (MOP) during the compliance period. However, this type of analysis, which may result in an insignificant increase in the base case dose, will only identify local sensitivity within the parameter space. When (i) many uncertainties exist, (ii) the margin between compliance and the base case dose is relatively small, and (iii) it is not clear how all of the uncertainties are interrelated, then the resultant dose from the inclusion of these uncertainties could be significant on a cumulative basis even if the increases for individual one-off analyses are insignificant on an absolute basis.

Path Forward: DOE should establish a base case that has adequate technical bases and appropriately reflects uncertainties to demonstrate with reasonable assurance that the performance objectives can be met.

PA-9 **Comment (New):** Conclusions about the conservatism of the synergistic case are not clear as certain assumptions appear to be overly optimistic, while other assumptions are potentially conservative.

Basis: The synergistic case was developed by DOE, based on comments received from the LFRG, to evaluate the impact of simultaneously changing multiple material parameters to account for several potential increased degradation mechanisms from the base case. The PA describes this case as pessimistic. However, NRC staff

believes that certain assumptions within the synergistic case render the degree of pessimism or conservatism indeterminate.

NRC staff is unable to assess the adequacy of the synergistic case without additional understanding of the balance between (i) the potential conservatism of the flow through the cracked saltstone and (ii) the model limitations that are applicable to all of the cases in the PA. The general limitations of the PA cases include the following: flow through the vaults and saltstone (see Comments PA-10; IEC-8; SP-1; SP-2; SP-3; SP-4; SP-5; SP-6; VP-3; and VP-6); chemical stability of cementitious materials (see Comment SP-12); and appropriateness of the biosphere calculations (see Comments B-1; B-2; B-3; B-4; and B-5). In addition, the synergistic case appears to only include the key radionuclides determined in the base case. Differences in the conceptualization between the synergistic case and the base case could change the key radionuclides (e.g., short-lived radionuclides may be risk significant in the synergistic case with the earlier degradation of the closure cap and the presence of fast pathways and the advective flow present in the synergistic case could result in a set of key radionuclides that differs from the diffusion-dominated base case.)

Path Forward: The appropriateness of the synergistic case depends on the extent that DOE relies on the synergistic case to demonstrate compliance with the performance objectives. If compliance determination rests heavily on the synergistic case (i.e., the synergistic case is used to estimate the impact from key uncertainties, lack of model support, limited information), DOE should (i) provide discussion on the balance between potential optimisms and conservatisms within the synergistic case, (ii) address the limitations applicable to all of the cases in the PA, and (iii) address the potentially limited subset of radionuclides.

PA-10 Comment (New): Assumptions in the PA regarding the conceptual model and parameterization may result in unsupported modeled flow rates through saltstone.

Basis: Several engineered barriers in the PA provide a significant and long-term impediment to the flow of water through the saltstone wasteform. However, DOE has very limited data to support the performance of several of these key barrier components, which include:

- Hydraulic conductivity of saltstone being hydraulically undegraded for 20,000 years in the base case. (See Comment SP-1)
- Saltstone as not being fractured in the base case. (See Comment SP-2)
- Moisture characteristic curves that are implemented for intact saltstone. (See Comment SP-3)
- Moisture characteristic curves that are implemented for fractured saltstone and concrete. (See Comment SP-4)
- Initial hydraulic conductivity of saltstone that does not adequately account for uncertainty. (See Comment SP-5)

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- Geotextile filter fabrics and the lateral drainage layers that provide long-term shedding of water around the vaults. (See Comment IEC-8)
- Neglecting disposal unit degradation mechanisms other than sulfate attack. (See Comment VP-2)
- Degradation of the vault walls that can result in the bypassing of flow around the saltstone as a potential modeling artifact. (See Comment VP-6)

Model support for these flow-related components is limited, however DOE assumptions and parameter selections indicate a consistent bias towards constrained flow through the saltstone wasteform that is unsupported. Reducing the flow of water through the modeled Saltstone system has a compounded effect in that less water is available for the transport of contaminants and the lifespan of reducing conditions in the cementitious materials is prolonged. The timing of the chemical transitions for the walls, floors, and saltstone are dependent on the number of pore volumes that pass through these cementitious materials. Higher flow rates would result in more rapid chemical transitions and generally a more rapid release of redox sensitive radioelements (e.g., Tc-99).

As a scoping calculation, NRC staff determined that the flow through saltstone, the floors, and the walls would be more than a factor of 10 higher at the 500 year time period, if the geotextile filter fabric fails at 500 years (i.e., the lower lateral drainage layer has properties similar to the overlying backfill) and the moisture characteristic curves for saltstone and fractured cementitious are comparable to literature values. As a first order approximation, the dose would increase by this factor based on the increased flow rate through saltstone and the floors. However, the contaminant release is compounded due to a more rapid change in chemical transitions for cementitious materials. The timing of these chemical transitions for these cementitious materials would be less than 1/10 of the time assumed in the PA. It appears that the chemical transitions for saltstone, the floors, and the walls would occur well before the 10,000 year compliance period. This result would have a significant dose impact as transitions for saltstone, the floors, and the walls are assumed in the PA to occur beyond the 10,000 year compliance period. It should be noted that these scoping calculations still likely contain significant optimisms; for example, the assumption of intact saltstone in the base case, the assumed hydraulic conductivity of saltstone, the limited degradation mechanisms for the disposal units, and the assumption that 100% of the blast furnace slag is available for reaction with the infiltrating water (WSRC-TR-2008-00283).

Path Forward: Verify that the modeled flow rates are (i) physically reasonable and (ii) consistent with the conceptual models for the various cases.

Provide a level of data support for flow through the Salitstone system commensurate with the risk significance of this topic, or use parameter values that are technically defensible. If research is ongoing, provide a description of the plans to develop model support including when the information is scheduled to be developed. Even if research is ongoing, the compliance case needs to be adequately supported based on information that is available at the time the compliance case is developed.

PA-11 **Comment (New):** The GoldSim probabilistic model used for sensitivity and uncertainty analyses is not adequately supported.

Basis: NRC staff has several concerns with the methodology used in the GoldSim calculations:

1) NRC staff has numerous concerns with the implementation of the PORFLOW calculations that provide the input into the GoldSim Calculations (see e.g., PA-8 and PA-10).

2) The GoldSim model incorporates all five cases (Case A-E), and the assumed probability of each case occurring is considered in the uncertainty calculations. NRC staff believes that the probabilities of each case provided in Table 5.6-3 of the PA are unrealistic. For example, the actual probability of Case A is essentially 0 for Vaults 1 and 4 because this case assumes that the saltstone does not crack during the performance period and the saltstone is already known to have cracks. However, in Table 5.6-3, the probability assumed for Case A is 95% for Vault 1 and 85% for Vault 4.

3) *The results of the GoldSim model may not be applicable to radionuclides* other than the ones that the benchmarking was performed for (see PA-4 and PA-5). In addition, there does not appear to be a good correlation between the PORFLOW and GoldSim results even for the radionuclides that were benchmarked (see Figures 5.6-1 to 5.6-25 in PA and PA-5).

4) It is not clear that there is adequate basis for the uncertainty distributions used (e.g., the uncertainty distributions for inventory [see IN-2] and the uncertainty distributions for K_d values [see SP-18]).

Because the GoldSim model was not used as the basis for demonstrating compliance, the NRC staff did not review these calculations to the same extent as the compliance case (Case A) was reviewed. If DOE decides to use this case to demonstrate compliance, the NRC staff will focus more on these calculations and new questions may be identified.

Path Forward: The concerns listed above need to be addressed. The amount of information needed for this comment depends on the extent to which the GoldSim model will be relied on to demonstrate compliance with the performance objectives of 10 CFR 61. These concerns need to be addressed to the degree that this model is not used to demonstrate compliance or for model support.

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PA-12 Comment (New): The dose consequences from the disposal of containerized Vault 4 waste in Vault 1 should be evaluated.

Basis: The NDAA states that, "(t)he Commission shall, in coordination with the covered State, monitor disposal actions taken by the Department of Energy". As part of this coordination, SCDHEC and NRC staff discussed a letter written by SCDHEC to the DOE regarding the potential disposal of containerized Vault 4 waste in Vault 1 (SCDHEC, 2010). In this letter, a request for the disposal of containerized waste from Vault 4 operations and soil remediation is described.

The NRC staff requires more information about this waste in order to assess compliance with the performance objectives of 10 CFR 61. In particular, the NRC staff must understand the origin and amount of this material. This is possibly important to monitoring the performance of Vault 4 because if this waste primarily consists of soil that has become contaminated due to seeps from Vault 4, then this might show that Vault 4 is not performing as expected. It also would be useful to evaluate whether the PORFLOW model accurately predicts the inventory that has seeped out of Vault 4. If the amount of inventory that has reached the outside of Vault 4 and the surrounding soil is significant, this may indicate that the model underestimates the release from this vault. Also, if any residual radioactivity remains in the soil surrounding Vault 4 following this remediation, this radioactivity could move through the subsurface more rapidly than predicted, especially since the site does not yet have a cover to limit the infiltration.

NRC staff is also interested in the effect of this additional waste on the expected dose from Vault 1. In particular, NRC staff is interested in how much additional inventory will be placed in Vault 1 and the effect of this inventory on the expected dose. It is possible that the long-term performance of containerized waste will be different than the long-term performance of grout. An evaluation of the potential effect of the containerized waste on long-term performance should be performed.

Path Forward: Please provide the following information:

1) The inventory of radionuclides that has seeped from Vault 4, including the amount (concentrations and total activity) and location of this inventory.
2) A comparison of the inventory that has seeped from Vault 4 to the inventory predicted by the PORFLOW model to be released from the vault to confirm that the modeling calculations are accurate.
3) An assessment of the dose due to residual radioactivity remaining outside of Vault 4, if any.
4) The inventory in the additional waste that will be added to Vault 1 and the expected dose from this inventory.
5) An evaluation of whether the presence of containerized waste is consistent with the assumptions in the PA for Vault 1 and the potential effect of this waste on the calculated dose.

PA-13 **Comment (New):** The dose consequence from early releases from the vaults prior to completion of the closure cap is not considered.

Basis: The performance assessment calculations assume that the closure cap will result in a signification reduction in the infiltration reaching the vaults starting at the first year of the model. However, the closure cap is not expected to be constructed until the end of the operational period, and there will be no reduction in the amount of precipitation reaching the vault roofs and walls before that time. The reported average precipitation rate for the site is 49 in/yr (124 cm/yr), which is significantly higher than the assumed initial infiltration rate (0.00042 in/yr [0.0011 cm/yr]). It is likely that the amount of leaching will be higher before the closure cap is installed because more water could contact the saltstone during this time. This is especially true for Vaults 1 and 4 because these vaults have had problems with water leaking through the roof and cracks forming in the walls. It is important to understand the potential for early releases to the environment during the time between the placement of the saltstone and the installation of the closure cap and the potential future dose from these releases because these releases could be significant compared to future releases.

In addition, the rate of degradation of the vaults might be higher before the backfill and cover are installed. For example, the larger amount of water reaching the vaults during this time could cause the concrete to age more rapidly. Also, the vaults will be exposed to more of the freeze/thaw cycle prior to the backfill being placed around the vaults. The saltstone wasteform would likely experience faster rates of oxidation due to higher rates of oxygen transport associated with air movement through the system compared to post-closure configurations.

Path Forward: Provide an assessment of the dose consequences from the increased amount of water the vaults will be exposed to prior to completion of the closure cap. Also, provide an assessment of the effect of the vaults being initially uncovered on the integrity of the vaults and the oxidation of saltstone.

PA-14 **Comment (New):** The PA does not discuss the existence or implications of calcareous material, or soft zones, underlying Z-Area.

Basis: Two supporting PA documents (K-ESR-Z-00001; K-ESR-Z-00002) addressed geotechnical issues regarding the calcareous zones at Z-Area that *support 10 CFR Part 61.44. In addition to potential stability impacts, these zones* have potential implications for other aspects of the future performance of the SDF (e.g. cover integrity, saltstone integrity, and far-field flow and transport [see Comment FFT-4]). It is not clear how these features were or were not considered. As NRC staff only recently became aware of these features, additional information may be requested.

Path Forward: Provide any additional documentation of calcareous features at Z-Area, including any documentation regarding how these features were addressed in the PA as well as data or analyses from any core, geophysical logs, cone

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penetrometer test logs and geotechnical borings.

Inventory

IN-1 **Comment:** The reported inventory of some of the radionuclides disposed of in Vaults 1 and 4 as of March 31, 2009 (X-CLC-Z-00027) exceeds the total inventory of these radionuclides assumed in the PA for these vaults (Tables 3.3-1 and 3.3-3 in the PA), even when accounting for the decay of these radionuclides to the year 2030.

NRC Response: The answer to this RAI is adequate.

IN-2 **Comment:** More information is needed about the basis for the uncertainty distributions for the radionuclide inventories used in the GoldSim calculations.

DOE Response Discussion: In the PA, it is stated that "(t)he source variation deals with variability associated with the ability to predict inventories. This source variation not only includes material variability within the waste tanks, but also includes process treatment uncertainty and analytical uncertainty." The ratios of the measured saltcake concentration to the concentration predicted by the Waste Characterization System (WCS) calculations were used as the basis for developing these distributions. The previous NRC comment addressed the basis of using the ratio information for a subset of the radionuclides and applying the ratio for the distributions for all radionuclides.

In the response to this comment, DOE stated that the exclusive use of C-14, Cs-137, Pu-239, Sr-90, and U-238 ratio information in developing the uncertainty distributions was due to the lack of data for the other radionuclides.

NRC staff understands that limited information is available on these ratios, but the uncertainty distributions are not adequately justified and may not be appropriate for the following reasons:

1) The basis for using salt concentration ratios to represent uncertainty in the supernate is not provided.
2) It is not clear how the uncertainty in removal efficiencies is being represented by uncertainty in the WCS predictions.
3) The basis for using the same uncertainty distributions for radionuclides that are expected to be removed during treatment and those that are not (e.g., Tc) is not clear.
4) It is not clear why the inventory uncertainty factors are used for Vaults 1 and 4. Most of the inventory for these vaults has already been placed into the vaults, so there should not be significant uncertainty associated with either the WCS predictions or the treatment removal efficiency since the inventory in this waste has already been directly measured.

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The uncertainty distributions assumed for Sr-90, Cs-137, and U-238 are biased towards being less than one such that the use of these uncertainty distributions would result in the mean inventory in the calculations being decreased. This could cause the dose calculated in the GoldSim model for these radionuclides to be underestimated (biased in an arbitrary way to low values).

Path Forward: As was true for PA-11, the amount of additional information needed on this topic depends on the extent to which DOE intends to use the GoldSim model results for compliance or model support. If the GoldSim model is going to be used for compliance, the basis for the ranges is not adequate. In that case, either more information is needed to justify the distributions, or the distributions should be changed to distributions that are defensible.

IN-3 **Comment:** Information is needed on the process that will be used to ensure that the *inventory will be distributed among the FDCs in a configuration that provides* reasonable assurance that the performance objectives will be met.

DOE Response Discussion: The DOE response to this comment stated that the probabilistic model incorporated the variability in the disposal sequence of the waste. As noted in (PA-11 and IN-2) NRC staff has concerns with the methodology used in the GoldSim probabilistic model, including the uncertainty distributions used for the inventory.

The DOE response stated that the process of moving the waste through the tank farm to the SPF would tend to move the concentrations of radionuclides in the waste towards the average due to mixing of the waste. NRC staff agrees with this assessment, but there will still be some variability in the concentrations of radionuclides in the different FDCs. Because the compliance case is based on all of the FDCs having a concentration at the average concentration, it would be necessary for the NRC staff to monitor the inventory in each FDC to the average concentration. Information on the methodology that will be used by DOE to assess the actual configuration of inventory in the FDCs would be extremely useful for the NRC to have when writing the updated monitoring plan.

Path Forward: Provide a description of the strategy that will be used to assess the dose from the actual inventory disposed of in the FDCs.

IN-4 **Comment:** More information is needed about the inventory expected to remain in the sheet drain systems for Vault 4 and the FDCs and the inventory expected to remain in the transfer lines at the time of closure.

DOE Response Discussion: In the response to this comment, DOE staff stated that a cold cap containing clean water will be placed over the saltstone monolith and that the sheet drain system will therefore be filled with clean water at the time of closure. DOE also stated that the drainwater system will be emptied to the maximum extent practical prior to closure.

NRC staff agrees that the bleed water from the clean grout will likely dilute the

concentration of material in the feed water collection system, but the system will likely still contain some residual amount of radionuclides because the system is likely to respond like a stirred tank reactor and not with plug flow dynamics. NRC staff is interested in understanding the volume and possible concentration of radionuclides remaining in these systems.

The DOE response also stated that the transfer lines will be removed and disposed of as LLW, so they will not contribute to dose. NRC staff finds that this portion of the response is adequate.

Path Forward: Provide information on the volume of liquid that is expected to remain in the drain water collection system for Vault 1, Vault 4, and the FDCs. Provide an estimate of the inventory that could remain in these systems at the time of closure.

IN-5 Comment (New): Additional information is needed about the Th-230 inventory assumed for Vault 4 and the process used to confirm that all risk-significant radionuclides have been identified as key radionuclides as waste is disposed and final inventory information becomes available.

Basis: One of the key radionuclides identified in the current PA is Ra-226, which is created by ingrowth from Th-230. Neither of these radionuclides was identified as key radionuclides in the 2005 PA. Because of this, the NRC staff is concerned that the process used to predict the inventory for the purpose of the PA may not be capturing all risk-significant radionuclides. Key uncertainties in DOE's ability to estimate disposal inventories may not be adequately accounted for in the estimates. When updated inventory information is developed as waste is disposed, it is important to verify that any changes between the predicted and actual inventory do not result in significant changes to the predicted dose or to the list of key radionuclides. NRC staff is interested in the process used by DOE to confirm this.

Additionally, NRC staff would like information on the basis for the assumed inventory of Th-230 in Vault 4 (i.e., was this inventory based on measurements or a calculated value) and NRC staff would like more information on the reason for the underestimation of the Th-230 and Ra-226 inventory in the 2005 PA. This information would help the NRC staff to better understand the cause of this and to have confidence that this type of problem will not occur in the future.

Path Forward: Provide a description of the process that will be used to verify that all key radionuclides have been identified as additional waste is disposed and a more certain inventory is developed. Provide information on the cause of the underestimation of Th-230 and Ra-226 inventory in the previous PA.

IN-6 Comment (New): Additional information is needed about potential changes to the salt solution feed batch preparation tanks and the sampling methodology that will be used for these tanks.

Basis: As part of the coordination with the State required by the NDAA, the NRC and SCDHEC staff discussed a copy of a letter from SCDHEC to the Department of Energy regarding the replacement of Tank 50 as the feed tank for the SPF (SRR-ESH-2010-00030). According to this letter, DOE is proposing to install two 60,000-gallon (2.3E5 L) Salt Solution Receipt Tanks at the SPF as a replacement for Tank 50 as the feed tank.

NRC staff would like information on the sampling approach that will be used for these tanks to assess the inventory of radionuclides that will be disposed of at the SDF. Because the proposed tanks are much smaller than Tank 50 (60,000 gallons [2.3e5 L] instead of 1.3 Mgal [4.9e6 L]), a smaller amount of waste will be mixed in each tank, and the cycle of filling and emptying the tanks will occur more often. The sampling strategy for these tanks may need to be different than for Tank 50. More frequent sampling may be required, particularly if the waste entering these tanks is heterogeneous and there is significant inter-batch variability.

This information would be useful for NRC staff in the preparation of the updated plan for monitoring the disposal of salt waste disposal at the SRS.

Path Forward: If Tank 50 is going to be replaced as the salt solution feed tank, please provide updated information on the sampling approach that will be used to verify the inventory that is sent to the SDF.

Infiltration and Erosion Control

IEC-1 Comment: The PA does not describe what portion of the water entering the perimeter drainage channel will infiltrate back into the native soil or backfill, or what, if any, effect such infiltration will have on vadose zone or saturated zone flow.

NRC Response: The DOE response is adequate. The comment will be tracked with monitoring of the final closure cap design.

IEC-2 Comment: The cross-sections of disposal units in WSRC-STI-2008-00244 illustrate the lower backfill layer and other materials in the closure cap covering the cells, but do not indicate what materials will be used to backfill around the cells.

NRC Response: The DOE response is adequate.

IEC-3 Comment: Additional information is needed to support conclusions about the long-term performance of the side slopes of the closure cap.

NRC Response: No additional information is requested, the final cap design will be tracked in monitoring.

IEC-4 Comment: During the transition from Bahia grass to a pine tree forest the closure cap could be affected by external factors such as drought or fire, thus changing the assumptions required for the stability calculation.

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NRC Response: No additional information is requested, as the final cap design will be tracked to be monitored.

IEC-5 **Comment:** Differential settlement could occur due to the presence of the relatively rigid disposal cells within the lower backfill and non-uniform thickness of the backfill. This could affect the drainage efficiency of the upper drainage layer and the integrity of the geomembrane layer.

NRC Response: The DOE response is adequate. The comment will be tracked with monitoring of the final closure cap design.

IEC-6 **Comment:** Additional justification is needed for the hydraulic conductivity assigned to the foundation layer of the infiltration and erosion cap.

NRC Response: The DOE response is adequate.

IEC-7 **Comment (New):** The PA should evaluate the potential implications of saturated conditions above the lateral drainage layer in the closure cap.

Basis: Table 47 in WSRC-STI-2008-00244 indicates that beyond 3,200 years the lateral drainage layer is unable to remove a large portion of the infiltrating water, the system saturates above the filter fabric layer, and runoff increases. If saturation occurs, pore pressure build-up in the overlying closure cap layers could directly affect cover stability, vegetation, hydraulic performance of cover materials, and erosion.

Path Forward: Provide (i) the saturation for individual cover layers with respect to time and (ii) the average head on top of each layer for all time periods. If saturated conditions are physically reasonable, provide discussion of the effects of closure cap saturation on stability, vegetation, erosion, and the performance of cover materials under hydrostatic pressure.

IEC-8 **Comment (New):** The PA should provide a technical basis for the long-term performance of the geotextile filter fabric and the upper and lower lateral drainage layers.

Basis: The geotextile filter fabric and the upper and lower lateral drainage layers significantly limit infiltrating water (e.g., the PORFLOW model files indicate that greater than 99% of the water infiltrating through the closure cap is shed via the lower lateral drainage layer at 8,000 years). Accordingly, the performance of the lateral drainage layers can have a significant effect on the dose as was noted in DOE's response to C-12 (RAI-2009-01).

The performance of these layers is subject to degradation of the filter fabric layer and the subsequent infilling of the porosity within the lateral drainage layer. As stated in WSRC-STI-2008-00244, "sufficient data is not currently available to estimate the service life of the filter fabric" but that "it will degrade due to oxidation and root

penetration". Calculations were presented in Appendix I that account for the reduction in hydraulic conductivity of the lateral drainage layer due to the migration of colloidal clay into the lateral drainage layer. However, it is not clear why larger particles (which would decrease the effective lifetime of the lateral drainage layers) were excluded from these calculations, as there is very limited data regarding the *service life of filter fabrics and degradation of the filter fabric is likely to result in the* conveyance of larger particles. Infilling of the lateral drainage layers with particles larger than colloids may accelerate infilling and result in a more rapid decrease in the hydraulic conductivity of this layer. A decrease in hydraulic conductivity would limit the ability of the lateral drainage layer to shed water, leading to an infiltration rate that is greater than estimated in the PA.

In addition, Figure 4.2-15 in the PA illustrated the change in vertical hydraulic conductivity with respect to time for the lower lateral drainage layer. The PORFLOW model files and Appendix E of SRNL-STI-2009-00115 indicate that vertical hydraulic conductivity of this layer is one order of magnitude greater than stated in the PA.

Path Forward: Due to the risk significance of the lower lateral drainage layer, provide (i) data quantifying the percentage of infiltrating water being shed versus transmitted with respect to time via this layer, (ii) justification for excluding the migration of particles larger than colloids from the overlying backfill materials to the lateral drainage layer, and (iii) support for the long-term performance of this layer. In addition, discuss the apparent discrepancy in the vertical hydraulic conductivity of the lower lateral drainage layer in the PA and the PORFLOW model.

Saltstone Performance

SP-1 **Comment:** Additional justification is required for the assumption that saltstone is hydraulically undegraded for 20,000 years.

DOE Response Discussion: The DOE response focused on on-going research for overall assessment of degradation and in the case of sulfate attack, short-term experimental measurements that have been completed. The DOE response did not specifically address the NRC comments that had been replicated from a previous review on the expansive phase report.

The PA has to account for what is known and conservatively include the impact of uncertainties that are not yet fully understood. Considering the ongoing research, NRC staff believes it is optimistic to assume no hydraulic degradation over 20,000 years. The effects of degradation are evaluated in sensitivity cases, but the conservatism of those cases is unclear. Because the effects are included in a sensitivity case and not in the compliance case, it means the effects are not included in the case used to demonstrate compliance with the performance objectives.

The DOE response focused on sulfate attack whereas NRC was interested in a basis for neglecting degradation via all mechanisms. For example, the disposal facilities have embedded steel, some of which is exposed to the atmosphere now or will be

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exposed to the soil after facility closure. Much of that steel can be seen today to have already experienced corrosion. It is unrealistic to assume that the carbon steel will experience no corrosion. Corrosion of the steel would cause disruption of the surrounding concrete or saltstone.

Previous NRC comments on the expansive phase report to which DOE deferred a response include the following:

1) The conclusions of the expansive phase precipitation report are based on geochemical modeling results. It is unclear whether there are data and observations available for comparison to constrain the modeling calculations.

2) The expansive phase study does not consider the effects of organic additives or pozzolanic replacement on the dissolution and precipitation of cement-related compounds, which may have an effect on the generation of expansive phases. Future research could consider the effect that sulfide from the blast furnace slag might have on the phases and reactions present in this system.

3) Experiments that are designed to collect data on initial mineralogical conditions, fundamental thermodynamic data and reaction kinetics would provide much needed model support for this study.

4) Geochemist's Workbench is based on an equilibrium reaction model. However, reaction kinetics could result in metastable products that are often associated with an increase in volume. Subsequent studies might consider expansive phases produced by intermediate or metastable reaction products.

5) The conclusions reached in this study area could be integrated with other ongoing or recently completed studies. Dixon (SRNL-STI-2008-00421) recently completed a study on the physical properties of grout, which included bulk porosity measurements. Updated measurements of the bulk porosity of saltstone grout may be useful in assessing whether expansive phase precipitation is likely to result in grout degradation.

Path Forward: Provide additional basis for assuming no hydraulic degradation of saltstone occurs in the base case or provide an updated base case analysis that reflects estimated saltstone hydraulic degradation (e.g., changes in hydraulic conductivity and effective diffusivity). Specifically, address the comments on the expansive phase report and additional degradation mechanisms. Provide model support for the long-term performance of saltstone and reinforced concrete.

SP-2 **Comment:** A basis is required for the modeled extent of saltstone fracturing.

DOE Response Discussion: The DOE response referenced Case C as including cracks. DOE indicated that the sensitivity studies provide information regarding the effect of crack variability.

NRC does not believe that the impact of cracking on the PA results is adequately captured by Case C, sensitivity analyses that address increased hydraulic

conductivity, or alternate configurations such as Case E as currently represented. The references provided (T-CLC-Z-00006; SRNL-STI-2009-00115, Rev. 1) address cracking mechanisms for Vault 4 due to differential settlement and seismic events. Case C is intended to capture the impact of transverse structural cracks through saltstone caused by these mechanisms. However, a basis is not provided to extend the mechanisms responsible for Vault 4 cracking to saltstone and address fracture mechanisms that are unique to saltstone. Cracking of saltstone has been observed (SRNL-ESB-2008-00017) and the uncertainty and variability in (i) cracking (e.g., *number of cracks, crack spacing, crack orientation, crack length, crack aperture, etc.*) and (ii) crack evolution (e.g., acceleration of cracking) has not been evaluated. Therefore, it is expected that two longitudinal cracks do not adequately reflect the uncertainty associated with the extent or effects of potential cracking.

Sensitivity analyses with increased hydraulic conductivity do not evaluate the full matrix of the potential effects of cracks. For example, changes to the surface-area-to-volume ratio, which is dependent on crack representation, is not captured by varying the hydraulic conductivity. Removal of radionuclides and leaching of cementitious materials, which can lead to additional fracturing, is strongly correlated to the surface-area-to-volume ratio.

In addition, results from sensitivity analyses with increased hydraulic conductivity and Case E are inconclusive due to the moisture characteristic curves applied in the PA (see Comments SP-3 and SP-4).

Path Forward: Provide a basis for the extent of fracturing included in the base case representation. Demonstrate how the base case model appropriately represents current observations with respect to cracks. Address the mechanisms noted above as well as other mechanisms by which fractures could increase the rate of subsequent fracturing.

SP-3 **Comment:** The moisture characteristic curve for intact saltstone implemented in the PORFLOW model does not sufficiently account for experimental uncertainties and is inconsistent with literature results for material similar to saltstone and other cementitious materials.

DOE Response Discussion: The DOE agreed in their response that the moisture characteristic curve based on the INL dataset is somewhat inconsistent with literature (WSRC-STI-2007-00649). To evaluate the impact of using a modified moisture characteristic curve, the base case was rerun in PORFLOW with the relative permeability set to 1.0. The resulting contaminant release rate was approximately twice that of the base case for Vault 2 during the compliance period. For Vault 4, with the relative permeability equal to 1.0, the release rate of Tc-99 was almost doubled, while the I-129 and Ra-226 rates were each less than a 30% increase over the base case. DOE stated that these increases in release rates would not significantly impact the resulting dose to the MOP during the compliance period.

Increases in contaminant release rates of 30% and 100% for one-off sensitivity

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analyses may result in an insignificant increase in base case dose on an absolute basis (i.e. if the base case dose is small). However, when (i) many uncertainties exist, (ii) the margin between compliance and the base case dose is not very large, and (iii) it is not clear how all of these uncertainties are related, then the resultant dose from the inclusion of these outstanding uncertainties could be significant on a cumulative basis even if the increases for individual one-off analyses are insignificant on an absolute basis.

Path Forward: If adequate justification is not available for the moisture characteristic curves implemented in the PA model for intact saltstone, provide updated results for Case A, B, C, D, the synergistic case, and the sensitivity case in Section 5.6.6.7 that use a characteristic curve for intact saltstone that is more consistent with results in the literature.

SP-4 **Comment:** Characteristic curves implemented in the PA are based on a continuum approach that does not reflect non-equilibrium flow.

DOE Response Discussion: The DOE response discussed the effects of transient flow on contaminant leaching. However, NRC staff's concern is the inability of a continuum approach to represent unsaturated flow through porous or fractured media. Unsaturated flow is characterized by non-equilibrium, gravity-driven fingering that can lead to pulsating flow conditions, even in the presence of a steady state infiltration boundary condition (Pruess et al., 1999). Abstraction of unsaturated flow with moisture characteristic curves cannot replicate this flow behavior. Equilibrium flow through unsaturated media can significantly underestimate actual flow rates through a system.

Path Forward: Provide additional model support for unsaturated flow. Model support could include analogs, laboratory experiments, and/or field studies that verify consistency between numerical results and physical measurements. Alternatively, demonstrate that non-equilibrium flow through porous and fractured media does not significantly affect the performance of the system.

SP-5 **Comment:** Additional support is needed for the hydraulic conductivity of intact saltstone that is used in Case A, Case B, Case C, Case D and the synergistic case.

DOE Response Discussion: The DOE response indicated that additional testing of hydraulic and physical properties has continued to be performed and provided a summary of additional test results. DOE indicated that the baseline test results yielded values of 1.3E-9 to 4.0E-9 cm/s which was consistent with the base case value of 2E-9 cm/s used in the PA. They also indicated that sensitivity analyses were performed to examine the impact of a much higher hydraulic conductivity, and the estimated doses were much less than 25 mrem/yr. The DOE response did not address the monitoring follow-up items provided in the original comment pertaining to the measurement of hydraulic properties. The original comment requested justification for logarithmic averaging of the hydraulic conductivity values for the limited data set with an unknown distribution, which was not provided.

Ongoing tests are helpful and fill some important data gaps, but the tests do not capture the full range of conditions that can be expected for actual emplaced saltstone. The test results provided in the comment response have values as large as 9E-9 cm/s for the impact of water to premix ratio and as high as 9E-7 cm/s for a baseline composition with organics, admixtures, and a 60°C cure temperature. Depending on the composition and curing temperature of saltstone, these values could arguably be representative of a reasonable starting point for a base case value. These measurements highlight the need to be conservative when selecting a base case deterministic value for a key parameter such as hydraulic conductivity. As DOE has collected additional measurements, the hydraulic property values have been consistently revised higher. In addition, these hydraulic tests are on laboratory prepared samples which do not account for (i) scale, (ii) emplacement (batching, pumping, curing), (iii) CO_2 contamination, and (iv) permeability evolution.

Path Forward: Provide adequate support for the hydraulic conductivity value that is implemented in the base case for the PA for intact saltstone. Additional support should include a description of how data from laboratory samples is scaled to represent full-scale, as-emplaced saltstone. Additional support should also address the specific analytical concerns raised in the original comment, including the potential impact of atmospheric CO_2 on the results. Provide justification for the logarithmic averaging of hydraulic conductivity for a limited data set or provide additional data to characterize the distribution.

SP-6 **Comment:** Additional basis is required for the values of the effective diffusivity of intact and degraded saltstone used in the base case and sensitivity cases.

DOE Response Discussion: DOE indicated in their response that releases are primarily advection dominated, and calculated Péclet numbers for two separate cases: A and E. Because the Péclet number was large except for very early time periods in Case A, DOE concluded that uncertainty in the effective diffusion coefficient would not have a noticeable impact on calculated peak dose results.

The application of Péclet number as a criterion to neglect the importance of diffusion or advection is problematic (Huysmans and Dassargues, 2004). The importance of these transport mechanisms is more appropriately determined by extracting and comparing the model results. The PORFLOW model output files contain the diffusive and advective releases for each radionuclide at one-year time intervals for 20,000 years. NRC review of this data for key radionuclides (e.g., Ra-226, Tc-99, Pu-239) indicates that (i) diffusion strongly dominates radionuclide fluxes at early time periods (as much as four orders of magnitude) and (ii) continues to dominate throughout the 20,000-year period.

Path Forward: Provide a basis for using the effective diffusivity of intact saltstone in the two sensitivity cases that address degraded saltstone or update the sensitivity cases that address degraded saltstone with a value of effective diffusivity that reflects the physical degradation of the wasteform. Provide adequate technical basis for the value of the effective diffusivity of intact saltstone. Similar to SP-5, the values

assigned should reflect what has been measured and conservatively reflect the uncertainty associated with the results of experiments that are yet to be completed.

SP-7 **Comment:** Additional bases are needed for key assumptions used in the simulation of sulfate attack with the STADIUM code.

DOE Response Discussion: The DOE response discussed the development of STADIUM by Simco Technologies. Data for blended cements have been developed but are part of a proprietary material database and are unpublished. Minor species are neglected because there is no self-diffusion data available. However, the model has been shown to reproduce experimental observations even though secondary phases are neglected.

The DOE response covered most of NRC's concerns. NRC is aware of the high quality of work performed by Simco. However, the use of proprietary unpublished information as a basis does not provide transparency for staff to verify the results. Staff is aware of similar research that has been performed at Vanderbilt University (it may also not yet be published). Research completed as part of the Cement Barriers Partnership showed the modeling results could be sensitive to initial mineralogy.

Path Forward: Given the constraints associated with proprietary information, evaluate whether the blended cement formulations that have been evaluated using STADIUM can be compared to the saltstone and concrete formulations used for saltstone disposal. Communicate the relative agreement between predicted and measured values. With respect to minor species, at a minimum an assumption regarding the neglect of minor species should be tracked and reevaluated as future pertinent research is completed. As research is published, provide a comparison of Simco and Vanderbilt assessment results.

SP-8 **Comment:** The initial grout mineralogy used in evaluating expansive phase precipitation is inconsistent with the initial mineralogy used to determine Eh and pH transitions in pore fluids. Depending on which initial mineralogy is more appropriate, the conclusions of either report could change.

DOE Comment Discussion: The DOE response indicated why there were differences in the formulations (basically because of timing of the parallel development of products) and that research was ongoing. They also indicated that the uncertainty in Eh and pH transitions of +/- 50% was applied in the uncertainty and sensitivity analyses.

The explanation of why the differences were present is useful to provide understanding, but it does not address why the differences are acceptable or what the impact of the differences in composition may be on the conclusions of the reports. The uncertainty range for the Eh and pH transitions has not been demonstrated to capture the differences in the number of pore volumes that would result from the variability in the initial mineral compositions. The assigned uncertainty range is speculative, and the effects are limited to alternate cases and therefore are not reflected in the base case results.

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Path Forward: Provide a basis for using different initial mineralogies in the calculations described in the basis of this comment, or provide information that demonstrates the calculation results are not significantly affected by the differences in initial mineralogy. Provide a basis for the uncertainty range assigned to the Eh and pH transitions.

SP-9 **Comment:** Uncertainty in groundwater composition was not considered in the Geochemist's Workbench simulations to estimate Eh and pH transitions in pore fluids.

NRC Response: The DOE response is adequate.

SP-10 **Comment:** There are indications that some measured plutonium and neptunium sorption coefficients in cementitious materials could reflect solubility rather than sorption, which could lead to a significant overestimate of plutonium and neptunium sorption.

DOE Comment Discussion: Recent DOE-sponsored research indicated that the dissolved concentrations of plutonium and neptunium were solubility limited rather than sorption controlled (SRNL-STI-2009-00636). DOE further stated that the models supporting the PA (i.e., PORFLOW and GoldSim) do not use solubility constraints but instead utilize apparent K_d values. However, it is not clear that solubility effects could be ruled out for the studies that form the basis for these plutonium and neptunium K_d values (WSRC-STI-2007-00640 and SRNS-STI-2008-00045). The use of K_d values based on sorption experiments in which solubility was actually the controlling process could lead to underestimation of the radionuclide release rates.

The K_d values measured in WSRC-STI-2007-00640 are extremely high; the solubility limit for plutonium may have been exceeded in these experiments. This report does not include information on the plutonium concentration used in these experiments and how it compares to the solubility limit. This report does state that no solids control samples were included to determine if precipitation was occurring, but the results of these samples were not included in the report. SRNS-STI-2008-00045 provides more information about the methodology used to account for the possibility of precipitation, but it is not clear how the information from the no solids control was used. On page 39, it is stated that the concentrations from samples 621-A, B, and C are used as the initial concentration in the calculation of the K_d. However, based on Table 13, it appears that this sample is not a 'no solids' control and that this sample contains simulated saltstone. Additionally, it seems that this sample is in a reducing environment rather than an oxidizing environment.

DOE also stated that the plutonium and neptunium K_d values used in the PA could be overestimated; however these values did not show up as sensitive parameters. In support of this finding, DOE conducted a sensitivity run that set the K_d value for plutonium and neptunium in cementitious material equal to zero in the GoldSim transport model. The results of these sensitivity runs indicated that the dose to the

MOP during the compliance period increased by a factor of less than three for the base case; therefore, DOE concluded that any overestimation of plutonium or neptunium K_d values on cementitious materials would not impact the overall conclusions of the PA.

In addition to the limitations regarding one-off sensitivity analyses (see Comment PA-8), the relative increase in dose from reducing the K_ds to zero was significant. Table 5.5-2 in the PA indicates that for the base case, plutonium and neptunium each contribute less than 0.05 mrem/yr to the total peak dose of 1.4 mrem/yr in the 10,000-year performance period. In the sensitivity analysis with the K_ds for plutonium and neptunium set to zero, the result was that the total dose more than doubled from the original 1.4 mrem/yr. This large relative increase illustrates the sensitivity of the model to the cementitious material K_d for plutonium and neptunium. In light of the sensitivity of the model to these K_d values and the uncertainties in the PA, a one-off sensitivity analysis is not conclusive.

Path Forward: Provide an updated base case that includes technically defensible K_d values for plutonium and neptunium.

Provide information on the no solids control samples in WSRC-STI-2007-00640 and SRNS-STI-2008-00045, including the amount of precipitation observed in the no solids control samples (i.e., provide the initial and final concentrations in these samples). Provide information on the aqueous phase used in the no solids control samples and the pH of these samples. In addition, clarify which samples were used for the initial concentration in the K_d equation on p. 39 of SRNS-STI-2008-00045.

SP-11 **Comment:** In recent experiments used to help define K_d values for cementitious materials, the distinction between "middle" and "old" age conditions was based chiefly on water chemistry—not on the mineralogical assemblage. It is not clear whether the differences in solid phases for the different stages can be neglected.

DOE Comment Discussion: In the response, DOE states: "(d)ecreased sorption as a result of evolving mineral assemblage is not expected to be significant in the wasteform because the timing of re-crystallization of reducing old-age concrete is after the performance period, and because a decreasing trend between middle-age and old-age cement K_ds was implemented in the PA to account for this type of uncertainty." NRC staff does not agree with this statement because the estimation of the timing of the re-crystallization is based on hydraulic assumptions that the NRC staff does not think are supported (see Comments PA-8 and PA-10).

In addition, the comment response states: "(a)s identified above, there is a potential for sorption of key radionuclides onto old-age concrete to decrease with increasing precipitation of quartz as CSH gel dissolves. Any potential impact this may have on underestimating releases from the wasteform are considered insignificant, because countering factors would tend to immobilize these same radionuclides under the old age conditions, either by incorporation into the re-crystallized structures, increased sorption to iron oxyhydroxides, or by increased precipitation of the radionuclide itself, effectively canceling out the effects." NRC staff agrees that some of these factors

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may act to mitigate the decreased sorption in old-age concrete due to precipitation of quartz. However, NRC staff does not agree with the proposition that the two competing effects will necessarily cancel each other out. The net effect of competing effects is dependent on how strongly the different effects affect the system.

Finally, the comment response states: "(i)t is also proposed that the K_ds used in the PA are conservative in that they do reflect a decreasing trend in K_ds from middle-age to old-age cementitious material." NRC staff also does not agree with this logic because whether or not something is conservative is dependent on the actual values chosen, not just the trend in the values.

Path Forward: Depending on the results of research on the predicted flow through the cementitious materials, this comment may be more significant in the future if the transitions are predicted to occur during the performance period. NRC staff will continue to track this topic under monitoring.

SP-12 **Comment:** Model support is needed for the process models supporting PA predictions of Eh-pH evolution for cementitious materials.

DOE Comment Discussion: The comment response indicated that research is ongoing, and to account for the preliminary nature of the available information *uncertainty and sensitivity analyses were performed.*

NRC recognizes that additional work will be done to provide model support, and NRC is highly supportive of that work. However, using uncertainty analysis to account for lack of model support is generally insufficient unless it can be demonstrated:

i) The justification is provided to show that the range of parameter values considered in the uncertainty analysis encompasses the uncertainty in the model,

ii) The uncertainty and sensitivity analyses are reasonably conservative, and

iii) The impact of the uncertainty is limited locally and globally in the analysis.

Since the model is not adequately supported, it is very difficult to define an appropriate representation for the uncertainty analysis. Uncertainty analysis is a useful tool for use in performance assessment, but should be used very cautiously if at all with respect to model support.

Path Forward: Provide model support for the Geochemist's Workbench results regarding pore fluid volumes necessary for transitions in Eh and pH of pore fluids in cementitious materials (SRNL-TR-2008-00283). For example, model support could include a comparison of model results with the results of pH and Eh measurements in accelerated physical testing using higher flow rates than anticipated in full-scale saltstone. Plans for developing model support may provide appropriate basis, because NRC could verify the implementation of those plans in its monitoring role.

However, use of plans for model support could result in the development of information that does not support the decision.

SP-13 **Comment:** The effect of limiting the shrinking-core model to the effects of the Eh evolution of saltstone on Tc should be analyzed.

DOE Comment Discussion: DOE provided information to demonstrate that for key radionuclides the transitions from different Eh and pH conditions are not expected to have a significant influence on the results, and therefore switching to a shrinking core model for those radionuclides is not warranted. Tc-99 was the main radionuclide for which the transitions were expected to have a big impact, and so it was included in the shrinking core model.

NRC's comment also applied to radionuclides that did not contribute at least 0.05 mrem in the all-pathways base case dose. The approach to modeling the release for those radionuclides could cause them to be defined as important or not.

Path Forward: Demonstrate that the key radionuclide list is not impacted by the type of release model (i.e. shrinking core vs. step transitions) applied. For instance, compare the K_d values assigned at different Eh and pH states, the concentrations of those radionuclides in the waste, and their dose conversion factors for key pathways or provide shrinking core model results for those radionuclides.

SP-14 **Comment:** Additional information is needed about the basis for the K_d values used for iodine and radium in cementitious materials.

DOE Response Discussion: In the DOE response to this comment, it is stated that: "(r)esults for iodine partition coefficients onto old-age cements in an oxidizing environment from the same report were not recommended for update because the new results do not correspond to previously reported values (Table 2, WSRC-STI-2007-00640)."

NRC staff disagrees with this statement for two reasons:

1) It is not reasonable to ignore data simply because the results are unexpected, and

2) The reducing grout used in WSRC-STI-2007-00640 is based on a different formulation than saltstone (i.e., it contains sodium thiosulfate as a reducing agent).

The radium K_d information provided in the DOE comment response is adequate, but NRC staff would like to note that the K_d value for Ra is risk-significant, so it is important for future research to be done on the sorption of Ra on simulated saltstone instead of relying on literature values based on the sorption of strontium. NRC staff would also like to note that it is important for the performance assessment to adequately account for the uncertainty in this parameter value.

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Path Forward: K_d values for I that are consistent with measurements made for simulated saltstone should be used in the PA. NRC suggests that future research include the sorption of Ra onto simulated saltstone, particularly under oxidizing conditions.

SP-15 Comment: The basis for the adopted technetium pseudo-K_d of 1,000 mL/g for reducing conditions is not sufficient.

DOE Comment Discussion: The DOE response to this comment states that,

> *"(t)he technetium K_d value selected for the shrinking core model (1,000 mL/g) is a lower bound on the values recommended in SRNL-STI-2009-00636 for cementitious materials of varying age. The selected value also creates margin in comparison to the recommended value (5,000 mL/g) for young and medium age cementitious material. This margin can be used to account for uncertainty in the recommended value."*

NRC staff does not believe that the "recommended values" of 1000 mL/g or 5000 mL/g are applicable to the saltstone wasteform for the following reasons:

1) *The 5000 mL/g value was measured for a formulation that included a strong reducing agent and is very different than the saltstone formulation.*

According WSRC-TR-2006-00004 and WSRC-STI-2007-00640 the "recommended" value of 5000 mL/g K_d is originally based on a measurement value from Bradbury and Sarott (1995). The Bradbury and Sarott (1995) reference states "(i)n some recent work, using Tc(IV) at trace levels (<10E-11 M) and sodium dithionite as reducing agent, distributions of ~5 m^3/kg (5,000 mL/g) have been reported (Bayliss et al., 1991)."

Because saltstone does not have the strong reducing agent sodium dithionite in it, this measured value is in no way applicable to the saltstone wasteform. In addition, the Bayliss et al., reference cited by Bradbury and Sarott is a symposium presentation that does not seem to be peer reviewed. It is inappropriate to use a non-peer reviewed source as the basis for a key assumption that strongly affects the calculated dose.

Similarly, staff from SRS have also told NRC staff that research described in Lukens et al., (2005) provided evidence that Tc would be reduced in saltstone (see meeting summary at ML101790054 [NRC, 2010b]). NRC staff disagrees with this statement because the reducing agent Na_2S was added to the waste simulant to reduce it in these experiments and this reducing agent is not added to the salt waste processed at the SPF.

2) *SRS staff measured much lower Tc K_d values for saltstone.*

In SRNL-STI-2009-00636, the measured K_d values for Sample Tr547, which has a composition similar to saltstone, ranged from 9.1 to 56 mL/g after 4 days (Table

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10.30). It is not clear why this information is not being considered in the PA, and NRC staff believes that in the absence of any relevant experimental data (i.e., using a wasteform formulation that is comparable to saltstone and does not include a strong reducing agent), it is not reasonable to discount experimental results.

3) *It is unclear if the saltstone pore fluid has reducing conditions.*

The redox conditions of waste are important for the release of Tc from the wasteform because under reducing conditions Tc is expected to be retained much more strongly under reducing conditions than under oxidizing conditions. In SRNS-STI-2008-00045, Figure 5, the reported Eh value approaches 0 mV as water flows through the system. Additionally, it is not clear that the Eh measurements were measured correctly. On June 29, 2010, NRC staff and SRS staff held a phone call to discuss the Eh measurements described in this report (see ML101790054 for summary of call). During this call, NRC staff asked what electrode was used and whether the reported values were corrected for the particular reference electrode used (i.e., referenced to a standard hydrogen electrode). SRS site staff stated that the electrode used in their experiments was an Ag/AgCl electrode and that the reported values were read directly from the instrument and were not corrected for the particular electrode used. It is the conclusion of the NRC staff that these redox potentials were incorrectly reported, and based on the half-cell potential of the Ag/AgCl electrode, the true Eh in this system would be 200 mV higher, or less reducing, than was reported.

NRC staff recognizes that the K_d tests for the sorption of Tc onto saltstone were intended to evaluate the transport of Tc through the saltstone once it has been released, rather than the release of Tc. However, because no relevant leaching data has been provided to the NRC, the K_d values measured by SRS for Tc represent the best available information on the release of Tc from the saltstone wasteform.

NRC staff is unable to conclude that the Tc will be retained by the saltstone wasteform to the extent that was assumed in the PA in the absence of appropriate data that clearly demonstrate that this assumption is valid. NRC staff, absent new information and bases on Tc leaching and K_d's, will use the site-specific K_d values measured by SRS staff for the sorption of Tc onto saltstone in their independent modeling analyses and in their conclusions in the TER.

Path Forward: Use a K_d value that is consistent with the values measured by SRS staff for the saltstone wasteform in the PA.

SP-16 **Comment:** The basis for the range of reduction capacities over which the shrinking-core model transitions to oxidizing K_d values for technetium is not clear.

NRC Response: The DOE response is adequate.

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SP-17 **Comment:** Neglecting gas-phase diffusion of oxygen appears to be inconsistent with the PORFLOW result that saltstone fractures are not completely saturated.

DOE Comment Discussion: The DOE response indicated that the transport of oxygen via the liquid phase is generally sufficient to keep the fracture faces near the oxygen solubility limit for Case C except at times less than 1,000 years, due to the very low flow through the cover system (and fractures) for those time periods. The impact of not addressing gas phase diffusion for Case E was considered minimal during the compliance period, since the FDC barrier is intact and effectively would maintain saturated conditions, thus supporting the assumption of saturated conditions being a barrier to gas-phase oxygen transport.

It is not clear to NRC staff that the transport of oxygen via the liquid phase for Case C is realistic or conservative as, (i) the flow of oxygen at early times may be underrepresented in the model due to very low flow through the fractures, (ii) the flow through the fractures in Case C remains low throughout the compliance period, and (iii) the difference between the transport of oxygen via the liquid phase and the gas phase may have an appreciable difference on the dose estimates. In regards to Case E, the impact of ignoring gas phase diffusion due to the performance of the FDCs resulting in saturated conditions is not appropriate as (i) the PORFLOW model appears to indicate saturation levels in the fractures for Case E at 40-50% and (ii) the performance of the FDCs as a hydraulic barrier should be reevaluated in light of recent hydrostatic tests (Comment VP-5).

Path Forward: Provide additional basis for neglecting gas-phase oxygen diffusion in cases representing fractured and degraded saltstone or provide updated dose estimates for cases representing fractured and degraded saltstone considering the potential effects of gas-phase oxygen diffusion.

SP-18 **Comment:** Additional justification is required for the uncertainty ranges used for K_d values in cementitious materials.

DOE Comment Discussion: The DOE stated that the selection of the uncertainty distributions used for the K_d values were based on >730 K_d measurements of 8 radionuclides taken from 27 samples collected from the E-Area vadose and aquifer zones, as discussed in WSRC-STI-2008-00285. The provided reference indicated that the 27 depth-discrete samples were collected from a single borehole from E-Area. Variability in the distributions was attributed to general geochemical/geological differences in the site soils. The resulting data was used to estimate the statistical range and distribution of the K_d values for the studied radionuclides. Using these 8 radionuclides as analogues, the distribution coefficient variability was applied to >50 radionuclides. As site-specific cementitious K_d values were not available, the general rules for bounding the sandy sediment were applied to cement. This uncertainty range was considered conservative as SRS sediment is more heterogeneous than cementitious materials, which also contain fewer minerals than natural sediments.

NRC staff agrees that natural SRS sediment is likely more heterogeneous and has more minerals than cementitious materials; however, the heterogeneity and number

of minerals does not dictate the potential range of K_d values. The relatively limited number of minerals in cementitious materials makes these materials less likely to have as large a range of K_d values as a natural soil; however, even two minerals with different surface chemistry can lead to significant variability. Research by Baur and Johnson (2003) demonstrated that the K_d for selenium can vary by more than two orders of magnitude depending on the cement phase.

The limited site-specific K_d data and an insufficient technical basis for adapting K_d values from sediment samples to cementitious materials results in significant uncertainty. An increase in the range of K_d values for cementitious materials over sediment samples is not a basis for uncertainty conservatism. Compensation for insufficient data by an increase in a parameter distribution range provides no additional confidence and it could (i) result an unnecessary degree of conservatism or (ii) result in risk dilution due to an artificial extension in the timing of arrival of a contaminant.

The lack of site-specific data demonstrates the importance of an appropriate base case such that a sensitivity and uncertainty analysis could inform research needs to evaluate the variability of data and reduce data uncertainty. Sorption of radionuclides to cementitious materials provides a significant barrier in the PA. Data support for these K_d values should be commensurate with the assumed risk reduction.

Path Forward: Depending on the extent to which DOE will rely on the GoldSim model, provide additional support for using the sandy-soil-based uncertainty distribution for cementitious materials K_d values and a basis for concluding that this approach does not underestimate uncertainty in radionuclide sorption to cementitious materials. For example, additional support could include laboratory analyses for risk-sensitive radionuclides. Plans for developing data support may provide appropriate basis, because NRC could verify the implementation of those plans in its monitoring role.

SP-19 **Comment (New):** Research related to the release of Tc-99 from saltstone appears to be inconsistent with the Tc-99 releases modeled in the PA.

Basis: As discussed in WSRC-STI-2007-00056, experiments on Tc-99 leaching from saltstone simulated grout were conducted and the results incorporated into PORFLOW modeling. Figure 1 shows the modeled release of Tc-99 according to WSRC-STI-2007-00056 and the 2009 Saltstone PA. The modeled Tc-99 release for WSRC-STI-2007-00056 is approximately 60% over the 10,000-year compliance period for saltstone with a hydraulic conductivity of 1E-9 cm/s, which is slightly less than the assumed hydraulic conductivity in the 2009 PA of 2E-9 cm/s. According to the PORFLOW model files in the 2009 PA, the predicted release of Tc-99 from the saltstone material is 0.6% for the base case and 9.6% for the synergistic case.

The research presented in WSRC-STI-2007-00056 demonstrated the release of Tc-99 due to the presence of residual oxygen for an intact saltstone monolith. Residual oxygen would be consistent with field conditions at the SDF as would the

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transport of gas and liquid-phase oxygen to the fractured vaults and saltstone. In addition, the saltstone grout has been shown to be fractured which would increase the surface area-to-volume ratio, thereby increasing the oxidation of saltstone.

NRC staff recognizes that research is ongoing and that the results presented in Figure 1 below are based on a modeled system. However, this model is parameterized from experimental results conducted with a saltstone simulant whereas the shrinking core model utilized in the PA is less empirical. Additionally, some key parameters of the shrinking core model, such as the Tc K_d are based on a formulation that is drastically different than saltstone (see SP-15).

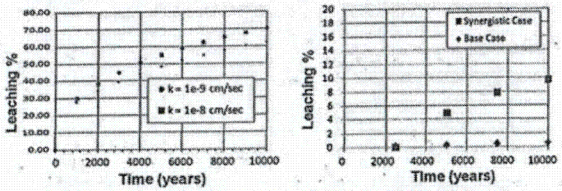

Figure 1: Tc-99 release over the 10,000-year compliance period based on results (a) WSRC-STI-2007-00056 and (b) the 2009 PA model results

Path Forward: The PA should be consistent with relevant research or justification should be provided discussing why it was excluded. Provide any additional references on Tc-99 leaching from saltstone that have not already been provided to the NRC.

Vault Performance

VP-1 **Comment:** Additional analysis is needed to assess the applicability of the degradation mechanisms responsible for the observed fracturing of Vaults1 and 4 walls and the degradation mechanisms described in SRS-REG-2007-00041 to the FDCs and to other parts of Vaults 1 and 4.

NRC Response: The DOE response is adequate at this time; the NRC staff is continuing to review several of the references that were provided by the DOE.

VP-2 **Comment:** Additional basis is required for neglecting disposal unit degradation mechanisms other than sulfate attack.

DOE Response Discussion: The DOE response contained two main elements: sensitivity analyses and ongoing research. A sensitivity case was provided with what DOE believes is pessimistic assumptions that demonstrated the doses would remain marginally below 25 mrem/yr. The DOE response did not address the NRC requests

to address corrosion cracking or to provide analog information as technical basis (e.g. model support).

The response is mostly complete, but as previously indicated issues or uncertainties should be reflected in the base case and not in an alternative analysis case. For example, the analysis presented shows that the dose could approach 25 mrem/yr. Combined with any other issue that moderately increases the dose independently from this analysis, the performance objective could be exceeded. The original NRC comment provided many technical considerations that should result in modifications to the base case, based on DOE's currently available supporting information.

Path Forward: Update the base-case model to reflect the potential effects of applicable degradation mechanisms and their uncertainties based on currently available information.

Provide justification for neglecting other forms of degradation of disposal unit cementitious materials, including alkali silica reaction, corrosion cracking, and other relevant forms of degradation. The justification should address Vaults 1 and 4 floors and roofs as well as FDC walls, roofs, and floors.

If maintenance of an alkaline pH near steel components of the disposal units is relied upon to demonstrate steel passivity, the model generating predicted pH values should account for local effects near steel components (e.g., pH depression by carbonation in fractures near steel components) or address why such phenomena can be neglected.

A summary of observed reinforcement corrosion of concrete at SRS should be provided. Provide information to demonstrate that modeling of engineered systems in this application is consistent with observed performance of analogous systems at SRS.

VP-3 **Comment:** The effect of modeling disposal unit floors as completely reducing for the entire performance period, and beyond 20,000 years, should be analyzed.

DOE Response Discussion: The DOE response stated that the exposed surfaces of the vault concrete floor begin oxidizing at time zero. The chemical transition times for the various cementitious materials were presented in Table 4.2-17 of the PA, as computed in PORFLOW except for the shrinking core simulations. The shrinking core model explicitly simulated the oxidation of saltstone and the vault concrete for Tc-99 simulations.

The shrinking core model represents a uniform oxidation front with an unreacted core. Rapid transport of redox-sensitive radioelements (e.g., Tc-99) through the oxidized region would occur followed by immobilization once the radionuclide reached the core. However, a fracture in the vault floors would quickly result in a non-reducing fast pathway. It is not clear that DOE has conducted adequate characterization of the floor to support the assumption that the floor is not fractured (initially or at any future time) in the base case. Based on the demonstrated floor

performance of Vault 2 (due to cracking near anchor bolts) during recent hydrotesting, it is also not clear that the assumption of no fractures in the floors of Vaults 1 and 4 in the base case is realistic as Vaults 1 and 4 floors also contain anchor bolts. NRC staff understands that Vaults 1 and 4 floors are 24 inches thick versus 8 inches thick for the Vault 2 design which may affect the potential for fracturing at the anchor bolt sites.

Path Forward: Vault floor fractures should be included in the base case or provide a technical basis for not including this feature in the base case in light of limited vault floor characterization and the performance of the FDCs.

VP-4 **Comment:** The effects of the potential inventory in Vaults 1 and 4 floors on radionuclide release should be analyzed.

NRC Response: The response is adequate. NRC staff agrees that the potential initial inventory in the floor is likely to be relatively small and not risk-significant.

VP-5 **Comment (New):** The uncertainty in the performance of the vaults is not adequately represented in the PA and the PORFLOW model.

Basis: Recent hydrostatic tests for Vault 2, Cells 2A and 2B have demonstrated the complexities and uncertainties regarding the hydraulic integrity of engineered barriers. Discrete engineering features that can drive system performance are not captured within the PA. Features such as material interfaces, the vault liner coating, and anchor bolts led to unanticipated vault performance (SRR-CWDA-2010-00099). DOE has taken steps to eliminate the issues regarding these features; however, the unanticipated leak test results are indicative of optimistic performance assumptions regarding the hydraulic properties of the FDCs, as well as Vaults 1 and 4. The long-term performance of these engineered barriers has uncertainty that is not adequately represented in the PA.

The discrete features that have driven the performance of Cells 2A and 2B in the hydrotests are not currently incorporated into the PORFLOW analysis. Accordingly, the model would be inadequate with respect to the representation of these failures. The PORFLOW model does not include the potential for discrete failures beneath the anchor bolts, flawed liner coatings, or the discrete material interfaces.

Based on conversations with SRR staff, the recent FDC leaks are not considered significant to the performance of these vaults and they do not significantly impact the conclusions of the PA; the presence of engineered barriers such as the shotcrete and the HDPE-GCL around the FDCs provide a defense in depth. Due to the additional reliance on these engineered barriers and very limited performance data for the relatively unique applications of these barriers, additional model support would provide necessary confidence. Additionally, it is not clear that the HDPE/GCL was a completely redundant barrier i.e., the expected flow and transport through the HDPE/GCL may be correlated to the performance of FDCs.

Path Forward: Provide a technical basis demonstrating that recent events and

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discrete features will have a negligible impact on the dose results. This may include demonstration that barriers in addition to the FDC vaults will provide compensatory performance, such that the conclusions of the PA are not affected by (i) the observed performance of the FDCs to date and (ii) reasonably expected future performance.

Alternatively, reevaluate the expected performance of Vaults 1, 2, and 4 in light of evidence demonstrating the significance of discrete features. Reevaluation of vault performance may indicate that these discrete features should be incorporated into PA models.

VP-6 Comment (New): The bypassing of flow through Vaults 1 and 4 walls may not have a physical basis.

Basis: In Section 5.6.3.1, DOE discussed the result of water preferentially flowing through the vault walls and around the saltstone wasteform, which is due to the hydraulic model parameters for the Saltstone vaults and wasteform. The hydraulic conductivity of the walls for Vaults 1 and 4 for all cases in the PA is 4 orders of magnitude greater than that of the backfill or native soil. Although degrading the vault walls is locally conservative, globally the result is non-conservative. If there is not a physical basis for the walls to hydraulically degrade to the extent discussed in the PA, then the flow through the saltstone wasteform would be underestimated.

Path Forward: Provide additional support for the assumed hydraulic conductivity of the degraded Vaults 1 and 4 walls that result in the modeled bypassing of flow around the saltstone wasteform.

Far Field Transport (FFT)

FFT-1 Comment: Additional justification is required for the uncertainty ranges used for K_d values in site soils.

DOE Response Discussion: The DOE stated that the selection of the uncertainty distributions used for the K_d values were based on >730 K_d measurements of 8 radionuclides taken from 27 samples collected from the E-Area vadose and aquifer zones, as discussed in WSRC-STI-2008-00285. The provided reference indicated that the 27 depth-discrete samples were collected from a single borehole from E-Area. Variability in the distributions was attributed to general geochemical/geological differences in the site soils. The resulting data was used to estimate the statistical range and distribution of the K_d values for the studied radionuclides. Using these 8 radionuclides as analogues, the distribution coefficient variability was applied to >50 radionuclides.

WSRC-STI-2008-00285 evaluated the vertical variability of K_d values for 8 different radionuclides; however, lateral variability and radionuclide-specific chemistry may also affect K_d variability. Section 3.1.4.2 discusses the complexity and variability of the local geology and soils and it is not clear that a single borehole from E-Area would be representative of the soils at Z-Area. In addition, it is not clear that the

variability in K_d values for 8 radionuclides would adequately capture the variability of all 50+ radionuclides.

Path Forward: Depending on the extent to which DOE will rely on the GoldSim model, provide additional basis regarding the ability of K_d measurements on sediment samples from a borehole at E-Area for 8 radionuclides to bound the potential variability of >50 radionuclides at Z-Area.

FFT-2 **Comment:** It is unclear whether any site-specific K_d value measurements have been performed for the sorption of radium to soil.

NRC Response: The answer to this RAI is adequate, but NRC staff would appreciate receiving the document described in the response to this comment (SRR-CWDA-2010-00057) if it has been issued. If the measured K_d value is significantly different than the one assumed in the PA, the new value should be used in a revised base case.

FFT-3 **Comment:** Additional justification is needed for the K_d of selenium in vadose and backfill soils.

DOE Response Discussion: The DOE stated that a K_d for selenium of 1,000 mL/g is representative of a low pH soil and a low pH soil is considered appropriate as measurements ranged from 5.3 to 5.7 in the Z-Area background well, ZBG-1 (SRNS-TR-2009-00452). The impact of alkaline buffering on the selenium K_d values was evaluated in the probabilistic GoldSim model by using a minimum value of 250 mL/g, to account for the leaching of young-age cement. In addition, DOE ran a bounding sensitivity case using the Case A GoldSim model with both backfill and vadose zone soil K_d values for selenium set equal to zero. The effect on peak dose was less than 3% for Sector B within 20,000 years. DOE stated that the bounding sensitivity analysis provides confidence that lowering the selenium sorption onto soils has a negligible impact on dose results.

Although 3% represents a small absolute increase in dose, it represents a large relative increase in the dose derived from Se-79. According to SRNS-TR-2009-00452, the pH range of 5.3-5.7 appears to be too narrow for the Z-Area. Three wells within the Z-Area demonstrated pH values in excess of 5.7 and as high as 7. ZBG-1 represents the background well for the site; however part of NRC staff's concern is the variability across the site, including the potential impact of the cementitious materials in the SDF. In addition, the sensitivity case provided by DOE does not provide confidence as the conservatism of these sensitivity cases is unclear.

Path Forward: Depending on the extent to which DOE will rely on the GoldSim model, the selenium K_d values for soil should account for site variability in current conditions as well as reasonably expected future conditions.

SRNS-TR-2009-00452, Z-Area Groundwater Monitoring Report for 2009, Savannah River Site, Aiken, SC, December 29, 2009.

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Provide reference Kaplan, D. I., and S. M. Serkiz, 2006. *WSRC-RP-2006-00005, Influence of Dissolved Organic Carbon and pH on Anion Sorption to Sediment*, Washington Savannah River Company, Aiken, SC.

FFT-4 **Comment (New):** The PA should discuss the implications of calcareous zones within the far field transport model.

Basis: The presence of calcareous zones may require alternative flow conceptualization and modeling. Depending on the extent of these zones within the lower Upper Three Runs (UTR) aquifer, a dual porosity and dual permeability model may better represent flow through a porous matrix and open conduits. The presence of open conduits may (i) lead to preferential flow pathways through the subsurface, (ii) influence the location of the point of maximum exposure or compliance point, (iii) lead to decreased natural attenuation (sorption) to subsurface materials due to a decreased solids to pore water ratio, and (iv) lead to reduced K_d values for key radionuclides (e.g., Pu) due to elevated concentrations of carbonate, or non-equilibrium sorption due to the fast transport rates.

Path Forward:

1) Provide a technical basis for neglecting potential open flow conduits within the calcareous zone of the lower UTR aquifer.
2) Provide support for the treatment of the calcareous zones as porous media in transport modeling in light of the fact that decreased solids and presence of high carbonate concentrations can lead to significantly higher mobility for key risk drivers such as Pu.
3) Provide the report, Mueser, Rutledge Consulting Engineers (1986) Saltstone disposal, Z-Area SRP, cited in WSRC-TR-99-4083, "Significance of Soft Zone Sediments at the SRS" that may contain additional information to evaluate the scope and magnitude of calcareous zones in the Z Area subsurface.

Air Pathway

AP-1 **Comment:** The dose from the radon pathway was not included in the dose assessment of the air pathway (Section 4.5 of the PA).

NRC Response: The DOE response is adequate.

AP-2 **Comment:** The calculations used for the air pathway dose may not have adequately evaluated the dose from this pathway. The materials were assumed to remain constant over the simulation period and degradation of the wasteform and vault does not seem to have been considered. Also, the sensitivity of the calculated land surface flux rates of radionuclides to the assumed moisture content in the cover was also not evaluated.

NRC Response: The DOE response is adequate.

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Inadvertent Intrusion

II-1 **Comment:** Key assumptions about the potential pathways of exposure of an inadvertent intruder appear to underestimate dose.

DOE Response Discussion: In the analysis described in the PA, the intruder analysis was performed at a location of one (1) meter from the boundary of the SDF, which is one meter from some of the FDCs. In response to the NRC comment that the dose at one meter from Vault 4 may be higher, DOE provided a revised analysis that includes the dose at a distance of one meter from Vault 4. NRC staff finds that this portion of the response was acceptable (with the caveat that NRC staff does not agree with the use of Case A [see II-2]).

NRC staff also commented that the one-meter concentrations used in the intruder analysis were based on a 15.2 m (50 ft) grid that began at a distance of one meter from the disposal cells. NRC staff did not believe that it was appropriate to average the concentrations over this large a grid because the concentration of radionuclides that decay relatively quickly and are transported slowly may be very different over the 15.2 m (50 ft) cell. The new calculation for Vault 4 provided by DOE conservatively assumes that the concentration at one meter is equal to the concentration calculated under Vault 4. This response is acceptable to the NRC, but the NRC staff would like additional clarification on the Darcy Velocity assumed in this calculation.

The calculated dose at a distance of one meter from the FDCs was not evaluated in a similar manner and is still based on the concentration averaged over the 15.2 m (50 ft) grid. NRC staff needs an assessment of the dose at one meter from the FDCs to evaluate if the performance objectives can be met.

Additionally, as discussed in more detail in B-2, NRC staff does not agree with the exclusion of the poultry and egg pathway from the dose assessment and NRC staff believes that this should be included in the dose assessment for the intruder.

Path Forward: Provide an evaluation of the effect of the grid size assumption for the FDC. Consider the effect of including the poultry and egg pathway on the intruder (see B-2).

Provide a clarification on the Darcy Velocity assumed in the intruder calculation for Vault 4.

II-2 **Comment:** The basis for the use of Case A to calculate the intruder dose is not provided. Additionally, the methodology used for determining the key radionuclides for the intruder uncertainty/sensitivity analysis may have resulted in radionuclides that are risk significant to the intruder being excluded from this analysis. As a consequence, the results of the uncertainty/sensitivity analysis may not capture the true uncertainty in the intruder dose.

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DOE Response Discussion: The response to the RAI provided by DOE states "(t)he deterministic intruder analysis results are based on Case A because Case A represents the reasonably expected degradation configuration for the SDF disposal units". As stated in PA-8, the NRC staff believes that Case A is very optimistic and is not supported. NRC staff needs an intruder assessment that is based on a credible compliance case that includes all risk significant radionuclides to determine that compliance with the performance objectives of 10 CFR 61 can be met.

In the RAI response, DOE stated that the SDF PA Section 6.5 presents results that address the effects of uncertainty on the estimation of intruder dose and that the calculated mean dose to the intruder for all cases (Cases A through E) is less than 10 mrem/yr. NRC staff recognizes that the GoldSim uncertainty analysis considers the other, more realistic degradation cases. However, NRC staff has some concerns about the GoldSim modeling calculations (see PA-11), and it is not clear that the doses calculated using the GoldSim model are reasonable or meaningful.

Additionally, DOE stated in the RAI response that the potential dose to the intruder associated with the other cases can be inferred based on the dose results at 100 m presented in the SDF PA Section 5.6.6. NRC staff disagrees with this statement because radionuclides that are transported slowly and decay relatively quickly (e.g., Sr-90 and Cs-137) could cause a significant dose at a distance of one (1) meter, but it is unlikely that these radionuclides would travel quickly enough to reach 100 m before decaying. These radionuclides might not be modeled as being released quickly enough in Case A to be a problem at one (1) meter, but they could be released more quickly if more water enters the system than was predicted in that model.

Path Forward: Provide an assessment of the intruder dose based on a realistic and reasonable compliance case.

Biosphere

B-1 **Comment:** The basis for excluding biotic transfer factors from the uncertainty analysis is unclear.

DOE Response Discussion: The DOE response indicated that uncertainty in biotic transfer factors did not result in large changes to the total dose, therefore uncertainty in the transfer factors were not included in the probabilistic analysis. The absolute changes to dose as a result of biotic transfer factor uncertainty was small, however the relative changes were moderate to significant. The impact of biotic transfer factor uncertainty should be part of the base case assessment.

This comment has been expanded to include plant transfer factors and the conceptual approach for developing the values for the distributions and the expected values for the base case. Biotic transfer factors directly influence calculated doses and can have very broad ranges. In many instances, the DOE recommended values are equal to the minimum value of the distribution (for plant transfer factors, at almost

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a three to one ratio compared to values set to the maximum of the distribution). In effect, the distribution is defined such that the actual value will not be lower than the most likely value and the actual value is expected to be higher. These types of distributions are inconsistent with real world data and lack a conceptual basis.

Part of the reason for the distributions appears to be the derivation process documented in WSRC-STI-2007-00004. The process is not supported. DOE had derived transfer factors then updated them with a variety of sources, but primarily from PNNL-13421. For many transfer factors, the updating was performed by calculating a geometric mean of the old and PNNL-13421 values. This approach has no basis, and can result in a significant underestimation of biotic pathway doses. For example, the soil to plant transfer factor for Ra (a key radionuclide) was reduced by a factor of 100 from the previous value using this approach. A footnote infers that the PNNL-13421 values are site-specific, but NRC review of the reference indicates that the values are not site-specific but simply represent a different compilation of values.

Transfer factors operate on the concentrations derived at the end of the calculation, and can have very broad ranges. Many have very few observations. For the most part, the variance in observed values represents real world variability. Use of a geometric mean can result in a high likelihood of the actual value exceeding the assumed value and exceeding it by a large margin. Without actual site-specific measurements, transfer factors have to be selected conservatively.

Path Forward: Provide technical basis for the expected value and distributions of transfer factors used in the analysis. The results should not be aggregated with a geometric mean transfer factor.

B-2 **Comment:** The animal product pathways included in the dose assessment are the beef, milk, and finfish pathways. A basis for excluding the other animal product pathways (e.g., consumption of poultry and eggs) from the dose assessment is not provided.

DOE Response Discussion: In the response to this comment, DOE states that the exposure pathway for poultry and eggs is not included in the SDF PA compliance model based on a survey of local practices within 50 miles of the SRS. WSRC-RP-91-17 cites a personal communication from T. Mathis who indicated that it is the local practice to source poultry feed from offsite. Based on this communication, DOE excluded poultry and eggs as an exposure pathway.

NRC staff believes that this study does not provide a sufficient technical basis to conclude that chicken feed is currently, or will in the future, be sourced from offsite. In addition, even if the poultry primarily consume commercial feed, the poultry may still consume other things (e.g. bugs and forage) which may contain site-derived radionuclides. Furthermore, the poultry would likely consume groundwater (extracted for domestic or agricultural purposes) from the site. For these reasons, the NRC staff does not believe it is appropriate to exclude the chicken and egg pathways from the PA.

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Path Forward: Provide an evaluation of the dose to the member of the public and intruder from chicken and egg pathways.

B-3 **Comment:** The effects of radionuclide build-up in irrigated soils may be underestimated.

DOE Response Discussion: The DOE response indicated that use of a 30-year build-up time as compared to a 183-day build-up time for radionuclides in irrigated soils did not result in large changes to the total dose; therefore the effects did not need to be included in the base case.

Most releases from the SDF are expected to occur slowly over thousands of years. The 30-year buildup time may be exceeded for long-lived radionuclides, however NRC acknowledges that the assessment provided did not consider losses from erosion and leaching. Ambiguity could be reduced by including expected gain and loss processes to determine equilibrium build-up factors.

The absolute changes to dose as a result of increased build-up times were small; however the relative changes were significant. The impact of build-up time uncertainty should be part of the base case assessment.

Path Forward: Include build-up of radionuclides during multiple years of irrigation in the base case PA model.

B-4 **Comment (New):** The soil to plant transfer factors may be too low due to the elimination of the leafy plant component.

Basis: WSRC-STI-2007-00004 uses soil to plant transfer factors for non-vegetative portions of food crops because local productivity of non-leafy vegetables is expected to be considerably greater than that of leafy vegetables (based on WSRC-RP-91-17). However, the transfer factors for leafy vegetables can be considerably larger than non-leafy vegetables for key radionuclides. For example, the reference most used as a source of transfer factors in the current analysis (PNNL-13421) has a factor of 210 for leafy vegetables and a value of 0.24 for non-leafy vegetables for Tc. At a 13% leafy vegetable fraction, the vegetable pathway dose from Tc would be over 100 times larger with the leafy and non-leafy components calculated separately and then combined compared to assigning all vegetables as non-leafy. In addition, the WSRC-RP-91-17 reference may have underrepresented garden production data due to limited survey response.

Path Forward: Include the leafy vegetable pathway explicitly in the plant pathway dose calculation. Consider using EPA or NRC references for garden productivity data.

B-5 **Comment (New):** The drinking water ingestion rate of 337 L/yr is inconsistent with an average member of the critical group definition.

Basis: The drinking water ingestion rate is calculated by taking the mean per capita total water ingestion of 1233 mL/day and multiplying by the 75% value from community water. However, this is weighting the critical group member's consumption rate by the type of group the critical group member is in. Given the current site usage and definition of the receptor as a resident farmer, the drinking water consumption rate should be a minimum of 87% of the total water ingestion rate (subtract out the bottled water fraction). Consideration should also be given to adjusting the values for a receptor engaging in a more labor-intensive lifestyles than average in a climate that is warmer than average.

Path Forward: Modify the drinking water consumption rates to be consistent with the defined receptor and scenario.

ALARA analysis

A-1 **Comment:** Social, economic, and public policy considerations do not appear to have been considered in an analysis of maintaining doses "As Low As Is Reasonably Achievable" (ALARA).

DOE Response Discussion: The response to this RAI states that "the estimated dose pathways evaluated in the PA are well below the performance objectives; therefore, a qualitative assessment of disposal alternatives is justified." NRC staff agrees with the concept that a less detailed ALARA is required when the predicted doses are low, but NRC staff would like to note that an assessment that includes the concerns raised in other RAIs (e.g., PA-11, PA-13, IN-1, etc.) may result in a higher calculated dose. In addition, the response to this RAI did not include a discussion on the processes that are being used to minimize the inventory that is disposed of at the SDF. A discussion on maintaining the worker dose at levels that are ALARA was also not included.

Path Forward: Provide additional information on the methodology used to minimize the inventory of radionuclides that are sent to the SDF. Also, provide more details on the controls that exist to minimize the dose to the workers.

Clarifying Questions

As mentioned in the Structure of Comments section of this RAI, the staff found the remaining clarifying comment responses, not referred to in the section below, to be acceptable. In addition to referring to one Clarifying Comment from RAI-2009-01, the staff has added new clarifying comments in RAI-2009-02.

C-4 **Comment:** Clarify the basis for the selenium K_d of 150 mL/g for old oxidizing conditions. It is not clear from the PA, or the supporting report WSRC-STI-2007-00640, how the value was selected. Clarify whether the evaluation considered the presence in solution of the selenium as selenate, which is potentially less sorptive than selenite.

DOE Response Discussion: The DOE discussed site-specific batch experiments that showed selenium K_d values ranging from 29.7 to 78.5 mL/g. These experiments were discounted in favor of literature values due to the aqueous selenium concentrations being near the detection limits. The basis for the selenium K_d of 150 mL/g for old oxidizing conditions relied on the values reported in "Sorption of Selenite and Selenate to Cement Materials" (Baur and Johnson 2003). DOE stated that selenite is expected to convert to selenate under old oxidizing conditions and that the K_d values for selenate from the report by Baur and Johnson (2003) were between 180 and 380 mL/g. DOE further stated that as cementitious materials degrade, the selenium sorption constants (K_d = 1041 mL/g) approach that of the sediment. Selenium sorption was stated as being very high due to the ubiquitous presence of iron oxides and low pH of the sediment.

The K_d values of 180 and 380 mL/g reported in "Sorption of Selenite and Selenate to Cement Materials" were for selenite, not selenate. Baur and Johnson (2003) reported no significant update of selenate with calcium-silicate-hydrate (C-S-H) and only limited sorption with ettringite. Furthermore, it is not clear why the sorption coefficient for selenium would approach that of sediment as cementitious materials degrade. The chemistry of degraded cementitious material would not be expected to have the same chemical properties as sediment (high iron content and low pH), which is responsible for the high sorption coefficient for selenium.

Path Forward: Provide support for the selenium K_d of 150 mL/g for old oxidizing conditions or revise the base case K_d value.

C-8 **Comment:** For benchmarking cases B-E (Sections 5.6.2.3.5 though 5.6.2.3.8), the PA compares the doses predicted based on the PORFLOW model and post-benchmarking GoldSim model resulting from "all modeled radionuclides". Clarify whether the term "all modeled radionuclides" in this context refers to the original list of radionuclides included in the PORFLOW model or a smaller list of radionuclides modeled during the benchmarking effort.

DOE Response Discussion: The response to this clarifying comment only addressed the radionuclides included in the Case A PORFLOW and the GoldSim calculations. The radionuclides included in the PORFLOW calculations for Cases B-E were not discussed.

Path Forward: Provide a list of the radionuclides provided in the PORFLOW calculations for Case B, Case C, Case D, and Case E.

C-22 **Comment (New):** Figure 4.2-15 in the PA shows the vertical hydraulic conductivity of the lower lateral drainage layer reducing in time to approximately 4E-5 cm/s by 20,000 years. However, the PORFLOW model files indicate that the hydraulic conductivity is only reduced to 4.9E-3 cm/s for all cases. The flux out of the vaults is directly dependent on the infiltration rates. As indicated in IEC-8, the conservatism of the calculations for the hydraulic conductivity of these lateral drainage layers is not clear and according to the PORFLOW model files, it is not clear if these calculations

were implemented appropriately. Clarify why different hydraulic conductivity values were implemented in the PORFLOW model.

C-23 **Comment (New):** WSRC-STI-2008-00244 discussed the installation quality of the geomembrane as "Good"; however, the HELP model also requires the specification for the placement quality of the geomembrane. The Help model input data in Appendix J of WSRC-STI-2008-00244, listed the geomembrane placement quality as a "2". According to the "HELP User's Guide for Version 3" (Schroeder et al., 1994), an entry of 2, "assumes exceptional contact between geomembrane and adjacent soil that limits drainage rate (typically achievable only in the lab or small field lysimeters)." The basis for selecting the placement quality of the geomembrane should be provided.

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MR. HABER: Thank you. My name is Jim Haber, H-A-B-E-R. I'm with Nevada Desert Experience. We organize interfaith resistance to nuclear weapons in the war, and we're based here in valley. And we'll also be submitting more formal comments; and we will be encouraging others to submit comments, also, before the deadline.

And looking at this information, which is new to me, not that the issue is new. But it does strike me, even though you spoke to why HOSS is not on here, the Hardened On-Site Storage, seems like to -- the presentation makes it seem to me like we still need to consider hardened on-site something, at least for now. T40-1

And that the comparisons that show human risks to be really elevated for that method assumes no activity for 100 years, or whatever. And so I understand that we can't presume what we will do if we say no action now. But it just makes the form of comparison seem skewed towards the deep geological or was the method being proposed for consideration at the Nevada Test Site. T40-2

So the presentation of the data that way seems unfair because no action now doesn't mean no action ever. It means that we're not sure what to do

T40-1 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

T40-2 The No Action Alternative is evaluated in Chapter 3 of the EIS, and under this alternative, current practice for storing GTCC LLRW and GTCC-like wastes would continue. These practices are described in Sections 3.2 (GTCC LLRW) and 3.3 (GTCC-like wastes) in the Final EIS. It was necessary to make a number of simplifying assumptions to address the long-term impacts of this alternative, and these are described in Section 3.5. As part of this assessment, it was assumed that these wastes would remain in long-term storage indefinitely, including wastes from the West Valley Site as discussed in Section 3.5.3, and that no maintenance of either the storage facility or waste packages would occur after 100 years. These results indicate that very high radiation doses and cancer risks could occur under this alternative in the long term.

The No Action Alternative is evaluated in sufficient detail in the EIS as required by NEPA. Comparatively high potential radiation doses and cancer risks could occur should this alternative be selected. While a more detailed analysis could reduce the uncertainties associated with estimating these doses and risks, the conclusion of comparatively high impacts would not change for this alternative.

Impacts from accidents or theft/intrusion were not performed for the No Action Alternative because of the large number of potential locations, and in many cases (sealed sources), the current locations of the waste are not known. In general, these impacts would be comparable to those in the accident consequence analyses conducted for facilities and transportation but possibly occur at a higher frequency because of a lower overall level of security.

The No Action Alternative is evaluated in the EIS to provide a baseline for comparison with the action alternatives. This evaluation confirmed the risks posed by these wastes and the need to develop appropriate disposal capability. The potential radiation doses for the No Action Alternative covered a time period of 10,000 years in a manner comparable to that done for the action alternatives. Relatively high impacts could occur shortly after the 100-year institutional control period under this alternative.

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1 with this material because there is no good thing to do
2 with this material, and so I'm afraid that my comments
3 are going to go beyond the scope of this hearing and
4 this EIS.
5 And yet it's necessary at all of these
6 junctures to point out that we don't know how to deal
7 with the nuclear gene that is out of the bottle.
8 Therefore, we need to stop generating nuclear waste.
9 We need to stop looking to nuclear power and nuclear
10 weapons for a whole host of reasons, and we have treaty
11 obligations and to be decommissioning and dismantling
12 our nuclear weapons, not finding ways to support
13 nuclear weapons more.
14 Now, this is about nuclear power. We need to
15 not overstate the medical component of the nuclear
16 waste because that seems clear to be a very small
17 percentage, and yet I can hear in public discourse that
18 it's going to be pointed to as, "Oh, we need a place to
19 deal with this medical waste." And yet it's very
20 small, and so I want us to be sure that we don't allow
21 that to happen.
22 I can see that the Native American community
23 has been involved on some level in this draft, and yet
24 I know that the Western Shoshoni National Council
25 opposes any further use of nuclear -- of the Nevada

T40-2 (Cont.)

T40-3

T40-3 Stopping the generation of nuclear waste, whether from the use of nuclear power or the generation of nuclear weapons, is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

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1 Test Site on Western Shoshoni lands for their use. I'm
2 not Western Shoshoni. I don't presume to speak for
3 everyone there. But I do know that the Western
4 Shoshoni National Council and members of the Timbisha
5 and Yelba Tribes certainly oppose any storage and
6 further use of the facility there in this way.
7 Just a couple more things. Just checking my
8 notes. Yes. I want to mention again, you know,
9 Fukushima and Chernobyl should be wake-up calls. You
10 know, we just had the 25th anniversary of Chernobyl,
11 and it doesn't seem like this figure is in here at all.
12 I know this has been in the works. But as we go
13 forward, to go from draft to formal, that needs to
14 weigh-in here. I mean, that's just part of the reality
15 that we're struggling with, and it just points out that
16 there is no way to deal with this.
17 We need to get off that, the train of making
18 more nuclear wastes, and that needs to be said at every
19 one of these hearings that deals with anything related.
20 And so that's why I'm here speaking a little outside of
21 the box and yet very much on point.
22 And, finally, I want to offer people, since
23 yesterday was Mother's Day, I have copies of "The
24 Original Mother's Day Proclamation" from 1870 by Julia
25 Ward Howe. Julia Ward Howe, who also wrote the "Battle

Nevada Desert Experience, Commenter ID No. T40 (cont'd)

1 Hymn of the Republic," and I would like to make them
2 available to people. I'll have them sitting outside.
3 I don't want to disrupt by passing them out. It's very
4 pertinent, also, so for the record.
5 (Whereupon Exhibit No. 3 was marked for
6 identification.)
7 MR. BROWN: Okay. Great. Thanks very much.
8 Okay. Judy Treichel is next. And Jane, is
9 that "Foldman" or "Feldman" is after Judy.
10 MS. TREICHEL: My name is Judy Treichel. I'm
11 the Executive Director of Nevada Nuclear Waste Task
12 Force. I also will be submitting longer comments, and
13 this is just quickly what I've been able to pick up
14 here and in a brief overview of what's being talked
15 about.
16 One of the things that I think is most
17 important is defining the problem, and it's very
18 difficult to see exactly how dangerous this stuff is.
19 I understand that it comes from many, many sources and
20 there are very different items that are all considered
21 as Greater-than-Class C waste. But we've got to know
22 if -- you have to take the most dangerous of them and
23 let us know exactly how dangerous that is.
24 If it doesn't need to be in a repository, if
25 it's not that dangerous, then why is a repository being

Nevada Desert Experience, Commenter ID No. T40 (cont'd)

PL

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1 PUBLIC COMMENT
2 (Continued)
3 MR. HABER: Jim Haber, H-A-B-E-R. I'm with
4 Nevada Desert Experience.
5 And the comment I wanted to add to what I
6 said earlier is that it's a bit of a fear and an
7 analogy to another governmental process that happened
8 around health care and the health care debate in that
9 there was so much public support for universal health
10 care, or at least single care; and yet when President
11 Obama came in and sat a panel to look at the issue, he
12 did not include anyone who was for universal health
13 care at the table that was actually discussing what was
14 going to be proposed.
15 And the comments that you said you've
16 received at previous meetings like this, the comments
17 reflective tonight showed that people feel like on-site
18 storage is what we need to be doing, at this point at
19 least. And yet you look at the graphs and you think,
20 wow, if this graph is presented to Congress, it's not
21 going to be presented.
22 And it seems like a lot of people feel like
23 HOSS or HOS-something needs to be really seriously
24 considered. And maybe the drafters of the EIS feel
25 like it was considered and not presented for valid

T40-5

T40-5 See response to T40-1.

Nevada Desert Experience, Commenter ID No. T40 (cont'd)

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1 reasons, but it feels like it needs to be revisited in
2 a very serious way and not excluded anymore.

T40-5 (Cont.)

Nevada Nuclear Waste Task Force, Commenter ID No. T41

MS. TREICHEL: My name is Judy Treichel. I'm the Executive Director of Nevada Nuclear Waste Task Force. I also will be submitting longer comments, and this is just quickly what I've been able to pick up here and in a brief overview of what's being talked about.

One of the things that I think is most important is defining the problem, and it's very difficult to see exactly how dangerous this stuff is. I understand that it comes from many, many sources and there are very different items that are all considered as Greater-than-Class C waste. But we've got to know if -- you have to take the most dangerous of them and let us know exactly how dangerous that is.

If it doesn't need to be in a repository, if it's not that dangerous, then why is a repository being

Nevada Nuclear Waste Task Force, Commenter ID No. T41 (cont'd)

22

1 considered? If it does, and I would guess that it does
2 because that's the NRC's regulation for this type of
3 waste, then why would we be considering something less
4 than that?
5 So either it's okay to put it in a shallow-
6 land burial or it's definitely not or it requires a
7 repository or it doesn't. Those things have to be
8 clearly defined so that we really know what we're
9 talking about.
10 And if it requires a repository and the only
11 one being looked at is WIPP and if WIPP is unavailable
12 because there's currently laws that say that nothing
13 goes in there but the transuranic that is going in
14 there now, then perhaps it can't be done yet. And as
15 Jim was saying, there may be a situation where we're
16 not ready to do this yet.
17 And looking at the dose chart, it really
18 looks as though the deck is stacked toward either NTS
19 or the WIPP site because that's where you have actually
20 no doses, according to that chart. I'm not sure that's
21 correct, but and very high doses for the other places.
22 So once that's handed to Congress, it would seem to me
23 that they would have very little reason to say any
24 other place but those.
25 I've been following the Blue Ribbon

T41-1

T41-1 The scope of this EIS is adequate to inform decision-making for the disposal of GTCC LLRW and GTCC-like waste. Sufficient information is available to support the current decision-making process to identify (an) appropriate site(s) and method(s) to dispose of the limited amount of GTCC LLRW and GTCC-like waste identified in the EIS.

DOE believes that this EIS process is not premature and is in compliance with NEPA. On the basis of an assumed starting date of 2019 for disposal operations, more than half (about 6,700 m^3 [240,000 ft^3] of the total GTCC LLRW and GTCC-like waste inventory of 12,000 m^3 [420,000 ft^3]) is projected to be available for disposal between 2019 and 2030. An additional 2,000 m^3 (71,000 ft^3) would become available for disposal between 2031 and 2035. This information is presented in Figure 3.4.2-1. DOE believes this EIS is timely, especially given the length of time necessary to develop a GTCC waste disposal facility.

DOE developed this EIS to support a decision on selecting a disposal facility or facilities for GTCC LLRW and GTCC-like waste, to address legislative requirements, to address national security concerns (especially for sealed sources), and to protect public health and safety. The purpose and need for the proposed action, as discussed above, is stated in the EIS (Section 1.1). The scope of the EIS is focused on addressing the need for developing a disposal capability for the identified inventory of GTCC LLRW and GTCC-like wastes. DOE plans a tiered decision-making process, in which DOE would conduct further site-specific NEPA reviews before implementing an alternative ultimately selected on the basis of this EIS. For additional information, see Section J.2.4.

Based on the GTCC EIS evaluation and WIPP's operating record, DOE believes that the WIPP repository would be a safe location for the disposal of GTCC LLRW and GTCC-like wastes, some of which include long-lived radionuclides. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require modification to existing law. In addition, it would be necessary to revise the Agreement for Consultation and Cooperation between the Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit.

Nevada Nuclear Waste Task Force, Commenter ID No. T41 (cont'd)

23

1 Commission meetings that are supposed to be making
2 recommendations beyond Yucca Mountain, if the Yucca
3 Mountain site is completely dead and never used, and
4 one of the big things that they talk about is finding
5 voluntary sites.
6 And you said that you went out to the
7 commercial industry where a huge majority of this waste
8 would be made and didn't come up with any voluntary
9 sites or enthusiasm for figuring out what to do with
10 this waste, and yet they still haven't even produced
11 the lion's share of it. So it seems to me that there's
12 a big disconnect there. T41-2
13 And if they don't want the stuff themselves
14 and they still haven't produced a lot of it, it would
15 make sense to me that they not go ahead; although I
16 understand that's not part of your charge here, but I
17 do think that public opposition or public enthusiasm
18 for helping with this problem should play a big part in
19 it. T41-3
20 There should be a willing host for this
21 stuff. And if there's not, you haven't made the case
22 well enough or people don't understand it well enough
23 or they're just opposing what's going on. T41-4
24 Thank you.

T41-2 DOE does not consider the lack of interest on the part of the generators for co-locating a disposal facility at the point of generation to be an indicator of a lack of disposal facility interest in general. DOE also considers this to be true irrespective of when the waste will be generated.

As part of this EIS process, DOE solicited technical capability statements from commercial vendors that might be interested in constructing and operating a GTCC waste disposal facility. Although several commercial vendors expressed interest, no vendors provided specific information on disposal locations and methods that could have been analyzed in the EIS. Hence, this option was analyzed generically.

T41-3 Stopping the generation of nuclear waste is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

T41-4 DOE agrees that the willingness of the host community is an important factor when selecting the preferred alternative. The State of New Mexico has indicated a willingness to accept GTCC LLRW and GTCC-like wastes for disposal at WIPP. Twenty-eight New Mexico State Senators signed a proclamation made in the 50th Legislature, First Session, 2011, stating: "Be it resolved that we, the undersigned, support the opportunity for other potential missions in southeast New Mexico to adequately address the disposal of defense high-level waste, commercial high-level waste, Greater Than Class C LLRW and surplus plutonium waste, as well as the interim storage of, spent nuclear fuel." In response to the Draft GTCC EIS, David Martin, Secretary of the New Mexico Environment Department, sent a letter to DOE on June 27, 2011, stating that "the Department encourages DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type." In addition, the Governor of New Mexico, in a letter to DOE Secretary Steven Chu on September 1, 2011, stated that the State of New Mexico encourages DOE to support the proposed location of WIPP as the preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes.

Nevada Site Specific Advisory Board, Commenter ID No. L96

U.S. Department of Energy
NSSAB
Environmental Management

Nevada Site Specific Advisory Board

June 9, 2011

Greater-Than-Class C Low-Level Radioactive Waste EIS
Office of Technical and Regulatory Support (EM-43)
U.S. Department of Energy
1000 Independence Avenue, SW.
Washington, DC 20585–0119

The Nevada Site Specific Advisory Board (NSSAB) appointed a subcommittee to review the Greater Than Class C Draft (GTCC) Environmental Impact Statement (EIS). The NSSAB is submitting the following formal comments to the Department of Energy (DOE) for consideration. Comments are focused on Nevada National Security Site related topics and broad regulatory issues. Expanded information on each comment can be found in the enclosed Appendix 1.

1. The Draft GTCC EIS does not include a preferred alternative. This severely limits the scope of the potential comments that might be received. L96-1
2. The GTCC EIS Scoping Hearings were based on an assumption that the Yucca Mountain license application would be submitted by June 2008. Dismissal of the Yucca Mountain repository option from consideration in the Draft GTCC EIS invalidates the scoping process, which should be redone. L96-2
3. GTCC waste is defined and regulated by the Nuclear Regulatory Commission (NRC). It is not clear the NRC will accept the near surface disposal alternatives (i.e., trenches or vaults). The DOE should formally engage the NRC in a rulemaking on this matter before recommending to Congress a path forward that the NRC ultimately may not support. L96-3
4. The Draft EIS assumes that: the effective life of the intruder barriers will be 500 years; GTCC waste is stable; and the maximum concentration of radionuclides at the end of the 500 year period will be at a level that does not pose an unacceptable hazard to an intruder or to public health and safety. The EIS contains no supporting documentation to support these assumptions and therefore the various disposal options cannot be reasonably compared. L96-4
5. The Draft GTCC EIS suffers from a lack of perspective of the difficulty of licensing a facility that had originally addressed 10 Code of Federal Regulations (CFR) Part 60 or 63 requirements. Licensing by the NRC would be done in an administrative hearing, which is a much more contentious and rigorous undertaking than an EPA permit process. L96-5
6. Insufficient information is presented that would allow local communities to understand how the projected transportation routes would impact those communities. (This is a particularly sensitive issue for the Nevada National Security Site [NNSS] due to the existing large amount of radioactive waste transported through the area). L96-6

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L96-1 A preferred alternative is not required to be included in a Draft EIS. The Council on Environmental Quality regulations in 40 CFR 1502.14(e) specify that the section on alternatives in an EIS shall identify the agency's preferred alternative or alternatives, if one or more exists, in the Draft EIS and identify such alternative(s) in the Final EIS unless another law prohibits the expression of such a preference; that is, a preferred alternative shall be identified in the Draft EIS if one exists. If no preferred alternative has been identified at the Draft EIS stage, a preferred alternative need not be included. By the time the Final EIS is filed, 40 CFR 1502.14(e) presumes the existence of a preferred alternative and requires its identification in the Final EIS unless another law prohibits the expression of such a preference.

DOE did not have a preferred alternative at the time of issuance of the Draft EIS because of the complex nature of the proposed action and the potential implications for disposal of GTCC LLRW and GTCC-like wastes. To seek public input on how to identify a preferred alternative for inclusion in the Final EIS, the Draft EIS presented considerations for developing a preferred alternative in the Summary (in Section S.6) and in Section 2.9. As required by 40 CFR 1502.14(e), the Final EIS contains a preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes (see Section 2.10). In developing the preferred alternative, DOE took into consideration public comments on the Draft EIS, public EIS scoping comments, and other factors identified in Sections S.6 and 2.9 of the EIS.

The publication by the EPA of a NOA of the Final EIS in the Federal Register initiated a 30-day public availability or "waiting" period. While the availability period is not a formal public comment period, the public can comment on the Final EIS, including the preferred alternative, prior to final agency action. Comments received will be addressed by DOE in a ROD. As required by the Energy Policy Act of 2005, DOE must submit a Report to Congress that includes the alternatives considered in the EIS and await Congressional action before making a final decision regarding which alternative(s) to implement. The Report to Congress will be made available to the public on the GTCC EIS website (http://www.gtcceis.anl.gov/).

L96-2 The EIS considered the range of reasonable alternatives for disposal of the inventory of GTCC LLRW and GTCC-like wastes identified for inclusion in these analyses. The Secretary of Energy determined that a permanent repository for high-level waste and spent nuclear fuel at Yucca Mountain, Nevada, is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of the EIS. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

L96-3 The NRC served as a commenting agency on the GTCC EIS and therefore did not actively participate in the preparation of the GTCC EIS. Issues associated with potential regulatory changes or NRC licensing would be addressed as necessary to enable implementation.

L96-4 DOE believes that 500 years is a realistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS (Phifer et al. 2007) that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study.

L96-5 Comment noted. DOE understands that there are differences between the potential licensing and/or permitting processes.

Nevada Site Specific Advisory Board, Commenter ID No. L96 (cont'd)

Greater-Than-Class C Low-Level Radioactive Waste EIS
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Page 2

7. The Draft GTCC EIS also does not include information about how shipping containers would be "certified." It would be appropriate to address such requirements in the EIS. (This is also a particularly sensitive issue for communities near the NNSS.) L96-7
8. The methodology for mitigation of human intrusion described in the Draft GTCC EIS is not consistent with existing requirements for geologic disposal. Both EPA and NRC regulations specify that an intrusion must be modeled as occurring and causing radioactive material to reach groundwater resources. (This point could work strongly in favor of the NNSS as the preferred disposal site). L96-8
9. The Draft GTCC EIS does not adequately address the potential impacts to historic artifacts or biological resources. L96-9
10. The Draft GTCC EIS does not adequately represent the difficulties that will arise in attempting to modify the WIPP Land Withdrawal Act to allow nearly thirty times as much total radioactivity as is currently allowed by the law. The EIS does not convey the difficulties inherent in requesting Congress to modify both the WIPP Land Withdrawal Act and the Nuclear Waste Policy Act. L96-10
11. The performance assessments described in the Draft GTCC Environmental Impact Statement are deficient because they assume that the facility characteristics to which performance is most sensitive will be met, rather than demonstrating that they can be met. For example, the Draft GTCC EIS does not recognize that removal of the sheet piling following trench disposal will create a pathway for water to contact wastes rapidly. L96-11
12. The Draft GTCC EIS does not present definitive arguments demonstrating that a near surface cover could meet the expected performance required for GTCC waste disposal. L96-12
13. On Page 5-65 the conclusion presented in the paragraph "As the distance would increase from 100 m (330 ft) to 500 m (1,600 ft), the maximum annual radiation dose would increase by more than 70%" is incorrect and is inconsistent with the argument presented. L96-13
14. The argument that a reduction in dose would occur with distance because of additional dilution of radionuclide concentrations in groundwater is not consistent with the EPA's concept of "Reasonably Maximally Exposed Individual" used as the receptor in current repository regulations. (This argument is also essentially irrelevant to near surface disposal at the NNSS since groundwater at that site is very deep and surface water does not reach the groundwater). L96-14
15. There are numerous deep boreholes existing on the NNSS as part of the Test Readiness Program (eventual use for nuclear weapons testing). These boreholes should be considered for disposal of GTCC wastes. L96-15

The NSSAB thanks you for the opportunity to comment on this Draft GTCC EIS. We hope that our comments will be beneficial to DOE as you move forward in addressing the problem of what to do with GTCC wastes.

Sincerely,

Walter F. Wegst

Walter F. Wegst, Chair

Attachment (Appendix 1)

cc: M. Nielson, DOE/HQ (EM-13) FORS
C. Alexander Brennan, DOE/HQ (EM-13) FORS
A. Clark, DOE/HQ (EM-13) FORS
K. Snyder, PSG, NNSA/NSO, Las Vegas, NV
C. Lockwood, PSG, NNSA/NSO, Las Vegas, NV
D. Rupp, NREI, Las Vegas, NV
NSSAB Members and Liaisons

L96-6 As stated in Section C.9.4.1.1 of the EIS on route selection, many of the GTCC LLRW and GTCC-like wastes considered in the EIS would meet the definition of a highway route HRCQ (49 CFR 173.403). However, as noted in the discussion, states and Native American tribes have the opportunity to designate "preferred routes" to replace or supplement the interstate highway system. For those wastes not specifically designated as HRCQ, the selection of a route is left to the carrier, but in the case of GTCC LLRW and GTCC-like wastes, additional consultation with transportation stakeholders would occur.

DOE/NNSA analyzed various radioactive waste shipping routes through and around metropolitan Las Vegas, Nevada, in the Draft NNSS SWEIS. DOE/NNSA continued discussions with the State of Nevada on routing options throughout the preparation of the Final NNSS SWEIS. After taking into consideration the comments and concerns expressed by State, county, and local government officials and the public in general during the review and comment period for the Draft NNSS SWEIS, DOE/NNSA decided to maintain the current highway routing restrictions for shipments of low-level radioactive waste (LLW) and mixed-low level radioactive waste (MLLW), as described in the Waste Acceptance Criteria (WAC) for the site. DOE/NNSA explained this decision in the Final NNSS SWEIS. The unchanged WAC restrictions are to avoid (1) crossing the Colorado River near Hoover Dam and (2) the greater metropolitan Las Vegas interstate system. DOE/NNSA is not considering, nor is it making, changes to the NNSS WAC with regard to routing.

Such decisions are developed in accordance with NNSA's standard practices (which include consultation with the State of Nevada) and, when finalized, become publicly available through publication on NNSS's website.

Once an alternative is selected in a ROD for this EIS, implementation will include, as needed and appropriate, NEPA reviews and other analysis (e.g., transportation).

L96-7 The specific waste forms and packages used to dispose of GTCC LLRW and GTCC-like wastes would be determined in the future as part of the waste acceptance criteria and packaging requirements developed. See the discussion in Section B.5 and C.9.4.2 of the EIS for more information on packaging requirements. All GTCC LLRW and GTCC-like wastes would be packaged and transported in accordance with all applicable federal and state requirements, and waste disposal activities would be conducted in accordance with appropriate requirements.

L96-8 On the basis of the depth of waste disposal, DOE believes that the only reasonable potential for intrusion is from a future drilling event, such as drilling for a well. The likelihood of inadvertent intrusion from a drilling event would be very low for a GTCC waste trench disposal facility because of (1) the narrow width of the trench, (2) the use of intruder barriers, (3) the remoteness of the sites, (4) DOE's commitment to long-term institutional control, (5) site conditions such as the general lack of easily accessible resources and the great depth to groundwater, and (6) waste form stability. On the basis of these considerations, DOE did not include a quantitative analysis of inadvertent human intruder in the EIS. Further evaluations would be conducted in site-specific NEPA reviews in the future as needed.

Potential inadvertent human intrusion into WIPP is addressed in the documentation (WIPP Performance Assessment) supporting its current operations. Inclusion of GTCC LLRW and GTCC-like wastes with the wastes already planned for disposal in this repository would not be expected to change the results associated with this hypothetical intrusion event.

L96-9 The EIS addresses NNSS ecological resources in Section 9.1.5 and cultural resources in Section 9.1.10. Site-specific NEPA reviews would be conducted as needed.

L96-10 DOE recognizes the potential challenges associated with the legislative changes that would be necessary to dispose of GTCC and GTCC-like wastes at WIPP.

Nevada Site Specific Advisory Board, Commenter ID No. L96 (cont'd)

Appendix 1

Nevada Site Specific Advisory Board Expanded Comments to the Greater Than Class C (GTCC) Draft Environmental Impact Statement (EIS) June 2011

1. **The Draft GTCC EIS does not include a preferred alternative. This severely limits the scope of the potential comments that might be received.**

   Because the Draft GTCC EIS does not include a preferred alternative, it severely limits the scope of the potential comments that might be received. Typically, an Environmental Impact Statement would address multiple alternative approaches for an application at a specific site or perhaps multiple sites for a specific application. The GTCC EIS addresses twelve[1] potential sites with three potential disposal methods. Because the different categories of waste might not be suitable for each of the potential disposal methods, the number of alternatives may be even greater. This decision matrix is far too wide to analyze properly.

   We understand that the Council on Environmental Quality (CEQ) regulations[2] can be read to mean that if the agency has a preferred alternative at the Draft EIS stage, that alternative must be labeled or identified as such in the Draft EIS, or if the responsible federal official in fact has no preferred alternative at the Draft EIS stage, a preferred alternative need not be identified there. Nonetheless, without an indication of how the DOE intends to proceed, or meaningful information to allow discrimination among the options, the public cannot be expected to generate meaningful comments.

   It is thus imperative that the public be given a chance to comment on a preferred alternative, even if this means that the Department will have to delay the recommendation to Congress and any Record of Decision until after time has been allowed for the public to comment on the "Final" Environmental Impact Statement, and for those comments to be addressed by the Department.

[1] Hanford Site, Idaho National Laboratory, Los Alamos National Laboratory, the Nevada National Security Site, the Savannah River Site, the Waste Isolation Pilot Plant, and the Waste Isolation Pilot Plant Vicinity (where two locations are evaluated – one within and one outside the land withdrawal boundary, and four Generic (commercial) sites that coincide with the four NRC regions.

[2] According to the CEQ, the "agency's preferred alternative" is identified so that agencies and the public can understand the lead agency's orientation. 10 CFR 1502.14(e) requires the section of the EIS on alternatives to "identify the agency's preferred alternative if one or more exists, in the draft statement, and identify such alternative in the final statement . . ." If the public is expected to provide meaningful comments on the path forward to disposal of GTCC wastes, it has a right to expect information giving consideration to economic, environmental, technical and other factors about the alternatives. This Draft GTCC Environmental Impact Statement does not provide such information at a level appropriate to discriminate among the options, and is unclear about which alternative the agency believes would fulfill its statutory mission and responsibilities.

L96-11 The EIS analyses are based on conceptual engineering information and necessitated the use of a number of simplifying assumptions. This approach is consistent with NEPA, which requires such analyses to be made early in the decision-making process. The various land disposal conceptual designs were assumed to be constructed and operated in a comparable manner at each of the various sites. Information on the conceptual engineering designs for the three proposed land disposal methods is provided in Section D.3 of Appendix D in the EIS. By using the same conceptual designs at all of the sites evaluated in the GTCC EIS, except for cases where a design did not apply (e.g., an intermediate-depth borehole at a site with shallow groundwater), the potential impacts (e.g., radionuclides reaching the groundwater) at the different environmental settings could be readily compared.

In performing these evaluations, a number of engineering measures were included in the conceptual facility designs to minimize the likelihood of contaminant migration from the disposal units. No facility design can guarantee that radionuclide migration from the facility would not occur over and beyond a 10,000-year time period. It was assumed that these measures would perform similarly for all conceptual designs, remaining intact for 500 years after the disposal facility closed. After 500 years, the barriers would gradually fail. To account for these engineered features in the modeling calculations, it was assumed that the water infiltration to the top of the waste disposal area would be zero for the first 500 years and then 20% of the natural rate for the area for the remainder of the time period (through 10,000 years). A water infiltration rate of 20% of the natural rate for the area was only used for the disposal area; the natural background infiltration rate was used at the perimeter of the waste disposal units. Again, this approach enables a comparative evaluation of the influence that site-specific environmental factors would have on the potential migration of radionuclides from the disposal facilities and the potential impacts on human health. It should be emphasized that project- and site-specific engineering factors would be incorporated into the actual facility designs of the site or sites selected in a ROD to dispose of GTCC LLRW and GTCC-like wastes.

DOE recognizes that modeling potential releases of radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. Sufficient detail was included in these designs for use in the EIS analyses, consistent with the current stage of this process. Some of the input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

DOE believes that 500 years is a realistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study.

Estimated radiation doses and LCFs were calculated for each site and disposal concept for 10,000 years, and if the peak impact did not occur during this time frame, the analysis was extended out to 100,000 years. DOE believes that the assumptions made to support the long-term modeling calculations for the groundwater pathway are reasonable and enable a comparative evaluation of the impacts between alternatives. The results of the evaluation presented in the EIS are sufficient to inform the selection of sites and methods for disposal. Site-specific NEPA reviews would be conducted as needed.

Nevada Site Specific Advisory Board, Commenter ID No. L96 (cont'd)

2. **The GTCC EIS Scoping Hearings were based on an assumption that the Yucca Mountain license application would be submitted by June 2008. Dismissal of the Yucca Mountain repository option from consideration in the Draft GTCC EIS invalidates the scoping process, which should be redone.**

   Scoping hearings were held in 2007, a point in time where the Department of Energy (DOE) had publically announced that submittal of the license application for the Yucca Mountain repository would take place less than one year later. With this Draft EIS, the DOE excluded the potential Yucca Mountain repository from consideration as a GTCC waste disposal option. There can be little doubt that the scoping commenters were aware of the Yucca Mountain repository program, and the fact that its EIS had considered the disposal of GTCC wastes. 10 CFR 61.55(a)(2)(iv) states: *[I]n the absence of specific requirements in this part, such waste must be disposed of in a geologic repository as defined in part 60 or 63 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the Commission.* Removal of the only repository to ever address 10 CFR Part 60 or 10 CFR Part 63 regulations from consideration, especially since there are lawsuits challenging the Secretary's abandonment of the Congressionally approved Yucca Mountain program, and the Secretary has testified that if directed by the Courts he will execute the program, has a significant negative impact on this Draft GTCC EIS. As the scoping hearings could not have anticipated or foreseen the current situation, the Draft GTCC EIS cannot be responsive to public perspectives on this important issue. Scoping should be redone if Yucca Mountain is not to be considered.

3. **GTCC waste is defined and regulated by the Nuclear Regulatory Commission (NRC). It is not clear the NRC will accept the near surface disposal alternatives (i.e., trenches or vaults). The DOE should formally engage the NRC in a rulemaking on this matter before recommending to Congress a path forward that the NRC ultimately may not support.**

   The Draft GTCC EIS is written from a perspective that the two relatively near surface alternatives, namely, trench or vault burial, will be acceptable to the NRC. To the contrary, the NRC regulations at 10 CFR Part 61 suggest otherwise. In 10 CFR 61.7(a)(5) NRC notes that; *[T]his waste is disposed of at a greater depth than the other classes of waste so that subsequent surface activities by an intruder will not disturb the waste. ..... Waste with concentrations above these limits is generally unacceptable for near-surface disposal.* Further, it notes that: *[T]here may be some instances where waste with concentrations greater than permitted for Class C would be acceptable for near-surface disposal with special processing or design. These will be evaluated on a case-by case basis.* It is inappropriate to assume that because the NRC is willing to consider that there *may be some instances* (emphasis added) where waste with concentrations greater than permitted for Class C would be acceptable for near-surface disposal with special processing or design that all GTCC wastes would meet this exemption, as is done in the Draft GTCC EIS. 10 CFR 61.55(a)(2) (iv) is clear that: *[I]n the absence of specific requirements in this part, such waste must be disposed of in a geologic repository as defined in part 60 or 63 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the Commission.* A recommendation for a preferred disposal method that relies on an assumption that the NRC will find that near surface disposal for GTCC wastes is generally acceptable is a very precarious position for the DOE. It would seem

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L96-12 While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

Past operational experience with these types of disposal facilities at DOE sites has shown that when properly implemented, they can provide isolation of radioactive waste from the environment for extended time periods. Past problems that have arisen with each option provide additional information to improve the design and performance of future land disposal facilities. Issues related to performance over time would be analyzed in a project-specific analysis to address technical and long-term concerns.

L96-13 The text was corrected. "increase" was changed to "decrease."

L96-14 There is no argument that a reduction in dose would occur with distance because of additional dilution of radionuclide concentrations in groundwater. It is merely a statement that dilution is going to occur down-gradient from where the contamination reaches the groundwater. The only exposure the hypothetical farmer is expected to receive would be from contaminated groundwater pumped to the surface for use, therefore, further dilution of the contamination once it reaches the groundwater is extremely relevant.

L96-15 The three land disposal facility conceptual designs (above-grade vault, enhanced near-surface trench, and intermediate-depth borehole) were selected as being representative of a range of land disposal configurations (varying degrees of waste consolidation and geometry) that could be employed for the disposal of the GTCC LLRW and GTCC-like waste inventory. As discussed in Section 1.4.2, each concept has been used to some degree in the United States or other countries. The same vault, borehole, and trench characteristics were considered for the disposal sites evaluated in order to compare the performance of each site's natural hydrological, geological, and meteorological properties relative to contaminant fate and transport once any engineered barriers would begin to fail.

The conceptual nature of these configurations takes into account the characteristics of all of the disposal sites for which they were considered, but their designs (e.g., width, depth, cover depth, reinforced containment) could be altered or enhanced, as necessary, to provide an optimal solution at a specific location. As an example, the cover depth could be adjusted to ensure that roots from vegetation would not compromise the top of the engineered barrier. In addition, the dimensions of the generic land disposal units (e.g., trench - width and depth, borehole – diameter and depth, vault – width, depth, and height) were selected based on similar existing facilities, existing equipment and methods for construction, and optimized (maximized waste volume disposed of for a given disposal unit volume; simple waste handling procedures to minimize exposure) for the types of waste packages considered. All designs could also accommodate different disposal packages (existing and proposed) with minor variations in their dimensions, but the EIS analyses would remain relevant for each option considered.

For example, if borehole disposal at NNSS became a preferred alternative, any capacity in the existing boreholes would have been considered in follow-up studies. Past operational experience with these types of disposal facilities at DOE sites has shown that when properly implemented, they can provide isolation of radioactive waste from the environment for extended time periods. Past problems that have arisen with each option provide additional information to improve the design and performance of future land disposal facilities. Issues related to performance over time would be analyzed in a project-specific analysis to address technical and long-term concerns.

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appropriate for the DOE to formally engage the NRC in a rulemaking on this matter before recommending to Congress a path forward that the NRC ultimately may not support.

4. **The Draft GTCC EIS assumes that: the effective life of the intruder barriers will be 500 years; GTCC waste is stable; and the maximum concentration of radionuclides at the end of the 500 year period will be at a level that does not pose an unacceptable hazard to an intruder or to public health and safety. The EIS contains no supporting documentation to support these assumptions and therefore the various disposal options cannot be reasonably compared.**

   The Draft GTCC EIS does not address how the DOE intends to assure the decision makers that the selected disposal option will in fact be allowable under the 10 CFR Part 61 requirements if other than repository disposal option is selected. It seems reasonable that borehole disposition could readily be allowed by the NRC, particularly if sealing requirements are addressed. However, it is not clear how the DOE will get NRC approval for other than repository disposal. This is particularly crucial as the Draft GTCC EIS does not demonstrate that the important 10 CFR Part 61, or Part 60 or Part 63 for that matter, requirements will be met. The Draft GTCC EIS assumes that the effective life of the intruder barriers will be 500 years, assumes the maximum concentration of radionuclides at the end of the 500 year period will be at a level that does not pose an unacceptable hazard to an intruder or public health and safety, and assumes GTCC waste will be stable. A reasonable comparison among the proposed options would require a meaningful demonstration that these requirements will be met by the options.

5. **The Draft GTCC EIS suffers from a lack of perspective of the difficulty of licensing a facility that had originally addressed 10 Code of Federal Regulations (CFR) Part 60 or 63 requirements. Licensing by the NRC would be done in an administrative hearing, which is a much more contentious and rigorous undertaking than an EPA permit process.**

   While it is true that the Waste Isolation Pilot Plant (WIPP) is a repository, it is permitted principally under State of New Mexico Resource Conservation Recovery Act (RCRA) requirements. While not intentionally demeaning the WIPP permitting process, experience gained with the Yucca Mountain program in pre-licensing interactions with the NRC suggests that licensing a GTCC facility to NRC repository or repository equivalent requirements could be a much more challenging exercise than the WIPP compliance certification process. The WIPP permitting process was based on a compliance certification process that was essentially a rulemaking. Licensing by NRC, particularly under requirements that could be equivalent to those for a repository, would be done in an administrative hearing. This is a much more rigorous undertaking, admitting interveners who are allowed to submit contentions to be litigated by the hearing. These contentions could challenge, in court, all of the technical arguments made by the applicant and supported by the staff.

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6. Insufficient information is presented that would allow local communities to understand how the projected transportation routes would impact those communities. (This is a particularly sensitive issue for the Nevada National Security Site [NNSS].)

While it is likely that the transportation risk calculations used reasonable assumptions about shortest transit times and interstate highways, there is no recognition, for example, in Nevada that alternate routes likely would be specified, as is the case for low level waste shipments coming today to the Nevada National Security Site. These additional shipments, coming through small rural communities, will add a burden for emergency response capability that is not addressed in the Draft GTCC EIS. The following graphics provide a synopsis of the FY 2010 low-level waste transportation activities that already take place on the anticipated shipping routes.

List of Approved Generators Shipping To/On the NNSS in FY2010

	APPROVED GENERATOR, STATE	GENERATOR CODE
1	ADVANCED MIXED WASTE TREATMENT PROJECT, ID	AM
2	ARGONNE NATIONAL LABORATORY, IL	AE
3	BABCOX & WILCOX TECHNICAL SERVICES Y-12, TN	BW
4	BATELLE ENERGY ALLIANCE, ID	NE
5	BROOKHAVEN NATIONAL LABORATORY, NY	BR
6	DURATEK/ENERGYSOLUTIONS, TN	DR
7	ENERGX ARGONNE NATIONAL LABORATORY, IL	EN
8	IDAHO NATIONAL LABORATORY, ID	IN
9	LAWRENCE LIVERMORE NATIONAL LABORATORY, CA	LL
10	LOS ALAMOS NATIONAL LABORATORY, NM	LA
11	NATIONAL SECURITY TECHNOLOGIES, NV	DP
12	NAVARRO-INTERRA LLC, NV	IT
13	NUCLEAR FUEL SERVICES, TN	NF
14	OAK RIDGE RESERVATION, TN	OR
15	PADUCAH GASEOUS DIFFUSION PLANT, KY	PD
16	PANTEX PLANT, TX	PX
17	PERMAFIX (M&EC), TN, WA, CA	PF
18	PORTSMOUTH GASEOUS DIFFUSION PLANT, OH	PO
19	PRINCETON PLASMA PHYSICS LABORATORY, NJ	PL
20	SANDIA NATIONAL LABORATORIES, NM	SA
21	UT-BATTELLE, TN	OL
22	WASTREN ADVANTAGE INC., TN	FW

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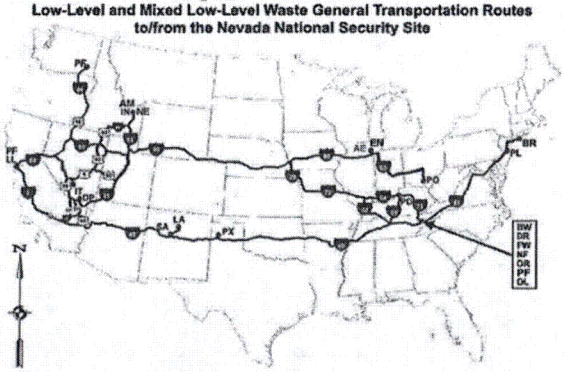
Figure 1 - FY 2010 National Low-Level and Mixed Low-Level Waste General Transportation Routes to/from the Nevada National Security Site



Shipment Summary of Off-site, Inbound Regional Routes for FY 2010

DESCRIPTION	AZ	AM	BN	BW	CA	CN	CW	DN	FT	GT	LA	LI	NE	NM*	OL	OR	PO	NV	PL	PX	RA	SA	TOTAL
I-15/I-40/US 93/I-215, US 95 (NORTH) SETTING/ACTIVE, AZ/NV/UT	1																		1				1
I-15, CA 127, CA 178, NV 372, NV 160, US 95												3						317					320
I-15, CA 127, NV 372, US 95						1						17						41					59
I-15, NV 160, US 95						1												17					18
I-40, I-15, CA 127, NV 372, US 95					2																		2
I-40, I-15, NV 160, US 95																			1				1
I-40, UT 191, AZ 68, NV 163, UT 95, NV 159, I-15, NV 372, US 95	1			2	15			5				3				10							37
I-40, US 95, NV 164, I-15, CA 127, CA 178, NV 372, NV 160, US 95														7					1				8
I-40, US 95, NV 164, I-15, CA 127, NV 372, US 95					7	1	2				2												12
I-40, US 95, NV 164, I-15, NV 160, US 95	21			21	117	18	9	33	9			3	38	45	4	102	17	71		215	3	4	1120
I-40, I-80/US 50, US 95 (NORTH/WEST)									1														1
I-40, US 93, US 95, US 6, US 95	29	45	21		1	175			15				29					16					356
I-40, US 95 (NEW)					1				1														3
US 95, US 6/50, US 6, US 95			7				102																109
US 6, US 95 (ETN)										13													13
US 95, US 6, US 95		25							45				9					3					82
	51	72	28	23	143	21	108	38	76	13	2	23	38	47	4	126	17	1058	3	217	3	4	2267

* All shipments were shipped via rail to Parker, AZ then transported via motor carrier to the NNSS.

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7. **The Draft GTCC EIS also does not include information about how shipping containers would be "certified". It would be appropriate to address such requirements in the EIS. (This also a particularly sensitive issue for communities around the NNSS).**

   As the GTCC wastes are deemed by the NRC to be sufficiently hazardous to require that *such waste must be disposed of in a geologic repository as defined in part 60 or 63 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the Commission*, it is not unreasonable to question whether or not the transportation containers need to be as robust as those required for shipping high-level radioactive waste or spent nuclear fuel. No information is provided about the shipping containers, the certification testing, or any ancillary transportation requirements pertaining to escorts, notifications, or emergency response requirements. Such information would be invaluable to differentiate impacts among the different potential locations under consideration.

8. **The methodology for mitigation of human intrusion described in the Draft GTCC EIS is not consistent with existing requirements for geologic disposal. Both EPA and NRC regulations specify that an intrusion must be modeled as occurring and causing radioactive material to reach groundwater resources. (This point could work strongly in favor of the NNSS as the preferred disposal site.)**

   The Draft GTCC EIS states that human intrusion impacts might be mitigated by the waste form and packaging, institutional controls, and engineered and natural barriers (e.g., grouting and depth of disposal). All four disposal methods analyzed in the EIS include a combination of some or all these mitigation features. Mitigation of human intrusion is not consistent with requirements for geologic disposal; both EPA and NRC regulations specify that an intrusion must be modeled as occurring and causing radioactive material to be placed in groundwater resources.

9. **The Draft GTCC EIS does not adequately address the potential impacts to historic artifacts or biological resources.**

   The Draft GTCC EIS states that once (a) specific site(s) is (are) selected for further consideration, DOE plans to consult with other agencies including the Advisory Council on Historic Preservation, the appropriate State Historic Preservation Officer(s), and pertinent Regional Fish and Wildlife Service Office(s). It is not clear how the Draft EIS can be said to have considered and addressed the associated impacts.

10. **The Draft GTCC EIS does not adequately treat the difficulties that will arise in attempting to modify the WIPP Land Withdrawal Act to allow nearly thirty times as much total radioactivity as is currently allowed by the law. The EIS does not treat the difficulties inherent in requesting Congress to modify both the WIPP Land Withdrawal Act and the Nuclear Waste Policy Act.**

    The Draft GTCC EIS correctly points out that: the total capacity for disposal of transuranic (TRU) waste established under the WIPP Land Withdrawal Act is 175,675 m^3 (6.2 million ft^3). The Consultation and Cooperative Agreement with the State of New

Mexico (1981) established a total Remote Handles capacity of 7,080 m3 (250,000 ft^3), with the remaining capacity for Contact Handled TRU at 168,500 m^3 (5.95 million ft^3) and the Land Withdrawal Act limits the total radioactivity of RH waste to 5.1 million curies. For comparison, the GTCC Low-Level Radioactive Waste (LLRW) and GTCC-like CH volume, RH volume, and RH total radioactivity are approximately 6,650 m^3 (235,000 ft^3), 5,050 m3 (178,000 ft^3), and 157 million curies, respectively. On the basis of emplaced and anticipated waste volumes, the disposal of all GTCC LLRW and GTCC-like waste at WIPP would exceed the limits for RH volume by nearly a factor of two, and RH total activity by nearly a factor of 30. The WIPP LWA (P.L. 102-579) limits disposal in WIPP to defense-generated TRU waste, so modification of the WIPP LWA to authorize acceptance of non-defense and non-TRU waste, increase the disposal capacity limit for RH total curies, and change the Consultation and Cooperative Agreement to authorize an increase in the total volume of all RH TRU wastes would be required. The Final EIS and Supplemental EIS (SEIS) for Yucca Mountain consider the emplacement of all GTCC wastes; the WIPP EIS does not. Not only would the WIPP LWA need to be amended, the WIPP EIS would need to be amended as well.

11. The performance assessments described in the Draft GTCC Environmental Impact Statement are deficient because they assume that the facility characteristics to which performance is most sensitive will be met, rather than demonstrating that they can be met. For example, the Draft GTCC EIS does not recognize that removal of the sheet piling following trench disposal will create a pathway for water to contact wastes rapidly.

The performance assessments described in the Draft GTCC Environmental Impact Statement are based on a number of assumptions. The performance assessments method assumed that: a) the engineering measures (e.g., a cover system) would remain intact for 500 years after the disposal facility closed, b) after 500 years, the barriers would gradually fail, c) the water infiltration rate to the top of the waste disposal area would be zero for the first 500 years and then 20% of the natural rate for the area of the remainder of the period of calculation (10,000 years), and d) the natural background infiltration rate was appropriate to use at the perimeter of the waste disposal units. The performance assessments thus are not true indicators of the differences in performance among the sites. More importantly, the sensitivity study performed indicated that the results were sensitive to the assumptions. In other words, if the assumptions proved to be incorrect, the performance likely would be worse. Absent better information about the likely performance of these key parameters, the performance assessments are reduced to nothing more than assumptions about how the different sites perform.

12. The Draft GTCC EIS does not present definitive arguments demonstrating that a near surface cover could meet the expected performance required for GTCC waste disposal.

The performance assessment results indicated that the peak annual dose would increase as the water infiltration rate increased. This result is not unexpected because when more water enters the waste disposal horizon, more radionuclides would be leached and released from the disposal facility. The increase in the peak dose is approximately proportional to the increase in the water infiltration rate, and indicates the need for a very effective cover to minimize the amount of infiltrating water that could

contact the GTCC wastes. This is an important reason for the NRC position that GTCC wastes require greater disposal depths than low-level wastes. Rather than basing the potential selection of a disposal option on an assumed performance of a near surface design, the decision maker ought to be presented with a definitive argument demonstrating that a near surface cover could meet the expected performance required for this class of wastes.

13. On Page 5-65 the conclusion presented in that paragraph [As the distance would increase from 100 m (330 ft) to 500 m (1,600 ft), the maximum annual radiation dose would increase by more than 70%] is incorrect and is inconsistent with the argument presented.

14. The argument that a reduction in dose would occur with distance because of additional dilution of radionuclide concentrations in groundwater is not consistent with the EPA's concept of "Reasonably Maximally Exposed Individual" used as the receptor in current repository regulations. (This argument is also essentially irrelevant to near surface disposal at the NNSS since groundwater at that site is very deep and surface water does not reach the groundwater.)

Page 5-65 states that the radiation dose incurred by the hypothetical resident farmer would decrease with increasing exposure distance, as would be expected. The Draft GTCC EIS argues that reduction would occur because additional dilution of radionuclide concentrations in groundwater would result from the additional transport distance toward the location of the off-site well. The dilution with additional distance may not be as effective as assumed for two reasons. First, the Reasonably Maximally Exposed Individual concept of the EPA and NRC repository regulations requires consideration of all of the radionuclides in a representative volume. This construct does not lend itself to an argument that dilution with distance decreases dose [see, for example, the Yucca Mountain SEIS]. Also, the dilution with distance argument is predicated on an assumption of homogeneous porous media flow. There are enough technical papers on contaminant flow arguing against the practicality of this ideal construct to warrant a more sophisticated analysis in the Draft GTCC EIS. The performance assessments which are based on assumed k_ds, also overlook another very important consideration. Under the oxidizing conditions likely for relatively near surface disposal, colloids could form and enhance the transport of certain nuclides of plutonium.

15. There are numerous deep boreholes existing on the NNSS as part of the Test Readiness Program (eventual use for nuclear weapons testing). These boreholes should be considered for disposal of GTCC wastes.

New Mexico Environment Department, Commenter ID No. L295

received
JUL - 5 2011

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June 27, 2011

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RE: COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE DISPOSAL OF GREATER-THAN-CLASS C (GTCC) LOW-LEVEL RADIOACTIVE WASTE AND GTCC-LIKE WASTE (DOE/EIS-0375-D)

Dear Mr. Edelman:

Thank you for the opportunity for the New Mexico Environment Department (Department) to comment on the February 2011 *Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D).*

The Department commented previously on the GTCC during the 2007 EIS Scoping. We have reevaluated the comments provided, and upon further review the Department supports the efforts on the GTTC Low-Level Radioactive Waste (LLRW) and GTTC-like waste disposition considerations that the Department of Energy (DOE) is considering.

The Department has the following comment regarding the Draft EIS. The Draft EIS indicates that the volume of mixed waste is estimated to be 170 m^3 in Group 1 and that insufficient information exists to estimate the volume of mixed waste for Group 2 waste. The majority of Group 1 waste is GTCC-like waste and a small amount (4 m^3) is GTCC LLRW. The available information indicates that the mixed waste is characteristic hazardous waste that is regulated under the Resource Conservation and Recovery Act. The Draft EIS assumes that generators will treat the waste and render it nonhazardous. The Draft EIS does not address the waste if it cannot be rendered nonhazardous. Should any of the GTCC or GTCC-like mixed waste be considered L295-1

Protecting our Environment, Preserving the Enchantment

L295-1 The mixed radioactive and hazardous waste in the GTCC LLRW and GTCC like waste inventory is estimated to be about 170 m^3 (6,000 ft^3) for Group 1 of the GTCC LLRW and GTCC-like waste inventory. An estimate for Group 2 is not available at this time. Available information about the mixed waste in the GTCC LLRW and GTCC-like waste inventory indicates that most of it is characteristic hazardous waste as regulated under the Resource Conservation and Recovery Act (RCRA); therefore, for the land disposal methods evaluated in this EIS, it is assumed that the generators will treat the waste to render it nonhazardous under federal and state laws and requirements. Based on DOE's current understanding, GTCC waste that is characteristic can be rendered non-hazardous. If the waste is cannot be rendered non-hazardous, DOE agrees with NMED that a RCRA permit would be required. WIPP, however, can accept defense-generated TRU mixed waste as provided in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201).

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

New Mexico Environment Department, Commenter ID No. L295 (cont'd)

Mr. Arnold M. Edelman
June 27, 2011
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for potential disposal at any of the proposed sites, a RCRA permit will need to be addressed by DOE.

Also, as noted in the Draft EIS, WIPP can currently accept defense-generated TRU mixed waste as allowed under the 1992 WIPP Land Withdrawal Act (LWA). WIPP is not currently allowed to accept non-defense related waste. If WIPP or the WIPP Vicinity is considered for receiving the GTCC and GTCC-like waste the LWA will accordingly need to be amended to address the expanded types of waste WIPP can receive. L295-1 (Cont.)

The Department encourages the DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type. L295-2

New Mexico looks forward to working with DOE in addressing this important issue.

Sincerely,

Dave Martin

Dave Martin
Cabinet Secretary

cc: R. Solomon, Deputy Secretary
J. Davis, NMED RPD
John Kieling, NMED, HWB
Dr. Inez Triay, DOE, EM

L295-2 Based on the GTCC EIS evaluation and WIPP's operating record, DOE believes that the WIPP repository would be a safe location for the disposal of GTCC LLRW and GTCC-like wastes, some of which include long-lived radionuclides. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require modification to existing law. In addition, it would be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit.

New Mexico State University, Carlsbad, Commenter ID No. T31

MR. BROWN: Thank you.

Russell Hardy is next, and then Norbert Rempe.

MR. HARDY: Good evening. I'm Russell Hardy, President of the New Mexico State University in Carlsbad. It is a two-year campus of the New Mexico State University system.

Many people have spoken of the safety and the science of storing Greater-Than-Class-C waste at the waste isolation site. What I want to talk about tonight is the trained workforce that resulted and who helped safely store that waste, and a large part of that goes to New Mexico State University of Carlsbad, who has been serving the residents of southeast New Mexico since 1950. We were one of the first community colleges in the state.

Our program helped train the initial waste handlers who worked at WIPP in the late '80's, early '90's, and helped lead to the stellar safety record that we see here today. In fact, many of the hazardous waste handlers I work with today got their training at UNMS Carlsbad, and have since gone across the nation and trained other waste handlers in the safe disposal of nuclear waste.

New Mexico State University, Carlsbad, Commenter ID No. T31 (cont'd)

21

1 The University of Carlsbad is currently poised
2 and ready to train the future workforce as it deals with
3 Greater-Than-Class-C waste. In fact, most recently I've
4 been working with officials from the Department of Energy,
5 Carlsbad field office with URS, with Los Alamos National
6 Labs, and with Sandia to revamp our waste handling and
7 health physics associates degree programs.
8 We are poised and ready to offer those courses at
9 the end of the fall 2011, so we will have a curriculum in
10 place to train any new workers that are needed to handle
11 this waste.
12 As a life-long resident of southeast New Mexico,
13 I fully support the WIPP site as a long-term disposal site
14 for Greater-Than-Class-C waste. Also, in my current role
15 as chairman of the board of the Carlsbad Chamber of
16 Commerce, I speak on behalf of the board when I say that T31-1
17 we fully understand the role that WIPP plays in our local
18 community, and we fully support any change in the
19 permitting process that promotes sustainability,
20 continuation or expansion of the WIPP mission.
21 In my opinion, WIPP is the only alternative for
22 the safe disposal of Greater-Than-Class-C waste. Thank
23 you.

T31-1 Based on the GTCC EIS evaluation and WIPP's operating record, DOE believes that the WIPP repository would be a safe location for the disposal of GTCC LLRW and GTCC-like wastes, some of which include long-lived radionuclides. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require modification to existing law. In addition, it would be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. For additional information, see Section J.2.2.

The State of New Mexico has indicated a willingness to accept GTCC LLRW and GTCC-like wastes for disposal at WIPP. Twenty-eight New Mexico State Senators signed a proclamation made in the Fiftieth Legislature, First Session, 2011, stating: "Be it resolved that we, the undersigned, support the opportunity for other potential missions in southeast New Mexico to adequately address the disposal of defense high-level waste, commercial high-level waste, Greater Than Class C LLRW and surplus plutonium waste, as well as the interim storage of spent nuclear fuel." In response to the Draft GTCC EIS, Secretary David Martin, Secretary of the New Mexico Environment Department, sent a letter to DOE on June 27, 2011, stating that "the Department encourages DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type." In addition, the Governor of New Mexico, in a letter to DOE Secretary Steven Chu on September 1, 2011, stated that the State of New Mexico encourages DOE to support the proposed location of WIPP as the preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes.

New York State Energy Research and Development Authority, Commenter ID No. L301

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June 27, 2011

received

Mr. Arnold Edelman
EIS Document Manager
U.S. Department of Energy
Cloverleaf Building, EM-43
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SUBJECT: NYSERDA Comments on *Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste* (DOE/EIS-0375-D)

The New York State Energy Research and Development Authority (NYSERDA) is providing the attached comments on the Department of Energy's (DOE) *Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste Statement* (DEIS) 2011. NYSERDA respectfully requests that these comments be taken into consideration when DOE revises the document in preparation of the final EIS for issuance to the public.

If you have any questions regarding the attached comments, please contact me at (716) 942-9960 extension 4900.

Sincerely,

WEST VALLEY SITE MANAGEMENT PROGRAM

Paul J. Bembia

Paul J. Bembia, Director

ALM/amd
Attachment:
1. NYSERDA Comments on *Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste* (DOE/EIS-0375-D)

PJB/Hamd021.alm

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New York State Energy Research and Development Authority, Commenter ID No. L301 (cont'd)

Messr. Arnold Edelman
Page 2
June 27, 2011

cc: P. A. Giardina, USEPA (w/att.)
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PJB/11amd02L.alm

New York State Energy Research and Development Authority, Commenter ID No. L301 (cont'd)

NYSERDA's Comment on the Draft *EIS for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D)*

Cmt #	EIS Line #	Comment	
1.	Page S-4, Line 13	To provide a more accurate and conservative total volume, the estimate of 12,000 m^3 of GTCC Low-Level Radioactive Waste (LLRW) and GTCC-like waste should be revised to 12,550 m^3. Specifically, the Group 2 GTCC LLRW "Other Waste" Remote Handled (RH) subcategory volume should be recalculated to include the West Valley contributions from the NRC-Licensed Disposal Area and the State-Licensed Disposal Area, which total 2,630 m^3. Added to the contributions from the Molybdenum-99 Production Facilities (390 m^3), the total volume for the Group 2 GTCC LLRW "Other Waste-RH" should be 3,020 m^3, versus the previously reported value of 2,300 m^3.	L301-1
2.	Page S-8, Lines 14-15	This section states that "Tribal cultural resources include all physical, artifactual, and spiritual aspects for each of the potential areas being evaluated at Hanford, LANL and NNSS." Please clarify why tribal cultural resource evaluations were not conducted for the Waste Isolation Pilot Plant (WIPP) and the surrounding location as well as the Savannah River sites.	L301-2
3.	Page S-13, Line 28	The estimated volume for Group 2 wastes is identified as 6,400 m^3. Due to the revisions identified in Comment No. 1, (i.e., the addition of West Valley contributions), the estimated waste volume for Group 2 GTCC LLRW "Other Waste-RH" should be revised from 6,400 m^3 to 7,150 m^3.	L301-3
4.	Page S-13, Lines 35-37	This section states that "Current information is insufficient to allow a reasonable estimate of the amount of Group 2 waste that could be mixed waste." Although this statement may be accurate for some Group 2 mixed wastes, the 2010 Final EIS for West Valley should be used to approximate the WVDP contribution to the mixed-waste volume.	L301-4
5.	Page S-14, Table S-1	Table S-1, "Summary of Group 1 and Group 2 GTCC LLRW and GTCC-Like Waste Package Volumes and Radionuclide Activities" needs to be revised after the Group 2 GTCC LLRW "Other Waste" RH subcategory volume is recalculated to include the West Valley contributions (as identified in Comments No. 1 and 3). The following estimated waste volumes in Table S-1 for Group 2 and Groups 1 and 2 LLRW and GTCC-like waste should be revised as indicated below: • Under Group 2 LLRW "Other Waste – RH" - 2,300 m^3 should be revised to 3,020 m^3 • Under the "Total for Group 2 GTCC LLRW" - 5,000 m^3 should be revised to 5,750 m^3 • Under the "Total Group 2" - 6,400 m^3 should be revised to 7,150 m^3 • Under the "Groups 1 and 2 GTCC LLRW Projected Total - 8,700m^3, should be revised to 9,550 m^3, • Under the "Total Projected Groups 1 and 2" - 11,000 should be revised to 11,450 m^3 • Under the "Total Stored and Projected"- 12,000m^3 should be revised to 12,550 m^3.	L301-5
6.	Page S-51, Lines 28-39	This EIS assumes that "the engineered barriers (including the cover) would remain effective for the first 500 years after closure of the disposal facility and that during this time, essentially no infiltrating water would reach the wastes from the top of the disposal facility." Further, the EIS assumes that after 500 years, only 20 percent of the natural infiltration rate reported for each site would come into contact with the wastes at the top of the disposal facility. What is the basis for assuming that the engineered barriers will not fail prior to 500 years, and that after that 500 years, only 20 percent of	L301-6

June 27, 2011 Page 1 of 2

L301-1 The estimated inventory of 12,000 m^3 includes waste from the West Valley NDA/SDA. Though not identified in the inventory table, waste from West Valley NDA/SDA is reflected in the inventories listed under Group 2 activated metals, sealed sources, and other waste-remote-handled/contact-handled. Of the 740 m^3 under activated metals, 210m^3 is from the NDA and 525m^3 is from the SDA; 23 m^3 of sealed sources is from the SDA; 1,600 m^3 other waste-contact-handled is from the SDA; and 1,950 m^3 other waste-remote-handled included, 1,943 m^3 from the NDA and 7.34m^3 from the SDA.

Footnotes will be added in the EIS to Table S-1 and Table B-1 identifying wastes from the NDA/SDA.

L301-2 DOE solicited input from various sources to identify American Indian tribes that would be interested in engaging in tribal consultation with DOE on the proposed action discussed in the GTCC EIS. This engagement began in 2007 at the October State and Tribal Government Working Group meeting in Snowbird, Utah. As a follow-up to that meeting, DOE, in 2008, sent out letters to tribal government officials communicating DOE's interest in consulting with tribal nations on the GTCC EIS. However, no tribal group came forward, and DOE was not able to identify any interested tribal group affiliated with WIPP or the Savannah River Site. The approach used to engage American Indian tribes is further described in the EIS under Section 1.8 on tribal consultation for the GTCC EIS.

L301-3 See response to L301-1.

L301-4 The WVDP EIS did not estimate the amount of Group 2 GTCC waste that could be mixed waste, only those wastes that would be considered mixed waste without any further break out.

L301-5 See response to L301-1.

L301-6 DOE believes that 500 years is a realistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, as discussed in Section E.2.2 of the EIS, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS (Phifer et al. 2007) that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study.

New York State Energy Research and Development Authority, Commenter ID No. L301 (cont'd)

NYSERDA's Comment on the Draft *EIS for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D)*

Cmt #	EIS Line #	Comment	
		the site-specific natural attenuation of water will infiltrate into the top of the disposal facility? Are these assumptions consistent with EIS assumptions used at other DOE facilities?	
7.	Page S-52, Lines 30-33	This section states "However, because the post-closure human health estimates presented in the GTCC EIS are for 10,000 years or more, and because current global climate change model projections extend only to the year 2100, it is uncertain whether the indications discussed here would continue for the 10,000-year post-closure period analyzed in the GTCC EIS." Clarify whether climate change model projections were incorporated into the 10,000-year performance assessment period identified in this EIS. If the climate change model projections were used, do these projections extend only through 2100 or do they project for the duration of the performance assessment period (i.e., 10,000-year post-closure period)? If these projections do not include the 10,000-year performance assessment period, how is climate change addressed? Are the projections alternative and location specific? How is uncertainty in the climate change estimates addressed through 2100 and for the remaining 10,000-year performance assessment period?	L301-7
8.	S-58, Lines 7-11	The construction and operational experience stated in this EIS for the Trench Alternative appears to be very specific. Specifically, the conceptual design depth and size are much more detailed than the other alternatives. Explain why this conceptual design is so much more detailed than the other alternatives. Do these details provide sufficient information to "protect the facility from inadvertent human intrusion"? Is there data supporting the effectiveness of these specific design features? If so, it would be beneficial to incorporate this data into the draft EIS.	L301-8

June 27, 2011 Page 2 of 2

L301-7 Section 2.83 of the GTCC EIS addresses climate change. Although the global climate change impacts are modeled only to the year 2100, these initial indications can be used to provide a perspective on what impacts global climate change might have on the proposed borehole, trench, and vault waste disposal facilities at the various reference locations or regions evaluated in this EIS. On the basis of Karl et al. (2009), it can be said that the maximum increase or decrease in precipitation under a higher emission scenario would be plus or minus 10%. Under a lower emission scenario, these percentages would be lower, and thus climate changes would probably not have any significant impacts on GTCC waste disposal operations. This is because essentially no precipitation changes are expected in humid sites such as SRS. For sites located in drier areas, such as Hanford, INL, LANL, NNSS, and WIPP/WIPP Vicinity, small changes would be expected. However, because the post-closure human health estimates presented in this EIS are for 10,000 years or more, and because current global climate change model projections extend only to the year 2100, it is uncertain whether the indications discussed here would continue for the 10,000-year post-closure period analyzed in this EIS.

L301-8 Although construction and operational experiences for the trench alternative appears to be very specific, the EIS provides a similar level of detail for the other proposed disposal methods (intermediate depth borehole and above grade vault). The conceptual designs take into account the issue of inadvertent human intrusion.

The conceptual design for a trench facility is deeper and narrower than it is for conventional near-surface LLRW disposal facilities in order to minimize the potential for inadvertent human intrusion during the post-closure period. The waste packages would be placed into the trench about 5 to 10 m (15 to 30 ft.) bags, and a fine-grained cohesion less fill (sand) would be used to backfill around the waste containers to fill voids. After the trench was filled with the waste containers and backfilled, a reinforced concrete layer would be placed over the waste packages to help mitigate any future inadvertent intrusion. Borehole disposal would entail the emplacement of waste in boreholes at depths below 30 m (100 ft.) but above 300 m (1,000 ft.). Boreholes can vary widely in diameter (from 0.3 to 3.7 m [1 to 12 ft.]), and the proximity of one borehole to another can vary depending on the design of the facility. The spacing of the boreholes would minimize the potential for intrusion during the post closure period. As with the trench a reinforced concrete layer would be placed over the waste packages to help mitigate any future inadvertent intrusion. For the vault, an engineered cover would be used to aid in the isolation of the waste from the environment over the long term. In addition to the protection afforded by the vault and its internal backfill, the thickness of the cover would help deter intrusion by humans.

Nez Perce Tribal Executive Committee, Commenter ID No. L1

Nez Perce
TRIBAL EXECUTIVE COMMITTEE
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received
JUL 11 2011

June 29, 2011

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Re: Nez Perce Tribe's comments on the Draft Environmental Impact Statement (EIS) for the Disposal of Greater than Class C (GTCC) Low-level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D)

Dear Mr. Edelman:

Enclosed are the Nez Perce Tribe's (Tribe) comments on the *Draft Environmental Impact Statement for the Disposal of Greater Than Class C Low-level Radioactive Waste and GTCC-like Waste*. The Tribe appreciates the opportunity to comment on this document which has the potential to affect the Hanford Site and the Columbia River Basin.

The Tribe appreciates the Department of Energy's (DOE) efforts to comply with the DOE American Indian Policy and its ensuing DOE Order 144.1. The Tribe also recognizes DOE's efforts, as an agency of the United States to fully honor the unique, government-to-government relationship between the United States and Tribe, as embodied by the U.S. Constitution, treaty, statutes, Executive Order, caselaw and agency regulations. Although significant progress has occurred in cultivating this relationship with DOE, the Tribe would have preferred earlier involvement in the NEPA process on this issue. The Tribe also sought formal consultation with the agency prior to the release of the DEIS, but DOE, as we understand it, was unable to honor the Tribe's request for logistic reasons. Nevertheless, the Tribe expects that DOE will formally consult with the Nez Perce Tribal Executive Committee, our governing body, prior to the agency making any final decision on this important issue that stands to affect Tribal treaty rights at Hanford and in the Columbia Basin. L1-1

In our technical and policy review of this document, the Tribe's Environmental Restoration and Waste Management (ERWM) division utilized our own Nez Perce Hanford End-State Vision (Resolution NP-05-411, September 27, 2005), and its corresponding Hanford Guidance Document (Resolution 05-411, June 10,2010), to develop our comments about this EIS document. These policies guide us toward an effective cleanup strategy at Hanford. Our principle is that "the (Tribe) believes that the ultimate goal of Hanford cleanup should be to restore the land to uncontaminated pre-Hanford conditions for unrestricted use...Tribal members, ecological resources, and cultural resources should not be exposed to any potential adverse risk above which that has always existed prior to the establishment of federal projects or facilities at Hanford in 1942." L1-2

L1-1 DOE initiated government-to-government consultations with potentially affected American Indian tribes in a timely manner consistent with DOE Order 144.1 and DOE's NEPA implementing guidelines. These consultations were done at a time that DOE had compiled and developed sufficient information for the Draft EIS (including identification of the GTCC LLRW and GTCC-like waste inventory) to allow for an informed consultation with potentially affected American Indian tribes. These consultations resulted in some of the tribes providing narrative text for inclusion in the EIS.

DOE considered the input provided by American Indian tribes (as reflected in the tribal narratives in the EIS) in identifying a preferred alternative. Tribal narratives identified several tribal issues related to NNSS, Hanford, INL, and LANL; however, no affiliated tribes were identified for the purpose of developing tribal narratives associated with WIPP and SRS. DOE will formally consult with any potentially affected tribal government prior to making any final decision on the selection of (an) alternative(s) for the disposal of GTCC LLRW and GTCC-like wastes. For additional information, see Section J.2.5.

L1-2 Regarding tribal treaty rights allowing unrestricted access at Hanford, DOE respectfully disagrees. This EIS presents relevant and essential information important to the evaluation of potential environmental impacts, consistent with NEPA's primary goal of full disclosure to the public as well as agency decision-makers. This includes discussion of the history of the settlement of Hanford and the treaties entered into between tribal nations and the U.S. Government. There is substantial documentation indicating that the tribes understood at the time these treaties were signed that the lands were no longer "unclaimed" when they were claimed for the purposes of the white settlers' activities. DOE is not aware of any judicially recognized mechanisms that would allow these lands to revert to "unclaimed" status merely through the process of being acquired by the federal government. The portion of Hanford that remained in the public domain in 1943, as well as all the acquired lands, were closed to all access, initially under authority of the War Powers Act and then under authority of the Atomic Energy Act. It is therefore DOE's position that the Hanford lands are neither "open" nor "unclaimed." In addition, DOE does not anticipate that the tank farms will be an appropriate location for American Indian access for use of cultural resources or cultural activities, but it continues to allow access to the parts of Hanford that are appropriate. DOE has taken, and is continuing to take, substantial actions to reduce DOE's "footprint" on Hanford. Those efforts are consistent with the Nez Perce Tribe's goals for restoration and access.

Nez Perce Tribal Executive Committee, Commenter ID No. L1 (cont'd)

Unfortunately, the goal and alternatives of this EIS document fail to meet our policy criteria. They present threats to the groundwater and ecology at Hanford and the Columbia River Basin that pose unacceptable health risks to our Tribal members who have accessed and used these traditional areas since time immemorial. In addition, the proposed action presents potential risks to treaty-reserved and cultural resources that are inconsistent with the exercise of Tribal treaty-reserved uses in the affected areas. L1-3

The Tribe's recommendation is that GTCC waste and GTCC-like waste should be disposed of in a deep geologic repository and not be placed at Hanford. Attached you will find additional comments directed towards specific content within the EIS. L1-4

In conclusion, the Tribe is appreciative of DOE's efforts to involve the Tribe throughout this NEPA process, and looks forward to further staff-to-staff and formal engagement on this critical issue. Please contact our ERWM Division, (208) 843-7375, with any questions or concerns regarding this letter and our comments.

Sincerely,

Brooklyn Baptiste
Chairman

Attachments: *Comments on GTCC EIS*
Nez Perce Hanford End-State Vision, (Resolution NP-05-411, September 27, 2005)
Guidance in Support of the Nez Perce Tribe End-State Vision (Resolution 05-411, June 10, 2010)

L1-3 See Response L1-2.

L1-4 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

Nez Perce Tribal Executive Committee, Commenter ID No. L1 (cont'd)

General EIS comments:

1. The EIS clearly states that DOE will make a preferred alternative but it is not clear in the text if that selection will occur before or after the public involvement process is complete. It is our recommendation that the document clearly states that the public will have an opportunity to comment on a preferred alternative after it has been selected. L1-5

2. "The Nez Perce Tribe opposes disposal of any GTCC or GTCC-like waste at Hanford." [Guidance in Support of the Nez Perce Tribe End-State Visions (Resolution 05-411, June 10, 2010,) Pg. 37 Item #12] L1-6

3. The EIS document could be organized better to introduce the reader to the different repository types and the proposed site located around the country. It is very difficult to understand the pros and cons of the repository types in relations to the different site locations. It is suggested that the document be arranged by presenting the repository types first with a summary presenting the pros and cons of their differences without regard for site location. Then introduce the reader to the various site locations around the country and provide a summary of the strengths and weaknesses of their physical environments in relations to the pros and cons of the repository types. This way it is a more logical process of explaining which storage facility works better or worse with each proposed location. L1-7

Specific EIS comments:

Pg. 1-42.

Comment: The life expectancy of the structures in Intermediate depth and near-surface concepts are assumed to be the same along with the infiltration rates. These assumptions are too generalized and are not adequate for such an important risk calculation. There is no reasonable explanation provided for using such broad assumptions in modeling. L1-8

The long-term evaluation in the risk modeling is 10,000 years. Yet the cost of institutional controls (IC) is not calculated for this time frame. Extrapolated cost for IC for 10,000 years should be shown in order to project realistic cost comparisons among alternatives. L1-9

Section 1.8 Tribal Consultations for the GTCC EIS:

Comment: We appreciate the Tribal narrative being used in the Affected Environment sections of the Hanford alternatives. However, the impacts to tribally important resources were not properly analyzed with this tribal context. For instance, our narrative spoke about the weather extremes over the past 10,000 years with respect to storage types. We expected that alternatives would be analyzed based on past weather conditions to project future weather impacts for Hanford proposed repository methods. However, the weather projections used in modeling reflected annual precipitation and annual soil infiltration rates as being constant for 10,000 years. This assumption for 10,000 years gravely underestimates actual weather variability and its real impact on contaminant infiltration to groundwater. See more detail comment at bottom of following page associated with Pg 5-65. L1-10

Pg 2-44 Hanford -Environmental Justice- "No impacts to minority people are expected."

Comment: If Hanford were to be the preferred location of GTCC waste, then its location near the 200 area would exclude Tribal future uses for more than 10,000 years. It would change the future potential use to the exclusion of Tribes right to usual and accustomed areas. DOE's trust obligation to tribes in this area would be compromised for this entire period. L1-11

L1-5 A preferred alternative is not required to be included in a Draft EIS. The Council on Environmental Quality regulations in 40 CFR 1502.14(e) specify that the section on alternatives in an EIS shall identify the agency's preferred alternative or alternatives, if one or more exists, in the Draft EIS and identify such alternative(s) in the Final EIS unless another law prohibits the expression of such a preference; that is, a preferred alternative shall be identified in the Draft EIS if one exists. If no preferred alternative has been identified at the Draft EIS stage, a preferred alternative need not be included. By the time the Final EIS is filed, 40 CFR 1502.14(e) presumes the existence of a preferred alternative and requires its identification in the Final EIS unless another law prohibits the expression of such a preference.

DOE did not have a preferred alternative at the time of issuance of the Draft EIS because of the complex nature of the proposed action and the potential implications for disposal of GTCC LLRW and GTCC-like wastes. To seek public input on how to identify a preferred alternative for inclusion in the Final EIS, the Draft EIS presented considerations for developing a preferred alternative in the Summary (in Section S.6) and in Section 2.9. As required by 40 CFR 1502.14(e), the Final EIS contains a preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes (see Section 2.10). In developing the preferred alternative, DOE took into consideration public comments on the Draft EIS, public EIS scoping comments, and other factors identified in Sections S.6 and 2.9 of the EIS.

The publication by the EPA of a NOA of the Final EIS in the Federal Register initiated a 30-day public availability or "waiting" period. While the availability period is not a formal public comment period, the public can comment on the Final EIS, including the preferred alternative, prior to final agency action. Comments received will be addressed by DOE in a ROD. As required by the Energy Policy Act of 2005, DOE must submit a Report to Congress that includes the alternatives considered in the EIS and await Congressional action before making a final decision regarding which alternative(s) to implement. The Report to Congress will be made available to the public on the GTCC EIS website (http://www.gtcceis.anl.gov/). For additional information, see Section J.2.4.

L1-6 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

L1-7 Figure 1.10-1 provides an overview of the GTCC EIS Organization. The organization of the document does provide a description and discussion of the various methods analyzed and then a discussion of the Federal Sites evaluated for implementation of the various methods. An overview of the waste inventory is provided in Section 1.4.1. The disposal concepts are summarized in Section 1.4.2, and the disposal sites are summarized in Section 1.4.3.

Nez Perce Tribal Executive Committee, Commenter ID No. L1 (cont'd)

The intent of environmental justice regulations is so that federal action does not unfairly impact poor or minority populations. As an affected Tribe, the Nez Perce Tribe would consider this action to be exactly the type of Environmental Justice issue that the regulations were intended to evaluate. In our opinion, the Hanford alternative would change the future use at the 200 East Area to the exclusion of treaty protected uses for 10,000 years. L1-11 (Cont.)

The Environmental Justice section needs to provide a more thorough investigation into whether there would be an environmental justice issue with the resultant long-term loss of tribal access for practicing treaty rights on "usual and accustomed" areas at the 200 East Area.

Pg 2-66 2.9.4.1 Human Health

Comment: As stated earlier, there is concern that the modeling of long-term potential human health risk from groundwater contamination is seriously flawed due to the weather assumption being constant. This does not reflect the real risk with reasonable weather variations that will likely occur during a 10,000 year time horizon. L1-12

Pg 5-65

Comment: The infiltration rate used for the first 500 years seems reasonable, but when the cap begins to fail, it is assumed a 20% infiltration rate for the next 9500 years. It is pretty well accepted knowledge that once the barrier fails, much higher infiltration rates could occur in the 1500-3000 year period. A 20% infiltration rate for remaining 8000-8500 years is also too conservative and not realistic for projecting weather's influence on infiltration rates and contaminant risk. The present modeling of low precipitation with zero variability for 9500 years creates an unrealistically low risk projection that does not reflect reality of when and how contaminants will move to groundwater. During 9500 years after structure failure, it should be assumed in the modeling that there will be wetter than usual occurrences seasonally, annually, over a decade, and even for a century.

Table 5.3.4-3 and 5.3.4-4 needs to show several other precipitation (and infiltration rate) scenarios after the barrier has failed. L1-13

What happens to dose and risk after 500-year cap failure if precipitation variations or climate change creates much wetter years, creating much greater infiltration rates, rates like 100%, 200% or even 500% of normal for single year event, for a decade, and for multiple decades (50 continuous years)? The EIS needs to show dose rates and risk after the 500-year cap failure for these specific infiltration rates for the remaining 8500 year evaluation.

It is important to understand the change in dose and risk when large single precipitation events or long sustained climate change could alter infiltration rates from other than 20% annual assumption. Infiltration will be influenced by the large events and wetter years and not by assuming an annual average will be sustained for 8500 years.

Pg 6-9 Air quality:

Comment: No information is presented about radio-active dust in Chapter 3. The narrative needs to illustrate that air quality testing for radio-active dust occurs, where testing is performed, and the results. L1-14

Please illustrate this information in a table with focus on ERDF. Much of the material brought in to ERDF is contaminated soils and demolition debris. ERDF is regularly shut down due to visibility

L1-8 The EIS analyses are based on conceptual engineering information and necessitated the use of a number of simplifying assumptions. This approach is consistent with NEPA, which requires such analyses to be made early in the decision-making process. The various land disposal conceptual designs were assumed to be constructed and operated in a comparable manner at each of the various sites. Information on the conceptual engineering designs for the three proposed land disposal methods is provided in Section D.3 of Appendix D in the EIS. By using the same conceptual designs at all of the sites evaluated in the GTCC EIS, except for cases where a design did not apply (e.g., an intermediate-depth borehole at a site with shallow groundwater), the potential impacts (e.g., radionuclides reaching the groundwater) at the different environmental settings could be readily compared.

In performing these evaluations, a number of engineering measures were included in the conceptual facility designs to minimize the likelihood of contaminant migration from the disposal units. No facility design can guarantee that radionuclide migration from the facility would not occur over and beyond a 10,000-year time period. It was assumed that these measures would perform similarly for all conceptual designs, remaining intact for 500 years after the disposal facility closed. After 500 years, the barriers would gradually fail. To account for these engineered features in the modeling calculations, it was assumed that the water infiltration to the top of the waste disposal area would be zero for the first 500 years and then 20% of the natural rate for the area for the remainder of the time period (through 10,000 years). A water infiltration rate of 20% of the natural rate for the area was only used for the disposal area; the natural background infiltration rate was used at the perimeter of the waste disposal units. Again, this approach enables a comparative evaluation of the influence that site-specific environmental factors would have on the potential migration of radionuclides from the disposal facilities and the potential impacts on human health. It should be emphasized that project- and site-specific engineering factors would be incorporated into the actual facility designs of the site or sites selected in a ROD to dispose of GTCC LLRW and GTCC-like wastes.

DOE recognizes that modeling potential releases of radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. Sufficient detail was included in these designs for use in the EIS analyses, consistent with the current stage of this process. Some of the input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

DOE believes that 500 years is a realistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, as discussed in Section E.2.2, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS (Phifer et al. 2007) that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study.

Estimated radiation doses and LCFs were calculated for each site and disposal concept for 10,000 years, and if the peak impact did not occur during this time frame, the analysis was extended out to 100,000 years. DOE believes that the assumptions made to support the long-term modeling calculations for the groundwater pathway are reasonable and enable a comparative evaluation of the impacts between alternatives. The results of the evaluation presented in the EIS are sufficient to inform the selection of sites and methods for disposal. Site-specific NEPA reviews would be conducted as needed.

Nez Perce Tribal Executive Committee, Commenter ID No. L1 (cont'd)

problems from high winds. IT would be valuable to know the radio-activity of this dust and whether there is any risk. L1-14 (Cont.)

Pg 6-34 Water Quality

Comment: The tribal narrative placed under the "Water Quality" section needs to be moved to the "Land Use" section. *This narrative is about the Monument designation and its implications on land use.* L1-15

Pg 6-39

The narrative states that the 200 east area has groundwater travel time of 10-30 years to reach the Columbia River due to large volumes of waste water discharge from the 1940s to 1990s. This discharge created a groundwater mound that is dissipating. Once this pressure declines, the groundwater flow rate would decline also.

Comment: The water mound was intentionally created with ponds placed to the northeast in part to create a barrier to groundwater flows that were previously documented to travel due east. This mound changed the direction of groundwater to its present southeast direction. Once this present hydraulic head dissipates, flow will expectantly change to its prior direction, back to traveling due east. L1-16

Prior to U-pond and B-pond generating the hydraulic mound, groundwater flows from the 200 east area were documented to reach the river due east in as short as 6 years. HW-80909. Brown,D.J. and W.A. Haney, 1964. *The movement of contaminated groundwater from the 200 areas to the Columbia River, General Electric Co., Richland, WA.* In other words, once the mound dissipates, then groundwater may shift back to traveling due east and reach the river much sooner.

Pg 4-40

Comment: The description of the PO-1 contamination plumes as listed in table 6.1.3-1 needs to be visually displayed in relation to the proposed repository site. Groundwater contamination in Operable units 200-PO-3 and PO-6 should also be shown. It is important for the public to see and understand the extent of existing groundwater contamination under the proposed repository site.

Pg 6-41 Groundwater Quality

Comment: Operating Unit 200-PO-1 needs a figure that illustrates the tritium, nitrate and I-129 plumes and other contaminants shown in Table 6.1.3-1 that exist in groundwater under the proposed site near 200 east. L1-17

Pg 6-34 Comment: The Tribal narrative should be moved to the "land use" discussion. One of the primary land use designations is the Monument and its mission.

Pg 6-55 Comment: The tribal narrative under the "Employment" section needs to be moved to the "Ecology" section.

L1-9 Costs for institutional controls out to a 10,000 year time frame were not evaluated because the institutional control period was assumed to be for the first 100 years after facility closure. Site-specific NEPA reviews would take a closer look the implementation and costs of institutional controls.

L1-10 Text prepared by potentially affected American Indian tribes is included in this EIS. DOE considered this text for Hanford, INL, LANL, and NNSS; however, DOE also needed to ensure consistency in the EIS analyses between the various sites, so that an even comparison could be made between alternatives as required by NEPA. Because of this, it was not possible to fully utilize all of the information provided by the tribal governments in order to perform specific analyses associated with exposure events unique to a given American Indian tribe (such as greater intakes of fish, game, and plants; the use of sweat lodges; and the use of natural pigment paints for traditional ceremonies). Once a decision is made on a specific site location and method, appropriate site-specific NEPA review would be conducted, including appropriate analysis of exposure events unique to the impacted local American Indian tribes.

However, the information provided in these narratives was considered in the identification of the preferred alternative presented in this EIS. The information provided in the narratives for Hanford, INL, LANL, and NNSS was very useful, and DOE appreciates the time and effort expended by the various tribes in supporting this EIS process.

DOE recognizes that modeling potential releases of radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. Sufficient detail was included in these designs for use in the EIS analyses, consistent with the current stage of this process. Some of the input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

L1-11 As discussed in Section 6.1.7 of the EIS, there are no minority or low-income populations in the Hanford vicinity as defined in the CEQ guidelines. Thus, no environmental justice issues at Hanford are expected.

L1-12 DOE recognizes that some of the waste considered contains radionuclides that pose potential human health risks for extended periods of time and that modeling potential releases of these radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. In performing these evaluations, a number of engineering measures were included in the conceptual facility designs to minimize the likelihood of contaminant migration from the disposal units. No facility design can guarantee that radionuclide migration from the facility would not occur over and beyond a 10,000-year time period. Sufficient detail was included in the proposed conceptual land disposal facility designs for use in the EIS analyses, consistent with the current stage of this process. Some of the waste form and site characteristic input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

DOE believes that 500 years is a realistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS (Phifer et al. 2007) that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study. DOE believes that the assumptions made to support the long-term modeling calculations for the groundwater pathway are reasonable and enable a comparative evaluation of the impacts between alternatives. The results of the evaluation presented in the

Nez Perce Tribal Executive Committee, Commenter ID No. L1 (cont'd)

EIS are sufficient to inform the selection of sites and methods for disposal. Follow-on project-specific and site-specific NEPA reviews would be conducted as needed.

L1-13 The assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS (Phifer et al. 2007) that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study. A limited sensitivity analysis was conducted to obtain an idea of the uncertainties involved in the long-term post-closure human health estimates as described in Appendix E, Section E.6. The sensitivity analysis did include an analysis of the infiltration rate.

L1-14 Additional information concerning air monitoring and air releases in the 200 west area were added to Section 6.1.1.2.

L1-15 The Tribal narrative about the Monument designation was moved to the Land Use section in the Final EIS.

L1-16 Additional text was added to Section 6.1.3.2.3 with a more detailed description of the groundwater flow.

L1-17 Figures illustrating the groundwater contamination have been added to the discussion as suggested. The Tribal narrative on the Monument has been moved to the "land use" section, and the Tribal narrative under the "Employment" section has been moved to the "Ecology" section.

Northern New Mexico Citizens' Advisory Board, Commenter ID No. L284

DEPARTMENT OF ENERGY
National Nuclear Security Administration
Los Alamos Site Office
Los Alamos, New Mexico 87544

MAY 19 2011

Mr. Arnold M. Edelman, R. E. M.
Office of Disposal Operations
Office of Environmental Management
U.S. Department of Energy
Cloverleaf Bldg. (EM-12)
1000 Independence, Ave., SW
Washington, DC 20585

Dear Mr. Edelman:

Please find attached Recommendation 2011-05, unanimously adopted by the Northern New Mexico Citizens Advisory Board (NNMCAB) during its meeting on May 12th, 2011.

Please include and consider this Recommendation as public comment during the Department's decision making process on the Draft Greater Than Class C (GTCC) Environmental Impact Statement (EIS). The NNMCAB looks forward to your EIS team's response to this Recommendation in the Public Response Document as part of the Administrative Record to the Final GTCC EIS.

We wish you and your team a swift decision and ROD on this national issue. Please contact us if you have any questions.

Edwin P. Worth
Co-Designated Deputy Federal Officer
505-606-0398

M. Lee Bishop
Co-Deputy Designated Federal Officer
505-606-1804

Enclosure

EPO-26LB-213-348714

Northern New Mexico Citizens' Advisory Board, Commenter ID No. L284 (cont'd)

NNMCAB Recommendation 2011-05
Approved May 12, 2011

NORTHERN NEW MEXICO CITIZENS' ADVISORY BOARD
Recommendation to the Department of Energy

No. 2011-05
"Recommendation that Los Alamos National Laboratory Not Be Selected for Disposal of Greater Than Class C Low-Level Radioactive Waste"

Drafted by the Waste Management (WM) Committee
Primary Author: Caroline Mason

Background:

The Draft Environmental Impact Statement (EIS) for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D) is available for public comment. Los Alamos National Laboratory is one of five sites being evaluated for disposition of this waste.

GTCC waste and the companion GTCC-like waste refer to LLW that has radionuclide concentrations that exceed the limits for Class C Low Level Waste given in U.S. Nuclear Regulatory Commission 10CFR 61.55 and cannot be disposed of in currently licensed commercial LLW disposal facilities. The federal government is responsible for the disposal of this waste. The same is true for GTCC-like waste (consists of LLW and potential no-defense generated TRU waste). Both types of waste have no identified path for disposal.

The disposal requirements in the EIS are based on an assumption of approximately 420,000 cubic feet of waste which includes existing waste and waste expected to be generated in the next 20 to 30 years. Some of the radionuclides in the GTCC wastes either have long half-lives (in excess of 10,000 years) or are present in high concentrations.

The draft EIS discusses five proposed methods for the development, operation, and long-term management of a disposal facility or facilities for GTCC LLW and DOE GTCC-like waste.

The five proposed disposal methods are:

1. No action,
2. Disposal at WIPP,
3. Disposal in a New Intermediate- Depth Borehole Facility,
4. Disposal in a New Enhanced near Surface Trench Disposal facility,
5. Disposal in a New Above-Grade Vault Disposal facility.

The only options presented in the EIS for the location of a waste disposal facility (1 or more) are: WIPP (or near WIPP); Los Alamos National Laboratory (LANL); Hanford Laboratory; Idaho National Laboratory (INL); Savannah River Site (SRS); and Nevada National Security Site (NNSS).

Comments and Observations:

The specific location at LANL that the option discussed in the EIS proposes for either borehole, trench or vault is Technical Area 54 (TA-54). This very location is the subject of extensive remediation in Material Disposal Areas (MDAs) G, L and H and is scheduled for completion in 2015 under an agreement with the New Mexico Environment Department (New Mexico 2005 Order on Consent). L284-1

Technical Area-54 is the only current Department of Energy laboratory property which shares a boundary with Native American pueblo land. The San Ildefonso Pueblo has long considered this area as

1

L284-1 DOE is performing environmental restoration activities at LANL. The ongoing cleanup efforts will continue.

The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

In selecting the preferred alternative, DOE considered existing agreements as well as potential cultural and historic resource impacts. Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholders and tribal government involvement and consent.

Northern New Mexico Citizens' Advisory Board, Commenter ID No. L284 (cont'd)

NNMCAB Recommendation 2011-03
Approved May 12, 2011

part of their sacred lands and remediation options for MDA G must consider these cultural and visual impacts. Currently, TA-54 is scheduled to be closed to new waste disposal following remediation. Long term plans are for a visually pleasing cap, restricted or prohibited access to the land, and long term monitoring. Any proposal to return TA-54 into an active waste disposal area would be in direct opposition to the goals of the New Mexico Order on Consent for environmental restoration, and would be counter to the broader objectives of reducing waste disposal at LANL. DOE has been removing TRU waste from TA-54 under the original baseline budget of a cost of $564M. The EIS option to move TRU waste back to LANL will defeat the purpose of the environmental restoration effort.

Members of the Northern New Mexico Citizens Advisory Board (NNMCAB) have for many years consistently advised the DOE on issues that could help in the removal of legacy wastes from LANL, and have conducted public outreach to the Northern New Mexico communities to make these waste removal and remediation activities apparent. It is clear from the Board's recommendations to DOE that the NNMCAB advises the waste should be removed from LANL, not added to a future disposal problem. Current NRC policy for the disposition of GTCC-LLRW is in a geologic repository. The geologic repository alternative represents the lowest potential for human health impact. L284-1 (Cont.)

The residents of Northern New Mexico expect no less from DOE and LANL than completion of the legacy waste remediation on schedule. To reverse this policy and add new waste will severely jeopardize LANL relations with its neighbors both near and far and negate much of the progress accomplished under the 2005 Order on Consent.

Recommendations:

No. 1. The DOE should not consider using LANL as an option for disposal of GTCC waste and the GTCC-like waste. L284-2

No. 2. The NNMCAB feels the following are more appropriate sites for disposal of GTCC waste and GTCC-like waste (with equal priority):

a) Waste Isolation Pilot Plant (WIPP). Although use of the WIPP facility is currently considered the most expensive alternative of those presented in the EIS, it appears to provide the most long-term permanent and perhaps safest choice. L284-3

b) Nevada National Security Site (NNSS). NNSS presently serves as a regional disposal site for LLRW and mixed LLRW generated by DOE facilities and EIS tables indicate almost no Human Health Long-Term Impacts if this site is chosen. L284-4

c) Yucca Mountain. The EIS has failed to consider what may be the best and most practical option for GTCC waste disposal. The existing demonstration tunnels, shafts and underground rooms at the Yucca Mountain Project site maybe suited for this class of waste. DOE should add this option to the EIS. L284-5

Intent:

The intent of this NNMCAB recommendation is to see that the required cleanup at LANL is completed in the safest way, specifically relative to movement of waste.

References:

1. Draft Environmental Impact Statement (EIS) for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D), http://www.gtcceis.anl.gov/
2. U.S. Nuclear Regulatory Commission (NRC) Waste classification 10CFR 61.55, http://www.nrc.gov/reading-rm/doc-collections/cfr/part061/part061-0055.html
3. New Mexico Order on Consent, 2005.

2

L284-2 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

L284-3 Based on the GTCC EIS evaluation and WIPP's operating record, DOE believes that the WIPP repository would be a safe location for the disposal of GTCC LLRW and GTCC-like wastes, some of which include long-lived radionuclides. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require modification to existing law. In addition, it would be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit.

The State of New Mexico has indicated a willingness to accept GTCC LLRW and GTCC-like wastes for disposal at WIPP. Twenty-eight New Mexico State Senators signed a proclamation made in the Fiftieth Legislature, First Session, 2011, stating: "Be it resolved that we, the undersigned, support the opportunity for other potential missions in southeast New Mexico to adequately address the disposal of defense high-level waste, commercial high-level waste, Greater Than Class C LLRW and surplus plutonium waste, as well as the interim storage of spent nuclear fuel." In response to the Draft GTCC EIS, Secretary David Martin, Secretary of the New Mexico Environment Department, sent a letter to DOE on June 27, 2011, stating that "the Department encourages DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type." In addition, the Governor of New Mexico, in a letter to DOE Secretary Steven Chu on September 1, 2011, stated that the State of New Mexico encourages DOE to support the proposed location of WIPP as the preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes.

L284-4 This EIS does consider NNSS for disposal of GTCC LLRW and GTCC-like wastes.

L284-5 The EIS considered the range of reasonable alternatives for disposal of the inventory of GTCC LLRW and GTCC-like wastes identified for inclusion in these analyses. The Secretary of Energy determined that a permanent repository for high-level waste and spent nuclear fuel at Yucca Mountain, Nevada, is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of the EIS. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

Nuclear Watch New Mexico, Commenter ID No. E102

From: Edelman, Arnold <Arnold.Edelman@em.doe.gov>
Sent: Wednesday, June 29, 2011 5:56 AM
To: Kovac, Scott <Alert>; gtccels@anl.gov
Cc: Jay Coghlan; john
Subject: RE: Nuclear Watch NM GTCC Comments

Thank you for your comments. No problem at all.
Be safe.
Arnie

-----Original Message-----
From: Kovac, Scott <Alert>
Sent: Tuesday, June 28, 2011 6:42 PM
To: gtccels@anl.gov
Cc: Jay Coghlan; john
Subject: Nuclear Watch NM GTCC Comments

Dear Mr. Edelman:

Nuclear watch New Mexico respectfully submits these comments on the Draft Environmental Impact Statement for the Disposal of Greater?Than?Class?C
(GTCC) Low?Level Radioactive Waste and GTCC?Like Waste (GTCC EIS). We recognize that our submittal is one day late, which is entirely attributable to the wildfire emergency in Los Alamos, which we had to monitor and respond to media. We trust that our GTCC comments will nevertheless be accepted.

Please reply as to the receipt and readability of the attached comments.

Thank you,
Scott Kovac
Operations and Research Director
Nuclear Watch New Mexico
551 W. Cordova Road #808
Santa Fe, NM, 87505
505.989.7342 office & fax
www.nukewatch.org

1

Nuclear Watch New Mexico, Commenter ID No. E102 (cont'd)

nuclear watch new mexico

June 28, 2011

Mr. Arnold M. Edelman,
EIS Document Manager, GTCC EIS
U.S. Department of Energy
Cloverleaf Building, EM-43
1000 Independence Ave., S.W.
Washington, D.C. 20585

Via email: gtccei s@anl.gov

RE: Comments on the Draft Environmental Impact Statement for the Disposal of Greater-Than-Class-C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D)

Dear Mr. Edelman:

We respectfully submit these comments on the Draft Environmental Impact Statement for the Disposal of Greater-Than-Class-C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (GTCC EIS). We recognize that our submittal is one day late, which is entirely attributable to the wildfire emergency in Los Alamos, which we had to monitor and respond to media. We trust that our GTCC comments will nevertheless be accepted.

The draft EIS evaluates potential alternatives involving various disposal methods for use at DOE and generic commercial sites. DOE should broaden the scope of this EIS to a Programmatic EIS, thereby fulfilling DOE's obligations under the National Environmental Policy Act's (NEPA's) Rules and Regulations. E102-1

We support safe, monitored storage of radioactive wastes as a matter of national security and environmental protection. However, that should not be interpreted as support for more nuclear weapons, nuclear power, or the generation of more nuclear wastes. In our view, the best way to treat radioactive wastes is to not produce them to begin with. E102-2

Programmatic EIS for GTCC Waste Disposal E102-3

We contend that disposal of GTCC waste is a "program," defined by DOE under its NEPA regulations as systematic and connected agency decisions allocating

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info@nukewatch.org • www.nukewatch.org • http://www.nukewatch.org/watchblog/

E102-1 DOE does not agree that a programmatic EIS as described in this comment must be prepared before this EIS is completed. DOE tailored the scope of this EIS to ensure the analyses will adequately inform the decisions at issue, including the selection of sites and technologies for the disposal of GTCC and GTCC-like waste. This EIS presents the environmental information needed to adequately inform decision makers regarding many of the questions and points raised in this comment; other questions and points raised remain outside of the scope of this document. DOE plans a tiered decision making process in which DOE would conduct further site-specific NEPA reviews before implementing an alternative ultimately selected on the basis of this EIS.

E102-2 Stopping the generation of nuclear waste is also outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

E102-3 Refer to the discussion regarding a programmatic EIS in the response to E102-1.

DOE explained in the WM PEIS (DOE, 1997, *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste*, DOE/EIS-0200-F, Office of Environmental Management, Washington, D.C.) that additional analyses would be prepared to implement DOE's programmatic decisions. The GTCC EIS analyzes the potential environmental impacts associated with the disposal of GTCC LLRW and GTCC-like (DOE) wastes. Since the WM PEIS relates only to DOE waste, the inclusion of commercial waste in the WM PEIS is premature until the GTCC EIS is finalized and a ROD is issued. Depending on the outcome of this ROD, DOE will evaluate whether additional programmatic or site-specific NEPA reviews or updates to previous decisions are needed, as appropriate. Any additional NEPA reviews or considerations will be conducted with full opportunity for public input, consistent with Council on Environmental Quality and DOE NEPA requirements.

Nuclear Watch New Mexico, Commenter ID No. E102 (cont'd)

agency resources to implement a specific statutory program or executive directive. The federal government is responsible for the disposal of any low-level radioactive waste with concentrations of radionuclides that exceed the limit established by the Commission for Class C Waste, as per Section 61.55 of Title 10, Code of Federal Regulations (CFR). Therefore the statute-driven nature of the DOE GTCC waste disposal proposal is evident.

Moreover, the GTCC EIS analyzes differing conceptual disposal methods for multiple candidate sites (including generic commercial locations) to implement this plan. This strongly indicates that systematic and connected agency decisions will have to be considered in the GTCC EIS.

The Council on Environmental Quality (CEQ), impaneled by NEPA, issued implementing regulations as part of the Code of Federal Regulations (CFRs) that all executive branch agencies had to incorporate. At 40 CFR 1502.4(a) the CEQ required that, "Agencies shall make sure the proposal which is the subject of an environmental impact statement is properly defined." At 40 CFR 1502.4(b) the CEQ stated, "Environmental Impact Statements may be prepared, and are sometimes required, for broad Federal actions such as the adoption of new agency programs (Sec. 1508.18). Agencies shall prepare statements on broad actions so that they are relevant to policy and are timed to coincide with meaningful points in agency planning and decision-making." E102-3 (Cont.)

Because of these CEQ requirements, DOE NEPA implementing regulation 10 CFR 1021.330(a) states, "When required to support a programmatic decision DOE shall prepare a programmatic EIS or EA." [Cites to two other statutes in 10 CFR 1021 omitted in this quote.] Given the CEQ NEPA regulations and the Department's implementing regulations, we argue that DOE is obliged to prepare and complete a programmatic environmental impact statement for GTCC waste disposal so that its proposal is properly defined and analyzed. Any subsequent Record of Decision should then select a disposal method or methods and a specific site or sites, and only then should a site-specific EIS or EISs go forward. In sum, this GTCC waste disposal environmental impact statement should be broadened to a programmatic environmental impact statement.

The long-term costs of GTCC must be thoroughly analyzed.

As an irretrievable commitment of taxpayers' dollars, this EIS must analyze of all projected costs for the proposed GTCC waste disposal program and analyze the costs of each proposed alternative separately.

Please answer these questions: What is the comparison of costs of all the different proposed disposal alternatives (including hardened on-site storage)? Please calculate the costs of building each proposed disposal option at each proposed site, the transportation of waste, operating expenses, health costs for treatment of occupational illnesses and accident victims, and the costs of security of E102-4

E102-4 Consistent with NEPA requirements, the EIS does consider and evaluate the irreversible and irretrievable commitment of resources for each action alternative. The resources that would be irreversibly and irretrievably committed for the disposal of GTCC LLRW and GTCC-like wastes at WIPP would include the underground space, energy, raw materials, and other natural and human-made resources used to construct the additional rooms needed (see Section 4.6). The resources that would be irreversibly or irretrievably committed during the disposal of GTCC LLRW and GTCC-like wastes by using the land disposal methods would include the land encompassed by the facility footprint, water, energy, raw materials, and other natural and human-made resources for construction of the disposal facility (see Section 5.4).

Estimated costs for implementing the various alternatives are given in this EIS to the extent that this information was available. A detailed cost evaluation is not required to be included in an EIS under NEPA. Detailed cost information could be provided in a future site-specific NEPA review, as needed.

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the facilities. Please compare that to the costs of not implementing the GTCC program. What will be the entire life cycle costs of the GTCC proposal? E102-4 (Cont.)

Disposal of GTCC radioactive wastes should be the starting point for public discussions of nuclear reactor decommissioning and proposed future reactors, not an afterthought.

Much of the future GTCC wastes will be the reactor parts themselves that won't enter into the waste streams until the 2060's. Reactor decommissioning is a tough problem. Do we wait 100 years for the radioactivity to decay away? That leaves an abandoned, contaminated site where no one will take responsibility. Should they be entombed? More broadly, are more nuclear power plants worth the expense and intractable waste problems that taxpayers will inevitably be required to pay for? It is imperative that DOE analyze these issues because they have direct impact on the future generation of GTCC radioactive wastes. Please include in this EIS a discussion on the future of nuclear power. E102-5

All true alternatives for safe storage must be identified and analyzed

DOE should reject in advance irretrievable disposal of GTCC wastes. Given potential future innovations that could provide safer disposal methods, or the discovery of greater risks at any one site than previously foreseen, it is necessary *ipso facto* that all disposal options be reversible. Decisions now about disposal sites and technologies are premature. There is time to learn from experience. At a minimum, DOE must consider interim "Hardened On-Site Storage" (HOSS) at existing nuclear facilities as a real alternative (further discussion immediately below). E102-6

Analyze Hardened On-Site Storage

In our view, GTCC radioactive wastes should be safely stored as close to the site of generation as possible and be safeguarded in hardened, on-site storage facilities. HOSS facilities should be considered and analyzed from the perspective that these wastes must be zealously protected from risks posed by wildfire or other natural or man-made disasters. HOSS facilities must not be designed as permanent waste disposal solutions, and therefore should not be constructed deep underground. The wastes must be retrievable, and real-time radiation and heat monitoring at the HOSS facility must be implemented for early detection of radiation releases. E102-7

The overall objective of HOSS should be that the amount of releases projected in even serious terrorist attacks should be low enough that the storage system would be unattractive as a target to begin with. Design criteria must include resistance to severe attacks, such as a direct hit by high explosive or an aircraft loaded with fuel and/or explosives. Please explain why HOSS was not posed as an alternative in the Notice of Intent for the GTCC EIS. If HOSS is not analyzed in the draft GTCC EIS, please provide detailed reasons for its rejection.

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E102-5 Even though it is beyond the scope of this GTCC EIS, the comment is noted. This GTCC EIS addresses the potential environmental impacts associated with the proposed development, operation, and long-term management of a disposal facility or facilities for GTCC low-level radioactive waste (LLRW) and DOE GTCC-like waste.

E102-6 Due to the relatively small quantities and nature of GTCC waste (high activity and potential national security concerns) greater confinement is warranted. Several disposal methods identified in the EIS do provide appropriate protection for future generations including disposal in a geologic repository. Retrievability of waste is not a requirement in the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240).

E102-7 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

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Commercial wastes must be stored safely at the power plants for the decades that they operate and longer. The GTCC EIS document should consider Hardened On-Site Storage to improve safeguards for the wastes. DOE rejected that advice, saying that it is only considering disposal, not storage. This is a false assumption. At least 85 percent of existing reactors and any new ones are expected to operate beyond 2030, which means GTCC waste disposal could not begin for years after that. GTCC waste has been and will be stored for many decades. Storage must be an option, because it is already a reality. E102-7 (Cont.)

DOE should dedicate funding to local and state governments for independent monitoring

- Funding for independent monitoring of the HOSS facilities at each site must be provided to local and state governments, with the right of review of that monitoring by the potentially affected public. E102-8

Periodic review of HOSS facilities should be required

- An annual report reviewing the safety condition of each HOSS facility should be prepared with meaningful participation from public stakeholders, regulators, and utility managers at each site. A good summary of the report must be made publicly available and provide for possible recommendations for any needed corrective actions.

This EIS must be withdrawn and sites other than DOE sites must be analyzed

Do not send GTCC to DOE sites. Nation-wide, DOE sites are still facing 100's of billions of dollars and decades worth of cleanup from the Cold War. Commitments must be met to clean up about all DOE nuclear weapons sites. E102-9

A Second Repository Must Be Examined

Highly radioactive and long-lived radioactive wastes belong in a deep geologic repository. The legal requirement for another repository exists, yet the alternative of putting the GTCC waste into that repository is not even mentioned. Scientists have agreed for decades that the best geologic formation for highly radioactive wastes is the Granite Shield of North America. But DOE has refused to consider such a site, even after dropping Yucca Mt. Nevada because it was not suitable. E102-10

New Mexico must not be the site for the disposal of any of the 160,000,000 curies of GTCC waste.

There are not suitable sites in New Mexico for disposal of this waste. The people of New Mexico were promised on numerous occasions that the Waste Isolation Pilot Plant (WIPP) would be for defense, not commercial, waste. The WIPP Land Withdrawal Act prohibits any commercial waste at WIPP. Any site at or near WIPP also is inappropriate because it would be an attempt to circumvent that prohibition. Los Alamos National Laboratory (LANL) has thousands of cubic meters E102-11

E102-8 The development of a regulatory framework for the use of HOSS at commercial nuclear power plants is outside the scope of the GTCC EIS. DOE does not have authority to regulate the storage of radioactive wastes at commercial facilities, including nuclear power plants. Under the Atomic Energy Act of 1954 as amended (AEA) (see United States Code: 42 USC § 2011), the NRC is responsible for regulating storage of such wastes. Radioactive waste storage requirements can be found in 10 CFR Part 30 (Rule of General Applicability to Domestic Licensing of Byproduct Material), 10 CFR Part 70 (Domestic Licensing of Special Nuclear Material), and 10 CFR Part 72 (Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste). In addition, the NRC has provided guidance for the storage of LLRW in SECY-94-198, Review of Existing Guidance Concerning the Extended Storage of Low-Level Radioactive Waste, which was issued on August 1, 1994.

E102-9 DOE is performing environmental restoration activities at the Hanford Site, INL, LANL, NNSS, and SRS. The ongoing cleanup efforts at these sites will continue. If GTCC LLRW or GTCC-like waste were to be disposed at these sites, DOE does not anticipate negative impacts to ongoing cleanup activities at these sites.

The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

E102-10 The EIS considered the range of reasonable alternatives for the disposal of the GTCC waste inventory, including disposal in a deep geologic repository. DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

DOE recognizes that disposal of GTCC LLRW and GTCC-like wastes in the WIPP geologic repository would require modification to existing law. In addition, it may be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with the EPA, and the WIPP Hazardous Waste Facility Permit.

E102-11 DOE is performing environmental restoration activities at LANL. The ongoing cleanup efforts will continue. If GTCC LLRW or GTCC-like waste were to be disposed at these sites, DOE does not anticipate negative impacts to ongoing cleanup activities at these sites.

The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal

of waste that must be cleaned up, and it is inappropriate to bring any commercial waste to LANL for disposal. New Mexico also has millions of tons of waste from uranium mining and milling. Thus, New Mexicans are already burdened with more than our share of the nation's nuclear waste. E102-11 (Cont.)

Do Not Bring GTCC Waste To Los Alamos

Estimates for cleanup of Cold War legacy radioactive contamination at Los Alamos National Laboratory (LANL) range from $2 to $30+ billion. This wide range has to do with the type of cleanup that the State approves for the Lab, which ranges from "cap-and-cover" to exhumation. A legally binding agreement requires DOE and LANL to investigate and clean up decades worth of contamination across the lab's 40-square-mile property by 2015. Signed in 2005, the Consent Order lays out cleanup milestones and requires the federal government to pay fines if LANL fails to meet them. The Lab must focus on this cleanup and not bring any more waste, including Greater-than-Class C (GTCC), to the Lab. E102-12

Shipment of all GTCC waste to LANL is estimated at 12,600 truckloads involving a total distance of 22 million miles. The estimated peak annual doses from the use of contaminated water within 10,000 years of disposal of GTCC at LANL were calculated to occur between 500 years and 1,100 years. These times represent the time after failure of the cover and engineered barriers (which is assumed to begin 500 years after closure of the disposal facility).

In 1970, the old Atomic Energy Commission (AEC) decided that all *Transuranic wastes – i.e., Plutonium – should go to deep underground repository,* not be disposed any longer in unlined trenches, such as proposed for LANL.

The location of the Lab in a seismic fault zone between a rift and a dormant volcano is not the place for radioactive waste that is dangerous for tens of thousands of years. E102-13

Do Not Send GTCC to WIPP

Finish the original mission at WIPP. WIPP must be safely operated to meet the "start clean, stay clean" standard. WIPP must be safely closed, decontaminated, and decommissioned, beginning in about 2030 or earlier. The WIPP repository is in a salt formation in NM. It is barred by federal law from taking nondefense waste and from taking this amount of very radioactive wastes. New Mexico and Congress unlikely to agree should DOE select WIPP. E102-14

Heed the American Indian Text

We appreciate the inclusion of the American Indian Text Boxes. Now listen to them! E102-15

methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

E102-12 Refer to the first paragraph in the E102-11 response regarding a discussion on ongoing cleanup activities at LANL.

E102-13 The site-specific environmental factors identified by commenters were evaluated in the EIS as appropriate. The issue of seismicity at LANL (see Section 8.1.2.1.4) was one of many factors that DOE considered in selecting the preferred alternative.

Nuclear Watch New Mexico, Commenter ID No. E102 (cont'd)

DOE Fails To Properly Analyze The Risks Of Extremely Radioactive GTCC Waste

DOE estimated 816 fatal cancers in ADULTS along truck routes from routine exposure to trucked spent fuel in the Global Nuclear Energy Program (GNEP) PEIS. (Table S. 4-10, page S-52 in GNEP draft PEIS 12-2008). The fatal cancers from trucking estimated in the GTCC EIS are many times less. Please explain the difference. E102-16

Radiation doses one meter away from shipments of GTCC, remote-handled TRU or other GTCC-like wastes are grossly understated in the GTCC EIS. DOE ignored children and NAS data (BEIR VII), which would increase the estimated cancer risks. GTCC EIS fails to show real risks along actual truck routes or cancer estimate as was analyzed in the GNEP draft PEIS. This results in false presentation of total LCF (Latent Cancer Fatalities). The GTCC EIS estimate is based on 50 years of repeated exposure resulting in .5 to 1.0 mrem total dose. (Page 5-83) GTCC EIS fails to base dose on limit of radiation dose allowed which is 10 mrem / hour 2 meters away from the cask – e.g., next lane in traffic. (This criticism applies to inspectors and parking lots, etc., where GTCC EIS says total dose it projects is .5 to 1 mrem. One inspection is likely to result in dose of 7.5 mrem, which is 7.5 to 15 times higher than GTCC EIS projects for lifetime dose to inspector. The projected effects and risks of exposures must be re-analyzed. E102-17 E102-18 E102-17 (Cont.)

Conclusion

The treatment and handling of GTCC wastes must be protective of human health and the environment for many tens of thousands of years. Analyses to do so are not only best done in a programmatic environmental impact statement, but we argue are required to be done in a PEIS. DOE must consider storage of GTCC waste as interim until improved safe methods of disposal are discovered. Out-of-sight, out-of-mind permanent burial must not be considered just because no other method is now known. The relatively small volumes but high activity level of GTCC wastes make it an ideal issue in which to seriously consider hardened on-site storage. We urge DOE to do so.

Respectfully Submitted,

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Nuclear Watch New Mexico, Comments on Greater Than Class C Draft EIS 6
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E102-14 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., P.L. 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

The State of New Mexico has indicated a willingness to accept GTCC LLRW and GTCC-like wastes for disposal at WIPP. Twenty-eight New Mexico State Senators signed a proclamation made in the Fiftieth Legislature, First Session, 2011, stating: "Be it resolved that we, the undersigned, support the opportunity for other potential missions in southeast New Mexico to adequately address the disposal of defense high-level waste, commercial high-level waste, Greater Than Class C LLRW and surplus plutonium waste, as well as the interim storage of spent nuclear fuel." In response to the Draft GTCC EIS, Secretary David Martin, Secretary of the New Mexico Environment Department, sent a letter to DOE on June 27, 2011, stating that "the Department encourages DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type." In addition, the Governor of New Mexico, in a letter to DOE Secretary Steven Chu on September 1, 2011, stated that the State of New Mexico encourages DOE to support the proposed location of WIPP as the preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes.

Nuclear Watch New Mexico, Commenter ID No. E102 (cont'd)

E102-15 Text prepared by potentially affected American Indian tribes is included in this EIS. DOE considered this text for Hanford, INL, LANL, and NNSS; however, DOE also needed to ensure consistency in the EIS analyses between the various sites, so that an even comparison could be made between alternatives as required by NEPA. Because of this, it was not possible to fully utilize all of the information provided by the tribal governments in order to perform specific analyses associated with exposure events unique to a given American Indian tribe (such as greater intakes of fish, game, and plants; the use of sweat lodges; and the use of natural pigment paints for traditional ceremonies). Once a decision is made on a specific site location and method, site-specific NEPA reviews would be conducted as needed, including appropriate analysis of exposure events unique to the impacted local American Indian tribes.

However, the information provided in these narratives was considered in the identification of the preferred alternative presented in this EIS. The information provided in the narratives for Hanford, INL, LANL, and NNSS was very useful, and DOE appreciates the time and effort expended by the various tribes in supporting this EIS process.

E102-16 The fatal cancers from trucking estimated in the GTCC EIS are many times less than in the *Draft Global Nuclear Energy Partnership Programmatic Environmental Impact Statement* (GNEP PEIS) because there were many times less radioactive truck shipments. Up to 12,600 truck shipments were estimated in the GTCC EIS whereas up to approximately 1,730,000 truck shipments were estimated for one alternative in the GNEP PEIS.

E102-17 Calculation of the collective population risk (under routine and accident conditions) is provided in the EIS. While these estimates are conservative, the calculations used expected values where practical (e.g., external shipment dose rates) and provide a reasonable measure for comparison among alternatives, as summarized in Tables 2.7 5 and 2.7 6, and the estimates show that the transportation risks would be small. All alternatives involve routes of hundreds of miles through similar types of rural, suburban, and urban areas. For specific local impacts, Section 5.3.9.2 provides information on potential human health impacts on individuals during normal waste transport along a route. However, the consideration of specific local stakeholder concerns is more appropriate during the final planning stages of a project when actual route selections are finalized, not at the level addressed in this EIS. A generic accident consequence assessment was performed because there is no way to predict the exact location and conditions of an accident, as discussed in C.9.3.3 of the EIS. For all alternatives, potential accidents, even those at the same location, could have impacts that range from negligible to significant depending on the waste involved, the accident severity, and weather conditions. Such an analysis would not help distinguish between alternatives because all alternatives involve routes through or near major population centers.

Once an alternative is selected in a ROD for this EIS for implementation, site-specific NEPA reviews would be conducted as needed, including an assessment of specific routing and an accident analysis, including dedicated trains and the potential for multiple railcar accidents if applicable. This process will include planning that involves transportation and other stakeholders.

E102-18 Disposition of the GTCC LLRW and GTCC-like wastes will be handled in a manner that is protective of human health and the environment and in compliance with applicable requirements and regulations. Doses to workers and the public will be minimized to the extent practical. The methodology used to estimate the radiological human health impacts in the EIS is based on standard practices that are subject to revision as our understanding of the effects of radiation on humans evolves. The same methodology is used in the evaluation of all alternatives; thus, any modification of this methodology (e.g. attempting to use risk factors for children) would not affect the comparisons among alternatives and the identification of the preferred alternative.

Nuclear Watch New Mexico, Commenter ID No. T85

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3
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5 MR. BROWN: Thank you.
6 Okay. Scott is next and Nathaniel Fuentes
7 will follow.
8 MR. KOVAC: Thank you.
9 Thanks, everyone, for coming out tonight.
10 This proposal for greater-than-Class-C waste
11 includes seven different sites, four different methods
12 which equals about somewhere over 25 different options,
13 and none of them are good. With all of these
14 alternatives, it is a problem that DOE does not have a T85-1
15 preferred alternative.
16 LANL currently buries its low level
17 radioactive waste in unlined trenches, pits and shafts
18 at Area G at Tech Area 54. The final determination by
19 DOE and the New Mexico Environment Department of what
20 happens to the hazardous and radioactive waste at Area
21 G has not yet been made.
22 The decision to bury greater that Class C

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T85-1 A preferred alternative is not required to be included in a Draft EIS. The Council on Environmental Quality regulations in 40 CFR 1502.14(e) specify that the section on alternatives in an EIS shall identify the agency's preferred alternative or alternatives, if one or more exists, in the Draft EIS and identify such alternative(s) in the Final EIS unless another law prohibits the expression of such a preference; that is, a preferred alternative shall be identified in the Draft EIS if one exists. If no preferred alternative has been identified at the Draft EIS stage, a preferred alternative need not be included. By the time the Final EIS is filed, 40 CFR 1502.14(e) presumes the existence of a preferred alternative and requires its identification in the Final EIS unless another law prohibits the expression of such a preference.

DOE did not have a preferred alternative at the time of issuance of the Draft EIS because of the complex nature of the proposed action and the potential implications for disposal of GTCC LLRW and GTCC-like wastes. To seek public input on how to identify a preferred alternative for inclusion in the Final EIS, the Draft EIS presented considerations for developing a preferred alternative in the Summary (in Section S.6) and in Section 2.9. As required by 40 CFR 1502.14(e), the Final EIS contains a preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes (see Section 2.10). In developing the preferred alternative, DOE took into consideration public comments on the Draft EIS, public EIS scoping comments, and other factors identified in Sections S.6 and 2.9 of the EIS.

The publication by the EPA of a NOA of the Final EIS in the Federal Register initiated a 30-day public availability or "waiting" period. While the availability period is not a formal public comment period, the public can comment on the Final EIS, including the preferred alternative, prior to final agency action. Comments received will be addressed by DOE in a ROD. As required by the Energy Policy Act of 2005, DOE must submit a Report to Congress that includes the alternatives considered in the EIS and await Congressional action before making a final decision regarding which alternative(s) to implement. The Report to Congress will be made available to the public on the GTCC EIS website (http://www.gtcceis.anl.gov/).

Nuclear Watch New Mexico, Commenter ID No. T85 (cont'd)

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1 waste could predetermine what other waste and could
2 predetermine the outcome of that condition.
3 I was looking., It's hard to find out exactly
4 how many Curies are in Area G, but it seems to be
5 around a million Curies only have been buried at Area G
6 at Los Alamos. I mean, I say "only," but have been
7 buried over the last 40 years or so. And DOE now plans
8 to or is considering adding 160 million Curies to that
9 site? This is outrageous.
10 The shipment of all greater-than-Class-C waste
11 to LANL by truck would result in approximately 12,600
12 shipments involving a total distance of 22 million
13 miles. The estimated peak doses from the contaminated
14 water within 10,000 years of the greater-than-Class-C
15 at LANL were calculated to occur between 500 and 1,100
16 years. That means that the peak dose to the
17 groundwater will occur between 500 and 1,100 years at
18 Los Alamos.
19 These times represent the time after the
20 failure of the cover and the engineered barrier. This
21 is assumed to begin at 500 years after the closure of
22 the disposal facility. This is out of the EIS. So

T85-2

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T85-2 DOE believes that 500 years is a realistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, as discussed in Section E.2.2, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS (Phifer et al. 2007) that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study.

Nuclear Watch New Mexico, Commenter ID No. T85 (cont'd)

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1 they're planning. The plan is to have the disposal
2 barrier and cover fail after 500 years. They know that T85-2 (cont.)
3 that's going to happen. That's what they're planning
4 on.
5 It's also confusing about this. The
6 construction period is listed as 3.4 years, but yet T85-3
7 most of the waste will not be ready for disposal for 50
8 or 40 years. It's very confusing.
9 Los Alamos is located in a seismic fault zone
10 between a rift valley and a dormant volcano. It is not T85-4
11 the place for radioactive waste that is dangerous for
12 tens of thousands of years. Sending greater-than-
13 Class-C waste to LANL would go against the current
14 mission of clean-up and footprint reduction.
15 Do not send greater-than-Class-C waste to DOE T85-5
16 sites. Nationwide DOE sites are facing hundreds of
17 billions of dollars and decades' worth of clean-up from
18 the Cold War legacy.
19 DOE should develop a national waste management
20 strategy to address these waste types. Such a strategy
21 is needed to integrate the management of these wastes T85-6
22 as opposed to a piecemeal approach that is currently

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T85-3 As discussed in Sections 5.1.4.1, it is assumed that initial site construction would take about 820 workdays spread over 3.4 years (240 workdays per year). The construction period would cover the time necessary for initial site preparation, infrastructure emplacement, and support structure construction. It was assumed that construction of the disposal units (borehole, trench, or vault) would occur in parallel with their operations. Approximately 8,500 cubic meters of GTCC waste is projected to be available for disposal during the first 16 years of disposal operations (see Section 3.4.2) with the majority of the activated metal waste from nuclear utilities being generated after 2035.

T85-4 The site-specific environmental factors identified by commenters were evaluated in the EIS as appropriate. The issue of seismicity at LANL (see Section 8.1.2.1.4) was one of many factors that DOE considered in selecting the preferred alternative.

T85-5 DOE is performing environmental restoration activities at LANL and other DOE sites considered in the GTCC EIS. These ongoing cleanup efforts will continue. If GTCC LLRW or GTCC-like waste were to be disposed at these sites, DOE does not anticipate negative impacts to ongoing cleanup activities at these sites.

T85-6 The scope of this EIS is adequate to inform decision-making for the disposal of GTCC LLRW and GTCC-like waste. Sufficient information is available to support the current decision-making process to identify (an) appropriate site(s) and method(s) to dispose of the limited amount of GTCC LLRW and GTCC-like waste identified in the EIS.

DOE developed this EIS to support a decision on selecting a disposal facility or facilities for GTCC LLRW and GTCC-like waste, to address legislative requirements, to address national security concerns (especially for sealed sources), and to protect public health and safety. The purpose and need for the proposed action is stated in the EIS (Section 1.1). The scope of the EIS is focused on addressing the need for developing a disposal capability for the identified inventory of GTCC LLRW and GTCC-like wastes.

DOE explained in the WM PEIS (DOE, 1997, *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste*, DOE/EIS-0200-F, Office of Environmental Management, Washington, D.C.) that additional analyses would be prepared to implement DOE's programmatic decisions as part of its national waste management strategy. The GTCC EIS analyzes the potential environmental impacts associated with the disposal of GTCC LLRW and GTCC-like (DOE) wastes. Since the WM PEIS relates only to DOE waste, the inclusion of commercial waste in the WM PEIS is premature until the GTCC EIS is finalized and a ROD is issued. Depending on the outcome of this ROD, DOE will evaluate whether additional programmatic or site-specific NEPA reviews or updates to previous decisions are needed, as appropriate. Any additional NEPA reviews or considerations will be conducted with full opportunity for public input, consistent with Council on Environmental Quality and DOE NEPA requirements.

The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

Nuclear Watch New Mexico, Commenter ID No. T85 (cont'd)

1 being used by the department.

2 Such a strategy, moreover, should be assessed
3 through a programmatic NEPA process that addresses
4 major federal actions that could significantly affect
5 the quality of the human environment. This is
6 particularly important when considering the disposal of
7 long-lived radioactive waste, which are not suitable
8 for shallow land burial.

T85-5 (Cont.)

9 MR. BROWN: About a minute left.
10 MR. KOVAC: The DOE rejection of hardened on-
11 site storage alternative is unacceptable, given that
12 this is the actual status of the greater-than-Class-C
13 low level waste at present and will not be outside the
14 scope of alternatives that should be considered for
15 this EIS.
16 DOE rejects the alternative that many New
17 Mexicans and others from around the country have been,
18 you know, proposing since 2007. Keeping the waste in
19 HOSS would reduce the risk of accidents or terrorist
20 attacks during transport. While HOSS is not a
21 permanent solution, it would be more protective of
22 human health and the environment than any of DOE's

T85-6 (Cont.)

Nuclear Watch New Mexico, Commenter ID No. T85 (cont'd)

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1 current dumping practices and the alternative presented T85-6 (Cont.)
2 in this draft environmental impact statement.
3 MR. BROWN: Fine.
4 MR. KOVAC: Thank you.

Nuclear Watch South, Commenter ID No. T7

1
2 MS. GLENN CARROLL: My name is Glenn Carroll and I
3 am coordinator of Nuclear Watch South. We're based in
4 Atlanta, Georgia. Appreciate of Fukushima being
5 acknowledged tonight. I felt like, you know, that song
6 how can the sun keep on shining, how can the birds keep
7 on flying. You know, it seems like everything has
8 changed except the nuclear industry. And it's
9 interesting to be here tonight. This issue has been
10 really hard to wrap my mind around. It's been really
11 hard to actually identify what greater-than-class C
12 waste is. And I want to comment on--the most positive
13 thing I can think of saying is here we are together
14 making it up as we go so I'm glad I'm here because I
15 trust my thinking, I trust my responses to what I see.
16 One of the things that grieves me and leaves me at a
17 loss for words is that I thought everybody would know
18 the world changed when Fukushima happened, and yet the
19 game has been studiously brought back to the same old,
20 same old. It's relatively safe if you don't count
21 three major meltdowns in 30 years. That's one every
22 ten years when each of our facilities have a point of
23 1.23 probability of a problem. We produced three major
24 can't-happen accidents in 30 years, and this is not
25 counting your less--your less-than-well-known
26 accidents. Of course I'm referring to Three Mile

Nuclear Watch South, Commenter ID No. T7 (cont'd)

19

Island, Chernobyl and Fukushima, which isn't even been an issue yet. We've got bazillions of gallons of radioactive water and we hope there isn't an earthquake that shatters the building. And so some of the things that lump out at me tonight and we will enter some more formal comments. By the way, there is a call, but several groups have signed a letter requesting an extension to the comment period as most of the documents in the EIS have not been available until recently so hopefully that--that deadline extension will happen. I want to call foul. You don't put out a Draft EIS for public comment and then reserve your preferred alternative for the final that will receive the public comment. So that just isn't right. The preferred alternatives that Nuclear Watch South promotes is a hardened on-site storage interim approach somewhat like we've crafted principles which are available on our nonukesyall.org website. You can read these principles for storage. And since we're making it up as we go let's not do anything hasty and let's keep this really, really hot stuff that is not that big and is already, according to several speakers tonight, being safely stored at the site for a generation it should remain there. I think the sealed sources do need a different look. They are out all over the place under an agreement state status. That is pretty squirrely.

T7-1

T7-2

T7-1 A preferred alternative is not required to be included in a Draft EIS. The Council on Environmental Quality regulations in 40 CFR 1502.14(e) specify that the section on alternatives in an EIS shall identify the agency's preferred alternative or alternatives, if one or more exists, in the Draft EIS and identify such alternative(s) in the Final EIS unless another law prohibits the expression of such a preference; that is, a preferred alternative shall be identified in the Draft EIS if one exists. If no preferred alternative has been identified at the Draft EIS stage, a preferred alternative need not be included. By the time the Final EIS is filed, 40 CFR 1502.14(e) presumes the existence of a preferred alternative and requires its identification in the Final EIS unless another law prohibits the expression of such a preference.

DOE did not have a preferred alternative at the time of issuance of the Draft EIS because of the complex nature of the proposed action and the potential implications for disposal of GTCC LLRW and GTCC-like wastes. To seek public input on how to identify a preferred alternative for inclusion in the Final EIS, the Draft EIS presented considerations for developing a preferred alternative in the Summary (in Section S.6) and in Section 2.9. As required by 40 CFR 1502.14(e), the Final EIS contains a preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes (see Section 2.10). In developing the preferred alternative, DOE took into consideration public comments on the Draft EIS, public EIS scoping comments, and other factors identified in Sections S.6 and 2.9 of the EIS.

The publication by the EPA of a NOA of the Final EIS in the Federal Register initiated a 30-day public availability or "waiting" period. While the availability period is not a formal public comment period, the public can comment on the Final EIS, including the preferred alternative, prior to final agency action. Comments received will be addressed by DOE in a ROD. As required by the Energy Policy Act of 2005, DOE must submit a Report to Congress that includes the alternatives considered in the EIS and await Congressional action before making a final decision regarding which alternative(s) to implement. The Report to Congress will be made available to the public on the GTCC EIS website (http://www.gtcceis.anl.gov/).

T7-2 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

Nuclear Watch South, Commenter ID No. T7 (cont'd)

20

1 Most of that stuff is nuclear waste that got repackaged
2 and sold as a source and I think that does need a
3 different consideration. Those need to be reigned back
4 in. Now, can anybody think of this, we're having this
5 problem, why do we keep doing it, why do we keep
6 sending this stuff out there that we're scratching our
7 heads now trying to figure out what to do with it. Oh,
8 we might clean up West Valley but we're going to decide
9 and in ten years maybe we won't clean up West Valley.
10 How can you make a decision like this when everything
11 keeps changing. The phrase comes to mind, I'm afraid
12 this will be offensive, you can't argue with a sick
13 mind. Why am I here? That's supposed to get a laugh.
14 So another thing that caught my attention was that most
15 of the activated metals that we're talking about T7-3
16 haven't been generated yet. Now, that's good news.
17 Let's not do it. We have got to figure this out.
18 Nuclear power died at Three Mile Island. It's still
19 dead. There is a mission--there is a mission for the
20 bulk of the people in this room that receive their
21 employment in this industry. We do have nuclear waste
22 to take care of. We do need to develop the technology.
23 We don't need to dump it in trenches and we don't need
24 to be moving it around and changing it into--trying to
25 change it into other things and creating new waste
26 streams. There is a future for this industry and it is

T7-3 Stopping the generation of nuclear waste is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

Nuclear Watch South, Commenter ID No. T7 (cont'd)

21

1 long. We have radioactive factories. We're talking
2 about them tonight and they need to be dismantled and
3 we don't know how and we don't know where the money is.
4 And we have the high-level spent nuclear fuel and we
5 don't know what to do with it and we're not going to
6 reprocess it and we are wasting time and we need a new
7 mission for the nuclear industry. There is work to be
8 done. We need to get this spent fuel out of the pools
9 and into hardened storage. And so our--we promote the
10 HOSS alternative. We're crying foul that you don't
11 include that now and that you claim that you'll figure
12 out what you want later after you're done hearing from
13 us. And that will do me for tonight. Thank you.

Nye County Nuclear Waste Repository Project Office (NWRPO), Commenter ID No. E32

From:	Elizabeth Enriquez <eenriquez@co.nye.nv.us>
Sent:	Monday, June 27, 2011 5:42 PM
To:	gtcceis@anl.gov
Cc:	wades@nv.doe.gov; christine.gelles@em.doe.gov; Joni Eastley; Gary Hollis
Subject:	Nye County, NV - GTCC Letter and Comments
Attachments:	GTCC - Nye County, NV Comments.pdf; GTCC Letter.pdf

Good Afternoon,

Please find the attached letter and comments from Nye County, Nevada on GTCC.

Please contact me should you have any questions, or problems with the attachment.

Thank you,

Elizabeth Enriquez
Administrative Secretary
Nye County NWRPO
2101 E. Calvada Blvd. Ste., 100
Pahrump, NV 89048
Direct (775) 727-3483
Office (775) 727-7727
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1

Nye County Nuclear Waste Repository Project Office (NWRPO), Commenter ID No. E32 (cont'd)

Nye County
Nuclear Waste Repository Project Office
2101 E. Calvada Blvd., Ste. #100 ? Pahrump, Nevada 89048
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ENCLOSURE

NYE COUNTY, NEVADA
COMMENTS

U.S. Department of Energy (DOE)
Draft Environmental Impact Statement (DEIS) for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste

GENERAL COMMENTS/OBSERVATIONS

1. Comment: The scoping meetings and call for scoping comments regarding the GTCC EIS occurred in 2007. The Yucca Mountain repository was identified as a potential alternative for GTCC disposal in the Notice of Intent that initiated this process. At the time the scoping meetings were held, it was expected that the license application (LA) for a Yucca Mountain repository would be submitted to the NRC by June 2008. Waiting four years to complete the Draft EIS is not acceptable, particularly given that, in the interim and without opportunity for comment, the Yucca Mountain repository was eliminated from consideration as an alternative for disposal of GTCC waste. This action was taken prior to resolution of issues raised over the past two years about the legality of Administration and DOE actions to terminate the project. Unless Yucca Mountain is included in the Final EIS as an alternative for GTCC disposal, scoping should be redone to inform the public of today's circumstances and to provide an opportunity for additional comment on the scope of the document.

   Rationale: Scoping hearings were held in 2007, a point in time where the DOE had announced that submittal of the LA for the Yucca Mountain repository, a specific alternative identified in the Notice of Intent for GTCC disposal, would take place less than one year later. The Draft GTCC EIS excludes the potential Yucca Mountain repository from consideration as a disposal option. There can be little doubt that those submitting scoping comments were aware of the Yucca Mountain repository program and the fact that the 2002 EIS for the repository had considered the potential impacts associated with disposal of the projected inventory of GTCC wastes in the repository, as well as rail transport of waste to the repository in large casks. Nuclear Regulatory Commission (NRC) regulations at 10 CFR 61.55(a)(2)(iv) state that for GTCC waste: . . . *In the absence of specific requirements in this part, such waste must be disposed of in a geologic repository as defined in part 60 or 63 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the Commission.* Removal from consideration of the only GTCC disposal alternative to address the relevant requirements for a geologic repository, 10 CFR Part 63 in the case of Yucca Mountain, has a significant negative impact on this Draft GTCC EIS and on the ability of the DOE to support selection of an alternative disposal method or site. This is especially true since there are lawsuits challenging the Secretary's abandonment of the Yucca Mountain site, which was approved by Congress in 2002 as the site for a repository, and termination of the repository program mandated under the NWPA. The Secretary has testified that if directed by the Courts or Congress he will execute the program as required by current law. As those submitting

E32-1

E32-1 The EIS considered the range of reasonable alternatives for disposal of the inventory of GTCC LLRW and GTCC-like wastes identified for inclusion in these analyses. The Secretary of Energy determined that a permanent repository for high-level waste and spent nuclear fuel at Yucca Mountain, Nevada, is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of the EIS. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

Nye County Nuclear Waste Repository Project Office (NWRPO), Commenter ID No. E32 (cont'd)

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GTCC Comments
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scoping comments could not have anticipated the current situation, the Draft GTCC EIS cannot be responsive to public perspectives on how the current situation affects issues related to GTCC disposal alternatives. Closure on the status of Yucca Mountain should be completed before the GTCC EIS goes forward and certainly prior to any decision on a disposal method or location by the DOE or Congress. Scoping should be redone if Yucca Mountain is not to be considered in order to provide an opportunity for informed public comment. E32-1 (Cont.)

2 **Comment:** The Draft GTCC EIS does not include adequate information on the alternatives evaluated. *This severely limits the scope and value of the potential comments that might be received* on the document.

Rationale: If the public is expected to provide meaningful comments on the alternative disposal methods and locations being considered for disposal facilities, it has a right to expect information giving adequate consideration to economic, environmental, technical, and other factors about the alternatives. The Draft EIS does not provide such information at a level appropriate to permit discrimination among the alternative disposal methods and facility locations, or among the potential combinations of disposal method and location. The document also provides no perspective about which alternative or alternatives the agency believes would best fulfill its statutory mission and responsibilities. Without a better indication of how the DOE intends to proceed, or more meaningful information that would allow discrimination among the alternatives, the public's ability to generate meaningful comments on the document is compromised. E32-2

3 **Comment:** It is not clear that NRC acceptance of the near-surface alternatives, namely trench or vault burial, for disposal of all GTCC wastes should be considered a foregone conclusion, or even the likely result of a licensing proceeding. At a minimum, the DOE should formally engage the NRC on this matter before recommending to Congress a path forward that the Commission ultimately may not support.

Rationale: The Draft GTCC EIS seems to be written from the perspective that the two relatively near-surface alternatives, namely trench and vault burial, will be acceptable to the NRC. The NRC regulations at 10 CFR Part 61 suggest otherwise. In 10 CFR 61.7(a)(5) the NRC states that: *Waste with concentrations above these* [class C] *limits is generally unacceptable for near-surface disposal.* It further states that: *[T]here may be some instances where waste with concentrations greater than permitted for Class C would be acceptable for near-surface disposal with special processing or design. These will be evaluated on a case-by case basis.* Although the NRC is willing to consider that in some instances waste with concentrations greater than permitted for Class C would be acceptable for near-surface disposal, there is no reason to assume that all GTCC wastes would qualify for this exemption, as appears to be the case in the Draft EIS. The NRC makes it clear in 10 CFR 61.55(a)(2)(iv) that: *[I]n the absence of specific requirements in this part, such waste* [GTCC waste] *must be disposed of in a geologic repository as defined in part 60 or 63 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the Commission.* Any recommendation by the DOE to Congress for a preferred disposal method that relies on an NRC finding that near-surface disposal of high-activity, long-lived GTCC LLW waste is generally acceptable is a risky position for the DOE to take. It would seem appropriate for the DOE to formally engage the NRC on this matter, to identify and resolve potential licensing issues related to E32-3

E32-2 The specific locations that would be used at each potential site for development of a disposal facility for GTCC LLRW and GTCC-like wastes are not known at this time. The use of "reference locations" was used in the EIS to allow for a quantitative assessment of the impacts that could occur at each site. While some parameters could change within a short distance, most would not. The migration of radionuclides from the GTCC LLRW and GTCC-like wastes placed into the conceptual disposal facility designs for the three land disposal methods was modeled (not all three methods were evaluated for each site). Site-specific information provided by technical staff from various sites that were evaluated was used in these modeling analyses to the extent it was available, and conservative assumptions were used to fill any remaining data gaps. While the computer model was largely developed to support environmental restoration activities, it has a number of features that make it a good choice for use in this EIS. The analysis presented in the EIS is adequate for the comparison of the disposal alternatives evaluated. Fate and transport parameters utilized in the estimations were based on site-specific (e.g., specific to the reference location to the extent available) information and, as such, are considered reasonable for the purpose of the comparison made in the EIS. However, DOE recognizes that additional project- and site-specific information, such as the actual depth to groundwater over the entire disposal area, could be used to inform the implementation of a disposal facility at a given location. This additional information is expected to reduce the uncertainty associated with these types of evaluations to the extent possible. Site-specific information would be evaluated in any site-specific NEPA review that would be conducted based on a ROD for this EIS.

The estimated costs associated with the construction and operation of GTCC waste disposal facilities at each of the sites – including costs for direct and indirect labor, equipment, materials, services, and subcontracts – are included in the assessment of each waste management alternative in the EIS. The cost estimates for the land disposal methods are based on a conceptual design of the disposal facility and could increase with actual implementation. Costs shown for WIPP are based on actual costs experienced to date and reflect construction and operation costs of an operating geologic repository. The economic analysis in the EIS addresses the potential economic impacts, including potential impacts resulting from in migration of workers or their families during the construction period, and any consequent impacts on housing, public finances, public service employment, and traffic.

E32-3 The LLRWPAA (P.L. 99-240) specifies that GTCC LLRW, designated a federal responsibility under section 3(b)(1)(D) that results from activities licensed by the NRC, is to be disposed of in an NRC-licensed facility that has been determined to be adequate to protect public health and safety. However, unless specifically provided by law, the NRC does not have authority to license and regulate facilities operated by or on behalf of DOE. Further, the LLRWPAA does not limit DOE to using only non-DOE facilities or sites for GTCC LLRW disposal. Accordingly, if DOE selects a facility operated by or on behalf of DOE for disposal of GTCC LLRW for which it is responsible under section 3(b)(1)(D), clarification from Congress would be needed to determine NRC's role in licensing such a facility and related issues. In addition clarification from Congress may be needed on NRC's role if DOE selects a commercial GTCC LLRW disposal facility licensed by an Agreement State rather than by NRC.

The NRC served as a commenting agency on the GTCC EIS and therefore did not actively participate in the preparation of the GTCC EIS. Issues associated with potential regulatory changes or NRC licensing would be addressed as necessary to enable implementation.

Nye County Nuclear Waste Repository Project Office (NWRPO), Commenter ID No. E32 (cont'd)

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this higher-activity, longer-lived LLW, before recommending to Congress a path forward that the NRC ultimately may not support, with the result that time and taxpayer dollars are wasted. E32-3 (Cont.)

4 **Comment:** The estimated volumes and activities of GTCC wastes that would result from the reprocessing of civilian and defense-related SNF are not included in the GTCC waste inventory, and hence, are not evaluated in the Draft EIS. Ongoing discussions in the scientific and regulated communities indicate that the volumes and activities of the resulting GTCC would be several times the amount analyzed in the Draft EIS.

Rationale: As described in the EIS, GTCC wastes are placed in one of two groups for purposes of analysis. "Group 1 consists of wastes that are either already in storage or are expected to be generated from existing facilities (such as commercial nuclear power plants). Group 2 consists of wastes that may be generated in the future as the result of actions proposed by DOE or commercial entities, such as wastes from proposed commercial reactors that have not been licensed or constructed. *Some or all of the Group 2 waste may never be generated, depending on the outcomes of proposed actions that are independent of this EIS.*" (*emphasis added*) There has been significant discussion recently regarding the potential role of reprocessing in the nuclear fuel cycle, both for recovery of the energy content of SNF and for its potential to reduce the volume and half-life of waste requiring deep geologic disposal. The NRC is in the early stages of developing its regulatory basis for licensing commercial reprocessing facilities. Ongoing discussions in the scientific and regulated communities indicate that the volumes and activities of the GTCC wastes that would result from the reprocessing of civilian and defense-related SNF would be several times the amount analyzed in this EIS. Estimates of the quantities of GTCC resulting from reprocessing were previously reported in the *Draft Global Nuclear Energy Partnership (GNEP) Programmatic Environmental Impact Statement (PEIS)* (DOE/EIS-0396, 2008). In light of these factors, the potential for generation of additional GTCC waste from reprocessing of SNF falls within the basis for defining the waste inventory considered in Group 2. The need to dispose of this additional waste is, therefore, a reasonably foreseeable action, the consequences of which must be considered in this EIS. The Draft GTCC EIS is deficient in that it fails to include this additional GTCC waste in the evaluation of potential impacts. E32-4

5. **Comment:** The Draft GTCC EIS assumes that the effective life of the intruder barriers will be 500 years, that the maximum concentration of radionuclides at the end of the 500 year period will be at a level that does not pose an unacceptable hazard to an intruder or to public health and safety, and that the GTCC waste form will be stable. A reasonable comparison among the proposed alternatives would require a meaningful demonstration that these requirements will be met by each of the various disposal method and site options. E32-5

Rationale: The Draft GTCC EIS does not address how the DOE intends establish a reasonable basis to assure decision makers that the selected disposal option (method and site) will be allowable under the 10 CFR Part 61 requirements if other than a repository disposal option is selected. It seems

E32-4 The GTCC LLRW and GTCC-like waste inventory evaluated in the EIS is based on the best available information on the stored and projected GTCC LLRW and GTCC-like wastes from ongoing and planned activities. The estimated 12,000 m^3 of GTCC LLRW and GTCC-like wastes is a relatively small volume of waste when compared to other wastes disposed of by DOE. For example, this volume of GTCC LLRW and GTCC-like wastes is only about 20% of the 59,000 m^3 of LLRW disposed of at one site (NNSS) in one year (fiscal year 2010). DOE canceled the *Draft Global Nuclear Energy Partnership Programmatic Environmental Impact Statement* (GNEP PEIS) (74 FR 31017); therefore, the generation of additional GTCC LLRW under GNEP is not anticipated. In addition, the inventory includes wastes expected to be generated during the production of Mo-99 for medical applications from two potential generators. While the potential generator(s) of this waste may change, the estimated characteristics and volumes are representative of the amounts expected to supply the demand for the Mo 99. DOE believes that expanding the inventory to include potential GTCC LLRW and GTCC-like wastes from undefined or unplanned future activities would introduce excessive uncertainty in the EIS evaluations. DOE believes that the inventory included in the GTCC EIS is reasonable for the purposes of the NEPA process and that it provides a supportable basis for conducting the EIS evaluation and the identification of the preferred alternative in the Final EIS. In the future, should additional waste be identified, appropriate NEPA review would be conducted to reflect these changes and also changes that would be needed to the existing infrastructure or the identification of additional disposal sites.

E32-5 DOE agrees that the GTCC waste disposal facility must ensure the protection of a hypothetical future inadvertent human intruder, especially for the wastes disposed of in an enhanced near surface trench. In the conceptual design for the trench disposal facility, the trenches are about 3 m (10 ft.) wide, 11 m (36 ft.) deep, and 100 m (330 ft.) long. The GTCC waste disposal placement is assumed to be about 5 to 10 m (16 to 33 ft.) below ground surface.

On the basis of the depth of waste disposal, DOE believes that the only reasonable potential for intrusion is from a future drilling event, such as drilling for a well. The likelihood of inadvertent intrusion from a drilling event would be very low for a GTCC waste trench disposal facility because of (1) the narrow width of the trench, (2) the use of intruder barriers, (3) the remoteness of the sites, (4) DOE's commitment to long-term institutional control, (5) site conditions such as the general lack of easily accessible resources and the great depth to groundwater, and (6) waste form stability. On the basis of these considerations, DOE did not include a quantitative analysis of inadvertent human intruder in the EIS. Site-specific NEPA reviews would be conducted as needed.

Potential inadvertent human intrusion into WIPP is addressed in the documentation supporting its current operations. Inclusion of GTCC LLRW and GTCC-like wastes with the wastes already planned for disposal in this repository would not be expected to change the results associated with this hypothetical intrusion event.

The LLRWPAA (P.L. 99-240) specifies that GTCC LLRW, designated a federal responsibility under section 3(b)(1)(D) that results from activities licensed by the NRC, is to be disposed of in an NRC-licensed facility that has been determined to be adequate to protect public health and safety. However, unless specifically provided by law, the NRC does not have authority to license and regulate facilities operated by or on behalf of DOE. Further, the LLRWPAA does not limit DOE to using only non-DOE facilities or sites for GTCC LLRW disposal. Accordingly, if DOE selects a facility operated by or on behalf of DOE for disposal of GTCC LLRW for which it is responsible under section 3(b)(1)(D), clarification from Congress would be needed to determine NRC's role in licensing such a facility and related issues. In addition clarification from Congress may be needed on NRC's role if DOE selects a commercial GTCC LLRW disposal facility licensed by an Agreement State rather than by NRC.

The NRC served as a commenting agency on the GTCC EIS and therefore did not actively participate in the preparation of the GTCC EIS. Issues associated with potential regulatory changes or NRC licensing would be addressed as necessary to enable implementation.

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reasonable that borehole disposition at sufficient depth might be acceptable to the NRC, particularly for disposal of sealed sources and if sealing requirements are addressed. However, it is not clear what will be required for the DOE to obtain NRC approval for other than repository disposal of higher-activity, longer-lived GTCC LLW given the lack in 10 CFR Part 61 of explicit requirements for licensing facilities based on near-surface disposal methods. The Draft EIS adopts a number of general assumptions about factors important to the performance of near-surface disposal facilities. It assumes that the effective life of the intruder barriers for these near-surface alternatives will be 500 years, that the maximum concentration of radionuclides at the end of the 500 year period will be at a level that does not pose an unacceptable hazard to an intruder or public health and safety, and that GTCC waste will be stable. A reasonable comparison among the proposed options would require a meaningful demonstration that the assumptions made regarding these factors are appropriate for each facility and site evaluated, to support an evaluation of compliance with applicable performance requirements. The potential issues and uncertainties associated with NRC approval of near-surface disposal facilities for GTCC LLW in the absence of explicit requirements for licensing such facilities should be discussed to better inform the decision process. It would also be appropriate to discuss the potential for use of different disposal methods based on the content of longer-lived radionuclides. E32-5 (Cont.)

6. **Comment:** Little information is presented that would allow local communities to understand how the projected transportation of GTCC waste would affect them.

   Rationale: While it is likely that the transportation risk calculations used reasonable assumptions about shortest transit times and interstate highways, there is no recognition that alternate routes likely would be specified, as is currently the case in Nevada, for example, for LLW and mixed LLW shipments coming to the Nevada National Security Site (NNSS). If the NNSS were selected as the site for a GTCC disposal facility, under existing agreements the shipments of GTCC waste would have to avoid Las Vegas and come through small rural communities to the NNSS, which is located entirely within Nye County. This would focus the burden for emergency response capability on local governments, including Nye County and surrounding rural counties, something that is not addressed in the Draft EIS. Similar situations are likely to exist for at least some of the other sites considered. E32-6

7. **Comment:** The Draft GTCC EIS does not address how likely changes to 10 CFR Part 61, including changes to the waste classification system and establishment of risk-informed/performance-based requirements, would affect decisions about the method or site selected for disposal and the compliance methodology required to support licensing.

   Rationale: The NRC has announced that it intends to propose changes to 10 CFR Part 61 to make it risk-informed and performance-based. One potential outcome is that the classification scheme for LLW could change. For example, the internationally accepted scheme for waste classification, IAEA Safety Standards Series No. GSG-1, *Classification of Radioactive Waste, General Safety Guide* (International Atomic Energy Agency, Vienna, 2009), does not have a classification for GTCC waste. The international approach to waste classification is based on consideration of the combination of activity content and half-life, with the longer-lived wastes requiring greater isolation. If the NRC E32-7

E32-6 As stated in Section C.9.4.1.1 of the EIS on route selection, many of the GTCC LLRW and GTCC-like wastes considered in the EIS would meet the definition of a highway route HRCQ (49 CFR 173.403). However, as noted in the discussion, states and Native American tribes have the opportunity to designate "preferred routes" to replace or supplement the interstate highway system. For those wastes not specifically designated as HRCQ, the selection of a route is left to the carrier, but in the case of GTCC LLRW and GTCC-like wastes, additional consultation with transportation stakeholders would occur.

DOE/NNSA analyzed various radioactive waste shipping routes through and around metropolitan Las Vegas, Nevada, in the Draft NNSS SWEIS. DOE/NNSA continued discussions with the State of Nevada on routing options throughout the preparation of the Final NNSS SWEIS. After taking into consideration the comments and concerns expressed by State, county, and local government officials and the public in general during the review and comment period for the Draft NNSS SWEIS, DOE/NNSA decided to maintain the current highway routing restrictions for shipments of low-level radioactive waste (LLW) and mixed-low level radioactive waste (MLLW), as described in the Waste Acceptance Criteria (WAC) for the site. DOE/NNSA explained this decision in the Final NNSS SWEIS. The unchanged WAC restrictions are to avoid (1) crossing the Colorado River near Hoover Dam and (2) the greater metropolitan Las Vegas interstate system. DOE/NNSA is not considering, nor is it making, changes to the NNSS WAC with regard to routing.

Once an alternative is selected in a ROD for this EIS, implementation will include, as needed and appropriate, NEPA reviews and other analysis (e.g., transportation).

E32-7 The likelihood of potential changes to existing regulations is outside the scope of the GTCC EIS.

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adopts a similar classification scheme (a possibility driven by potential incidental wastes associated with reprocessing), the classification of GTCC and, hence, the requirements governing disposal of these wastes could change significantly. The revised rule may also institute requirements for site-specific performance assessments of any disposal facility as one basis for assessing compliance with the performance objectives, as well as revised requirements for the evaluation of human intrusion. The potential issues associated with uncertain regulatory changes and how they might affect the decision process and schedule should be discussed to better inform decision-makers. E32-7 (Cont.)

8. **Comment:** The Draft GTCC EIS does not adequately treat the difficulty in requesting that Congress change the WIPP Land Withdrawal Act to permit disposal of GTCC waste of both commercial and defense origin in a facility approved only for disposal of defense-related TRU waste under EPA and State regulatory authority.

   Rationale: The WIPP Land Withdrawal Act and other applicable laws would need to be amended if the DOE recommends geologic disposal at the existing WIPP repository. The Draft GTCC EIS identifies this issue for the WIPP permits and Land Withdrawal Act, but does not provide an adequate discussion of the issues that would arise in the process of implementing such legislative changes, and the time required to implement these changes. One required change would be to amend existing laws to transfer regulatory authority over disposal of GTCC waste from the NRC to the EPA. There is an additional complication resulting from the Secretary's decision to abandon Yucca Mountain as an NRC-licensed repository, which resulted in the dismissal of Yucca Mountain from consideration in this Draft EIS as an alternative for geologic disposal of GTCC waste. There is no basis for concluding that the courts or, ultimately, Congress will support the Secretary's abandonment of Yucca Mountain, which is designated as the site for a geologic repository under the Nuclear Waste Policy Act. The Draft EIS needs to recognize and acknowledge the uncertainty introduced until the issues regarding Yucca Mountain are resolved to inform any decisions that may be made based on the evaluations in the document. It would be inappropriate to make a premature recommendation for a preferred path forward that is contingent on Congress changing the WIPP Land Withdrawal Act and potentially jeopardizing the existing permitted disposal activities at the WIPP should repository disposal at WIPP be selected as the preferred alternative. E32-8

9. **Comment:** The Draft GTCC EIS does not adequately discuss the potential impacts that might result from disposal in the WIPP of a greater volume of waste and nearly thirty times as much total radioactivity as are allowed under the WIPP Land Withdrawal Act and agreements with the State of New Mexico.

   Rationale: The Draft EIS correctly points out that the total capacity for disposal of TRU waste established under the WIPP Land Withdrawal Act is 175,675 m^3 (6.2 million ft^3). The Consultation and Cooperative Agreement with the State of New Mexico (1981) established a total remote-handled (RH) TRU capacity of 7,080 m^3 (250,000 ft^3), with the remaining capacity for contact-handled (CH) TRU at 168,500 m^3 (5.95 million ft^3). The Land Withdrawal Act limits the total radioactivity of RH waste to 5.1 million curies. For comparison, the GTCC RH volume is approximately 5,050 m^3 (178,000 ft^3) and the RH total radioactivity about 157 million curies. On the basis of emplaced and E32-9

E32-8 DOE acknowledges that the WIPP LWA limits disposal at WIPP to defense generated TRU waste. The use of WIPP was included as an alternative in the EIS because the use of this repository for GTCC LLRW and GTCC-like wastes is a reasonable approach. To protect public health and the environment, DOE intends to dispose of GTCC-like waste on the basis of its radiological and physical characteristics. It is recognized that WIPP cannot be used for the GTCC LLRW and GTCC-like waste inventory addressed in the EIS under current law. However, GTCC LLRW and GTCC-like wastes having characteristics similar to those of the defense-generated TRU wastes that are currently being disposed of at WIPP would be expected to managed in a manner that is generally comparable to that used for defense-generated TRU wastes to ensure the health and safety of the general public for the long term.

Should WIPP be selected in DOE's ROD as part of the approach for disposing of GTCC LLRW and GTCC-like waste legislative changes would be necessary prior to implementation. Although WIPP is not currently authorized to dispose of GTCC LLRW and GTCC-like wastes, NEPA does not preclude DOE from considering WIPP as a reasonable alternative for disposing of GTCC LLRW and GTCC-like wastes. The need for legislative modifications to enable WIPP to be used for the disposal of GTCC LLRW and GTCC-like wastes is identified and discussed in the EIS.

E32-9 The analysis of the WIPP repository in the GTCC EIS assumes that the entire GTCC LLRW and GTCC-like waste inventory identified in the EIS would be disposed of at that facility. Based on the results of the EIS evaluation for WIPP, both the annual dose and LCF risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCF risks during the first 10,000 years following closure of the WIPP repository. DOE recognizes that radioactivity from disposal of the entire GTCC LLRW and GTCC-like waste inventory at WIPP would greatly exceed the radioactivity in all the wastes that have been previously disposed of at WIPP. DOE considered the radioactivity of the GTCC LLRW and GTCC-like waste inventory in selecting the preferred alternative identified in the Final EIS.

Site-specific NEPA reviews would be conducted as needed to assure the safe operation of WIPP over the extended time period required for disposal of GTCC LLRW and GTCC-like wastes. Specific items to be considered would include the waste shaft and main underground haul route, and potential modifications to waste handling procedures and the Waste Handling Building would need to be evaluated.

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anticipated waste volumes, the disposal of all GTCC waste at WIPP would exceed the limits for RH volume by nearly a factor of two and RH total activity by a factor of 30. The WIPP LWA (P.L. 102-579) limits disposal in WIPP to defense-generated TRU waste, so modification of the WIPP Land Withdrawal Act to authorize acceptance of non-defense and non-TRU waste, increase the disposal capacity limit for total curies of RH waste, and change the Consultation and Cooperative Agreement to authorize an increase in the total volume of RH wastes would be required. The FEIS and SEIS for Yucca Mountain consider the potential impacts from emplacement of all GTCC wastes; the WIPP EIS does not. Not only would the WIPP Land Withdrawal Act need to be amended, the WIPP EIS would need to be supplemented as well if the volume and activity of radioactive waste were substantially increased. E32-9 (Cont.)

10) Comment: Alternative methods for disposal of GTCC waste, other than in a geologic repository, are considered on a general basis with respect to the range of options for a disposal site. The evaluation of the WIPP as the only geologic repository disposal alternative considered is both site- and facility-specific. No rationale is given for not considering other sites for a geologic repository for GTCC disposal.

Rationale: Alternative methods for disposal of GTCC waste, other than in a geologic repository, are considered on a general basis with respect to the range of options for a disposal site. The WIPP is the only geologic repository disposal alternative considered and the evaluation is both site- and facility-specific. A second geologic repository alternative identified in the Notice of Intent - the potential for disposal of GTCC waste in a Yucca Mountain repository - was eliminated following scoping on the basis of an Administration policy decision prior to the resolution of legal issues raised regarding this action. Under NEPA, a broader range of alternative sites should be considered for the geologic repository disposal alternative, or a rationale should be provided for only looking at an existing facility (or in the case of Yucca Mountain, a repository planned to be developed at a site designated by law). E32-10

11) Comment: The performance assessments described in the Draft GTCC EIS are based on a number of general assumptions about the key factors to which performance is most sensitive. Absent better information about the likely site- and design-specific values of the key parameters, the performance assessments provide little basis for decision-makers to select a preferred site or disposal alternative.

Rationale: The performance assessments described in the Draft GTCC EIS are based on a number of assumptions. The performance assessments assumed that: a) the engineering measures (e.g., a cover system) would remain intact for 500 years after the disposal facility is closed, b) after 500 years, the barriers would gradually fail, c) the water infiltration rate to the top of the waste disposal area would be zero for the first 500 years and then 20% of the natural rate for the area for the remainder of the period of calculation (10,000 years), and d) the natural background infiltration rate is appropriate to use at the perimeter of the waste disposal units. The performance assessments this are not true indicators of the potential differences in performance among the disposal methods and sites. More importantly, the sensitivity study performed indicated that the results were sensitive to the assumptions. In other words, if the assumptions prove to be incorrect, the likely performance would not be well constrained and might be worse than estimated. Absent better information about the E32-11

E32-10 The EIS considered the range of reasonable alternatives for the disposal of the GTCC waste inventory, including disposal in a deep geologic repository. DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

E32-11 The EIS analyses are based on conceptual engineering information and necessitated the use of a number of simplifying assumptions. This approach is consistent with NEPA, which requires such analyses to be made early in the decision-making process. The various land disposal conceptual designs were assumed to be constructed and operated in a comparable manner at each of the various sites. Information on the conceptual engineering designs for the three proposed land disposal methods is provided in Section D.3 of Appendix D in the EIS. By using the same conceptual designs at all of the sites evaluated in the GTCC EIS, except for cases where a design did not apply (e.g., an intermediate-depth borehole at a site with shallow groundwater), the potential impacts (e.g., radionuclides reaching the groundwater) at the different environmental settings could be readily compared.

DOE recognizes that modeling potential releases of radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. Sufficient detail was included in these designs for use in the EIS analyses, consistent with the current stage of this process. Some of the input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

DOE believes that 500 years is a realistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, as discussed in Section E.2.2, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS (Phifer et al. 2007) that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study.

The specific locations that would be used at each potential site for development of a disposal facility for GTCC LLRW and GTCC-like wastes are not known at this time. The use of "reference locations" was used in the EIS to allow for a quantitative assessment of the impacts that could occur at each site. While some parameters could change within a short distance, most would not. The RESRAD-OFFSITE computer code was used to model the migration of radionuclides from the GTCC LLRW and GTCC-like wastes placed into the conceptual disposal facility designs for the three land disposal methods (not all three methods were evaluated for each site). Site-specific information provided by technical staff from various sites that were evaluated was used in these modeling analyses to the extent it was available, and conservative assumptions were used to fill any remaining data gaps.

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likely site- and design-specific values of the key parameters, the performance assessments provide little basis for decision-makers to select a preferred site or disposal alternative. E32-11 (Cont.)

12. Comment: The Draft GTCC EIS does not present a substantiated basis to demonstrate that a near-surface disposal alternative could meet the likely performance required for GTCC wastes. There is also no substantive discussion of the uncertainty introduced by the current absence of defined performance and licensing requirements for disposal of GTCC waste in other than a geologic repository.

Rationale: The performance assessment results indicated that the peak annual dose would increase as the water infiltration rate increased. This result is not unexpected because when more water enters the waste disposal horizon, more radionuclides would be leached and released from the disposal facility. The increase in the peak dose is approximately proportional to the increase in the infiltration rate and indicates the need for a very effective cover to minimize the amount of infiltrating water that could contact the GTCC wastes. This is an important reason for the NRC position that GTCC wastes require greater disposal depths than class C LLW, with a geologic repository being the only currently accepted method for disposal method of these wastes. Rather than basing the potential selection of a disposal option on the assumed performance of a near-surface design, the decision maker ought to be presented with a technically-supported argument demonstrating that the cover for a near surface facility could meet the likely performance required for this class of waste before any decision is made on the preferred disposal method or siting option. The potential issues in licensing a near-surface disposal facility given the uncertainties associated with the current absence of defined performance and licensing requirements for disposal of GTCC waste in other than a geologic repository need to be discussed to inform the decision process. E32-12

13. Comment: The footprints for disposal alternatives other than disposal in the WIPP geologic repository are small, being only slightly larger than the area needed to accommodate the disposal and surface facilities. Since offsite dose is evaluated at the facility boundary, consideration should be given to applying concepts similar to the "controlled area" and "accessible environment," which are employed in assessing the performance of a geologic repository under 10 CFR Parts 60 and 63, to evaluating the safety of the near-surface disposal alternatives for GTCC waste.

Rationale: The NRC makes it clear in 10 CFR 61.55(a)(2)(iv) that: *[i]n the absence of specific requirements in this part, such waste* [GTCC waste] *must be disposed of in a geologic repository as defined in part 60 or 63 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the Commission.* In the absence of specific risk-informed, performance-based requirements in the current 10 CFR Part 61 for licensing facilities for disposal of GTCC waste in other than a geologic repository, it is important to engage the NRC in discussion of the acceptability of near-surface disposal methods and the criteria by which the safety of such facilities would be judged. Consideration of a controlled area with a maximum extent specified by rule and a requirement for monuments and a records system to preclude incompatible activities following closure provides explicit recognition that to ensure the safety of future generations a reasonable amount of land must be dedicated as a disposal zone and activities that might compromise E32-13

While the computer model was largely developed to support environmental restoration activities, it has a number of features that make it a good choice for use in this EIS. The analysis presented in the EIS is adequate for the comparison of the disposal alternatives evaluated. Fate and transport parameters utilized in the estimations were based on site-specific (e.g., specific to the reference location to the extent available) information and, as such, are considered reasonable for the purpose of the comparison made in the EIS. However, DOE recognizes that additional project- and site-specific information, such as the actual depth to groundwater over the entire disposal area, could be used to inform the implementation of a disposal facility at a given location. This additional information is expected to reduce the uncertainty associated with these types of evaluations to the extent possible. Site-specific information would be evaluated in any site-specific NEPA review that would be conducted based on a ROD for this EIS.

E32-12 As summarized in Section 2.7.4.2 and Table 2.7-3, the use of near-surface disposal alternatives at various locations could meet the performance requirements required for GTCC wastes.

The NRC served as a commenting agency on the GTCC EIS and therefore did not actively participate in the preparation of the GTCC EIS. Issues associated with potential regulatory changes or NRC licensing would be addressed as necessary to enable implementation.

E32-13 The proposed footprints used for the near-surface disposal facility concepts are consistent with current DOE operations. While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

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the performance of this zone must be precluded to the extent practicable. Such considerations can only be implemented through interactions with the NRC on the requirements for alternative disposal methods. Given that the NRC is planning to revise its LLW rule at 10 CFR Part 61, there should be an opportunity to include appropriate licensing criteria for disposal of long-lived LLW meeting the current GTCC definition. E32-13 (Cont.)

14. Comment: The Draft GTCC EIS does not recognize that removal of the sheet piling following trench disposal would create a fast pathway for water to infiltrate and contact the waste.

Rationale: The construction method described for the trench disposal option is a deep slit trench with the sides supported by sheet piling until after the trench is filled with waste and covered. The Draft EIS does not address the potential consequence to performance of removal of the sheet piling. As the sheet piling is removed loose soil would fill in the void created as the piling is pulled. This loose soil would create a preferential pathway for water to bypass the engineered cover of the trench and allow more water than the nominal (assumed) infiltration rate to contact the GTCC wastes. The potential consequences of such a scenario should be considered in the performance assessments. E32-14

15. Comment: The Draft GTCC EIS does not adequately address the potential impacts to historic artifacts or biological resources.

Rationale: The Draft GTCC EIS states that once a specific site (sites) is (are) selected for further consideration, the DOE plans to consult with other agencies, including the Advisory Council on Historic Preservation, the appropriate State Historic Preservation Officer(s), and pertinent Regional Fish and Wildlife Service Office(s). It is not clear how the Draft EIS can be said to have considered and addressed the associated impacts without identification and consideration of the more important site-specific issues likely to be encountered. E32-15

SPECIFIC COMMENTS/OBSERVATIONS

1. Section 1.3 on page 1-3 discusses a report that is required to be submitted to Congress. The report must, "... include a description of all alternatives under consideration ...." This Draft EIS is deficient in that is does not consider the Yucca Mountain repository as an alternative. Yucca Mountain was designated by Congress as the site for a repository in 2002, it was included as an alternative in the Notice of Intent for the GTCC EIS in 2007, and substantial legal uncertainty surrounds the ultimate resolution of Administration actions regarding the future of Yucca Mountain as a repository. There is no valid basis at present to exclude a Yucca Mountain repository as a reasonably foreseeable alternative for disposal of GTCC waste. E32-16

2. Section 1.5 gives a brief summary of the public scoping process. It notes that an Advance Notice of Intent was issued in 2005 and public scoping meetings were held in 2007. Now the Draft EIS is being issued four years later. It is unacceptable to wait two years after an E32-17

E32-14 The disposal facility conceptual design would be modified to complement the site and waste characteristics when implemented. Such details would be assessed in site-specific NEPA review. In the case of the removal of the sheet piling, the loose fill around the packages in the disposal trench would fill the gap and compaction of the fill over the entire area of the trench would be performed before emplacing the cover materials. Or the sheet piling could be left in place with the cover extending over the edge of the trench as defined by the location of the sheet piling. In either case, water infiltration would not have a preferential pathway (once through the cover materials). It would be dictated by the rate through the surrounding soil or the compacted backfill in the trench.

E32-15 Because the disposal sites were considered to be at reference locations, only existing information on historic artifacts and biologic resources was reviewed and assessed for each site. The selection of a specific site and location for disposal of waste following approval of the preferred alternative would take into consideration any sensitive areas and also result in consultations with the appropriate State Historic Preservation Officer and the U.S. Fish and Wildlife Service.

E32-16 The EIS considered the range of reasonable alternatives for the disposal of the GTCC waste inventory, including disposal in a deep geologic repository. The Secretary of Energy determined that a permanent repository for high-level waste and spent nuclear fuel at Yucca Mountain, Nevada, is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of the EIS.

E32-17 DOE disagrees that the scoping process should be redone. As noted in the EIS, the Secretary of Energy determined that a permanent repository for high-level waste and spent nuclear fuel at Yucca Mountain, Nevada, is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of this EIS. In terms of other circumstances, DOE acknowledged in the beginning of Chapter 4 of this EIS that two events occurred at WIPP in February 2014, one regarding a fire that involved an underground vehicle and the other regarding a radiological event. DOE plans to resume disposal operations at WIPP when it is safe to do so and the schedule for restart of limited operations is currently under review. DOE believes WIPP is still viable alternative for disposal of GTCC LLRW and GTCC-like waste and does not believe re-scoping is necessary.

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advanced notice of intent before scoping and four years after completion of scoping to complete a draft EIS. Scoping should be redone to inform the public of today's circumstances, which have changed dramatically and without opportunity for comment regarding the DOE's posture and actions concerning the role of Yucca Mountain in radioactive waste management. E32-17 (Cont.)

3. Section 1.6 purportedly lists other DOE NEPA activities related to the proposed actions for disposal of GTCC waste described in this Draft EIS. The Draft EIS is deficient in that is does not consider the Final EIS (2002) and Final Supplemental EIS (2008) for the Yucca Mountain repository. The potential impacts of disposal of GTCC waste in a Yucca Mountain repository were evaluated in these documents. Given the uncertainty surrounding resolution of the future of Yucca Mountain pending action by the courts and, ultimately, by Congress, a Yucca Mountain repository and the associated rail line must be considered among the proposed DOE NEPA actions under current law. E32-18

4. Chapter two lists alternatives considered in the Draft EIS. The scoping meetings in 2007 specifically called for the Yucca Mountain geologic repository to be considered as an alternative. This Draft EIS is deficient in that is does not consider the Yucca Mountain repository as an alternative and provides no valid basis under current law for its elimination. E32-19

5. Section 2.9.3.2 states that "DOE successfully demonstrated the use of borehole facilities to dispose of radioactive waste at NNSS (formerly NTS) during 1981 through 1989. The boreholes operated from 1984 through 1989 and received DOE waste similar to GTCC LLRW." The purported "success" of this facility may have been more in terms of lessons learned regarding potential issues associated with implementing borehole disposal, including issues related to: constructing and backfilling boreholes; thermally loading subsurface soils and geologic media; and combining volatile and thermal waste streams in the same borehole. Results of monitoring found that the wastes and daughter-products were not confined to the borehole and, shortly after disposal, were found to migrate from the borehole into the soil column, the principal transport mechanism being gaseous diffusion. There is also no discussion in the Draft EIS of constraints on use of the borehole disposal method under existing federal (and state) laws, specifically the Safe Drinking Water Act (SDWA) and the Underground Injection Control Regulations. Injection of radionuclides into the ground via injection wells is prohibited and boreholes may be considered as injection wells if used for disposal. Another Congressional action would be required to exempt this activity from the SDWA regulations. E32-20

6. Section 2.9.3.4 discusses construction and operating costs for the various disposal alternatives considered. Table 2.9.2-1 estimates that the construction cost for the WIPP would be $14 million. This represents an underestimate of the cost of the geologic repository alternative if implemented at any site other than WIPP, where a repository and surface facilities already exist (the same would be true for the construction cost at a Yucca Mountain repository if GTCC waste were to be disposed of in the same facility). The "green field" cost of a geologic repository at a new site would undoubtedly be prohibitive and preclude use of a E32-21

E32-18 The EIS considered the range of reasonable alternatives for the disposal of the GTCC waste inventory, including disposal in a deep geologic repository. The Secretary of Energy determined that a permanent repository for high-level waste and spent nuclear fuel at Yucca Mountain, Nevada, is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of the EIS. Shipping by rail to the NNSS was evaluated in the EIS.

E32-19 See E32-18 response.

E32-20 To better characterize the borehole demonstration at NNSS, the term "successfully" has been deleted from the referenced statement in Section 2.9.3.2, but it is accurate that this technology was implemented at NNSS as described. Text was added to indicate that the use of boreholes at NNSS may be subject to Underground Injection Control Regulations and other requirements.

E32-21 Estimated costs for implementing the various alternatives are given in this EIS to the extent that this information was available. A detailed cost evaluation is not required to be included in an EIS under NEPA. Detailed cost information could be provided in a future site-specific NEPA review, as needed.

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geologic repository as a disposal alternative, even though it is currently the only method approved by the NRC. The EIS should provide more perspective on the distinctions between the cost evaluation for geologic disposal at the WIPP and those for other disposal alternatives. E32-21 (Cont.)

7. Section 5.3.4.3 lines 43-45, page 5-65 the conclusion presented in that paragraph [As the distance would increase from 100 m (330 ft) to 500 m (1,600 ft), the maximum annual radiation dose would increase by more than 70%] is incorrect and is inconsistent with the argument presented. The dose should decrease under this argument. E32-22

8. The discussion of transportation in Section 9.1.9 is deficient because it does not consider rail access to the Yucca Mountain repository, which was evaluated in the Final EIS (2002) and Final SEIS (2008) for the repository. Even if GTCC disposal did not take place in Yucca Mountain, rail transportation to the NNSS should be considered as an alternative in the GTCC EIS because, under current law, Yucca Mountain is a reasonably foreseeable action that may impact GTCC disposal and should be considered under NEPA. The existence of rail access to a Yucca Mountain repository could substantially reduce the number of and potential impacts from shipments of GTCC waste to the NNSS. Note on p. 9-52, line 14, Caliente is in Lincoln County, Nevada, not in New Mexico. Caliente is also the location proposed for the start of the rail line to a Yucca Mountain repository. E32-23

9. Section 9.4.1.6 discusses future projects at the NNSS. It omits discussion of the Yucca Mountain repository even though the Yucca Mountain site is designated by current federal law as the site for a geologic repository and the project was funded in fiscal year 2011 through a series of Congressional continuing resolutions, at least through March 4. E32-24

10. Section 9.4.2 considers the potential impacts of the proposed action (GTCC disposal) "... in combination with the impacts of past, present, and reasonably foreseeable future actions" at the NNSS. It omits discussion of the Yucca Mountain repository even though the Yucca Mountain site is designated by current federal law as the site for a geologic repository and the project was funded in fiscal year 2011 through a series of Congressional continuing resolutions, at least through March 4. Given uncertainty about the legality of Administration actions regarding Yucca Mountain and pending action in the courts, the Yucca Mountain repository should be considered as a reasonably foreseeable action, the impacts from which would add to those from a separate action to dispose of GTCC waste in a near-surface facility on the NNSS. In addition, the cumulative impacts, primarily on Nye County, from transportation of both *CH* and *RH GTCC* waste to the NNSS, combined with the impacts from transportation of DOE LLW and mixed-LLW to the NNSS, as well as those from transportation of SNF and HLW to a Yucca Mountain repository, are not adequately addressed. The fact that rail access was planned to support operation of the Yucca Mountain repository should be considered in this evaluation as it could substantially reduce the potential impacts from transportation of GTCC waste to the NNSS for disposal. E32-25

E32-22 The text was corrected. "increase" was changed to "decrease."

E32-23 See response to E32-18 regarding a discussion on Yucca Mountain and its associated rail line as an alternative.

The text was corrected to note that Caliente is in Nevada.

E32-24 See response to E32-16.

E32-25 The Secretary of Energy determined that a permanent repository for high-level waste and spent nuclear fuel at Yucca Mountain, Nevada, is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of the EIS.

Nye County Nuclear Waste Repository Project Office (NWRPO), Commenter ID No. E33

#133

Nye County
Nuclear Waste Repository Project Office
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11-126-DL(L)

June 27, 2011

Mr. Arnold M. Edleman, EIS Document Manager
U.S. Department of Energy, GTCC EIS
Cloverleaf Building, EM-43
1000 Independence Avenue, SW,
Washington, DC 20585

RE: Notice of Availability of the Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste, and Notice of Public Hearings, 76 FR 10574, February 25, 2011.

Reference:
1. Notice of Intent to Prepare an Environmental Impact Statement for the Disposal of Greater-Than-Class-C Low-Level Radioactive Waste, 72 FR 40135, July 23, 2007
2. Letter from Gary Hollis, Chairman, Nye County Board of County Commissioners, to James L. Joyce, Document Manager, U.S. Department of Energy, December 4, 2007, submitting comments on the scope of the GTCC EIS

Dear Mr. Edleman:

Nye County appreciates the opportunity to submit comments on the Draft GTCC EIS. Nye County is host to the Nevada National Security Site (NNSS), one of the DOE sites explicitly considered in the Draft EIS as an alternative location for a facility for disposal of GTCC and GTCC-like waste (collectively referred to as GTCC waste in these comments). Nye County is also host to the Yucca Mountain site, which, under current law, is the designated site for development of a geologic repository for disposal of commercial spent nuclear fuel (SNF), DOE-owned SNF, and high-level waste (HLW) from defense nuclear activities. The Yucca Mountain repository was identified as an alternative for GTCC disposal in the 2007 Notice of Intent to prepare the GTCC EIS (Ref. 1), as noted in Nye County's scoping comments (Ref. 2). Although the governing laws have not changed, the Yucca Mountain repository was eliminated by the DOE from consideration in the Draft EIS as an alternative for disposal of GTCC waste.

Nye County has no inherent objection to consideration of the NNSS, or more appropriately a geologic repository at Yucca Mountain, for disposal of GTCC waste, subject to efforts to ensure that the health, safety, and economic well-being of the County and its residents are adequately protected, including receiving tangible benefits from the government's action (see Ref. 2). E33-1

However, there is significant uncertainty regarding a number of issues that are important to any decision by the DOE or Congress regarding selection of a method or site for GTCC disposal. E33-2

E33-1 (L302) Disposal of GTCC LLRW and GTCC-like waste will be in accordance with applicable statutes, regulations, and other requirements regarding the protection of the health, safety and economic well-being of the public.

E33-2 The scope of this EIS is adequate to inform decision-making for the disposal of GTCC LLRW and GTCC-like waste. Sufficient information is available to support the current decision-making process to identify (an) appropriate site(s) and method(s) to dispose of the limited amount of GTCC LLRW and GTCC-like waste identified in the EIS.

DOE believes that this EIS process is not premature and is in compliance with NEPA. On the basis of an assumed starting date of 2019 for disposal operations, more than half (about 6,700 m^3 [240,000 ft^3] of the total GTCC LLRW and GTCC-like waste inventory of 12,000 m^3 [420,000 ft^3]) is projected to be available for disposal between 2019 and 2030. An additional 2,000 m^3 (71,000 ft^3) would become available for disposal between 2031 and 2035. This information is presented in Figure 3.4.2-1. DOE believes this EIS is timely, especially given the length of time necessary to develop a GTCC waste disposal facility.

DOE developed this EIS to support a decision on selecting a disposal facility or facilities for GTCC LLRW and GTCC-like waste, to address legislative requirements, to address national security concerns (especially for sealed sources), and to protect public health and safety. The purpose and need for the proposed action, as discussed above, is stated in the EIS (Section 1.1). The scope of the EIS is focused on addressing the need for developing a disposal capability for the identified inventory of GTCC LLRW and GTCC-like wastes. DOE plans a tiered decision-making process, in which DOE would conduct further site-specific NEPA reviews before implementing an alternative ultimately selected on the basis of this EIS.

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The County believes that completion of this EIS, any report to Congress under Sec. 631(b)(1)(B) of the Energy Policy Act of 2005, and any decision on either a disposal method or location for a disposal facility are premature for the reasons documented below. Additional comments are provided in the enclosure. E33-2 (Cont.)

U.S. Nuclear Regulatory Commission (NRC) Regulations

Disposal of GTCC waste in a geologic repository is the only method currently approved by the NRC (10 CFR 61.55(a)(2)(iv)). Absent new regulatory direction or specific approval of an alternative method, any facility for disposal of GTCC waste must be licensed by the NRC under the regulations governing geologic disposal - either the general rule at 10 CFR Part 60, or the Yucca Mountain-specific rule at 10 CFR Part 63. Yet, with the elimination of Yucca Mountain from consideration, only one alternative for geologic disposal of GTCC waste is considered in the Draft EIS, the Waste Isolation Pilot Plant (WIPP) in New Mexico. The other alternative disposal methods and locations evaluated do not comply with current NRC requirements and any assumptions made by the DOE about the likelihood of obtaining an NRC license for an alternative disposal method are premature prior to interactions with the NRC to identify and resolve potential licensing issues associated with near-surface disposal of these higher-activity, longer-lived wastes.

The NRC will be revising its rule for disposal of low-level radioactive waste (LLW), 10 CFR Part 61, which establishes the current requirements for disposal of GTCC waste. The potential scope and impact of these revisions, which may include changes to the waste classification scheme and to the requirements applicable to licensing of LLW disposal facilities, on future decisions related to disposal of GTCC LLW waste cannot be known at this time. E33-3

The NRC also has indicated that the general rule for licensing geologic repositories, 10 CFR Part 60, needs to be revised. Any such revision is likely to incorporate the risk-informed, performance-based approach implemented in the Yucca Mountain-specific rule at 10 CFR Part 63 and in other recent NRC rules. The impact of such changes on licensing a geologic repository at any site other than Yucca Mountain is unknown.

At a minimum, the regulatory issues surrounding alternatives for GTCC disposal and the potential impacts of the uncertainties associated with these issues need to be fully discussed in the Final EIS so that both the DOE and Congress can make informed decisions.

Resolution of the Future of Yucca Mountain as a Geologic Repository

At scoping four years ago in 2007, the potential for disposal of GTCC waste in a geologic repository at Yucca Mountain was explicitly identified as an alternative. It was known at that time that the 2002 Final EIS for a Yucca Mountain repository (DOE/EIS-0250F) evaluated the potential impacts of including the projected inventory of GTCC waste in

E33-3 The Secretary of Energy determined that a permanent repository for high-level waste and spent nuclear fuel at yucca Mountain, Nevada, is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of the EIS. DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

The NRC served as a commenting agency on the GTCC EIS and therefore did not actively participate in the preparation of the GTCC EIS. Issues associated with potential regulatory changes or NRC licensing would be addressed as necessary to enable implementation.

The likelihood of potential changes to existing regulations is outside the scope of the GTCC EIS.

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the repository. This analysis was updated in the 2008 Supplemental EIS (DOE-0250F-S1). It was also known that the license application (LA) for the Yucca Mountain repository was scheduled to be submitted to the NRC in June 2008, so it was likely that at least one potential pathway would exist for GTCC disposal consistent with existing NRC requirements. In the Draft GTCC EIS, the alternative for disposal of GTCC waste in a geologic repository at Yucca Mountain was taken off the table prior to resolution of the regulatory and legal issues raised since the administration determined that Yucca Mountain was "not a workable option" and the DOE moved to withdraw its LA from NRC licensing review in 2010. The NRC's licensing board denied this motion on June 29, 2010. The issue has been under review by the Commission for nearly a year with no final decision.

Resolution of the future of Yucca Mountain as a geologic repository for disposal of SNF and HLW awaits action by the court and, ultimately, by Congress. Until the Nuclear Waste Policy Act (NWPA) is amended or repealed, Yucca Mountain is the site designated by law for a repository. Yucca Mountain is also the only alternative identified in the 2007 Notice of Intent that would satisfy existing NRC requirements for geologic disposal of GTCC waste. In records of decision based on the 2002 Yucca Mountain EIS, the DOE selected "mostly rail" as the preferred transportation alternative and the Caliente corridor as the preferred route for a rail line to the repository. These decisions were confirmed based on the 2008 Supplemental EIS for the repository and the EIS for the alignment for the rail line to the repository. The Yucca Mountain repository and rail system for transport of SNF and HLW were based on use of large transportation casks and disposal packages. Premature elimination of a Yucca Mountain repository from consideration has the effect of increasing the potential impacts from transportation of GTCC waste for disposal due to the need to use smaller casks to ship GTCC waste to the other alternative sites, which is likely to increase the number of shipments. E33-3 (Cont.)

At a minimum, disposal of GTCC waste in a repository at Yucca Mountain should be considered as an alternative in the GTCC EIS. The statutory basis for the inclusion of a Yucca Mountain repository consistent with current law should be discussed, together with uncertainties associated with decisions on the future of the repository, which await action by the court and, ultimately, by Congress.

Consideration of the WIPP as an Alternative

The WIPP, the only operating geologic repository in the U.S., is evaluated in the Draft EIS as an alternative for disposal of GTCC waste and is the only location evaluated in the Draft EIS for which the geologic disposal method is considered. There are several issues associated with consideration of the WIPP as an alternative for disposal of GTCC waste under the current statutory and regulatory framework. The disposal of GTCC waste is regulated by the NRC under the existing statutory framework. The WIPP is not licensed by the NRC; it is certified by the U.S. Environmental Protection Agency (EPA), consistent with the provisions of the WIPP Land Withdrawal Act of 1992. The WIPP E33-4

E33-4 Disposal of GTCC LLRW and GTCC-like wastes at WIPP is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

DOE acknowledges that the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) limits disposal at WIPP to defense generated TRU waste. The use of WIPP was included as an alternative in the EIS because the use of this repository for GTCC LLRW and GTCC-like wastes is a reasonable approach. To protect public health and the environment, DOE intends to dispose of GTCC-like waste on the basis of its radiological and physical characteristics. It is recognized that WIPP cannot be used for the GTCC LLRW and GTCC-like waste inventory addressed in the EIS under current law. However, GTCC LLRW and GTCC-like wastes having characteristics similar to those of the defense-generated TRU wastes that are currently being disposed of at WIPP would be expected to managed in a manner that is generally comparable to that used for defense-generated TRU wastes to ensure the health and safety of the general public for the long term.

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

Should WIPP be selected in DOE's ROD as part of the approach for disposing of GTCC LLRW and GTCC-like wastes, legislative changes would be necessary prior to implementation. Although WIPP is not currently authorized to dispose of GTCC LLRW and GTCC-like wastes, NEPA does not preclude DOE from considering WIPP as a reasonable alternative for disposing of GTCC LLRW and GTCC-like wastes. The need for legislative modifications to enable WIPP to be used for the disposal of GTCC LLRW and GTCC-like wastes is identified and discussed in the EIS.

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also requires a Resource Conservation and Recovery Act (RCRA) permit from the State of New Mexico.

To ensure that the WIPP can continue its current mission for disposal of defense-related TRU waste, this framework would need to be amended to transfer authority for regulation of GTCC waste from the NRC to EPA. Congressional action would be required. The use of the WIPP for disposal of GTCC waste also would require changes to the WIPP Land Withdrawal Act and the establishment of agreements with the State of New Mexico to permit disposal of other than defense-related transuranic waste (TRU). The limits on the radionuclide inventory permitted at the WIPP, currently about 5 million curies of remote handled waste, would need to be lifted to accommodate the approximately 160 million curies of GTCC waste estimated in the Draft EIS. This would require approval by Congress and the State of New Mexico. The Draft EIS does not adequately address these issues or the assumptions made with regard to the likelihood or timing of the major Congressional action to make the necessary legislative changes. E33-4 (Cont.)

The potential legal and regulatory challenges associated with selection of the WIPP for disposal of GTCC waste should be fully discussed. The nature and extent of the necessary legislative and regulatory changes, and changes to the agreements with the State of New Mexico should be described, together with the schedule impacts that would be likely to occur.

Acceptability of Alternative Disposal Methods for an NRC License

The two near-surface disposal methods considered as alternatives – trenches and vaults – would require approval from the NRC in a licensing proceeding on the merits of the selected disposal method at a specific site. The result of this process should not be considered to be a foregone conclusion, particularly in light of NRC plans to revise its LLW rule at 10 CFR Part 61. Such revisions would likely affect the waste classification system that is the basis for designating GTCC waste and the licensing requirements for LLW disposal facilities. As a result, any decisions made regarding use of either method at any of the alternative locations prior to interactions with the NRC and resolution of potential licensing issues for disposal of GTCC LLW is premature. Deep borehole disposal, particularly of sealed sources, would be more likely to be approved by the NRC because of the greater depths involved, but would still require a site-specific licensing proceeding, the outcome of which is not guaranteed. A full discussion of the regulatory issues and uncertainties involved in seeking NRC approval for the near-surface disposal alternatives for high-activity, long-lived LLW should be provided to better inform decisions by the DOE and Congress. E33-5

For the reasons stated above, Nye County believes that there is significant uncertainty regarding a number of issues that are critical to any decision by either the DOE or Congress regarding a method or site for GTCC disposal. The County believes that completion of this EIS, any report to Congress under Sec. 631(b)(1)(B) of the Energy Policy Act of 2005, and any decision on E33-6

E33-5 The LLRWPAA (P.L. 99-240) specifies that GTCC LLRW, designated a federal responsibility under section 3(b)(1)(D) that results from activities licensed by the NRC, is to be disposed of in an NRC-licensed facility that has been determined to be adequate to protect public health and safety. However, unless specifically provided by law, the NRC does not have authority to license and regulate facilities operated by or on behalf of DOE. Further, the LLRWPAA does not limit DOE to using only non-DOE facilities or sites for GTCC LLRW disposal. Accordingly, if DOE selects a facility operated by or on behalf of DOE for disposal of GTCC LLRW for which it is responsible under section 3(b)(1)(D), clarification from Congress would be needed to determine NRC's role in licensing such a facility and related issues. In addition clarification from Congress may be needed on NRC's role if DOE selects a commercial GTCC LLRW disposal facility licensed by an Agreement State rather than by NRC.

The NRC served as a commenting agency on the GTCC EIS and therefore did not actively participate in the preparation of the GTCC EIS. Issues associated with potential regulatory changes or NRC licensing would be addressed as necessary to enable implementation.

E33-6 See response to E33-2.

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either a disposal method or location are likely to be premature pending resolution of these issues. Additional comments are provided in the enclosure. E33-6 (Cont.)

Thank you for the opportunity comment on the Draft GTCC EIS.

Sincerely,

p.p L. Darrell Lacy, Director
Nye County Nuclear Waste Repository Project Office

Enclosure: Nye County, Nevada Comments

CC: Christine Gelles, Director, Office of Disposal Operations, EM-43
Scott Wade, Assistant Manager for Environmental Management, NS
Nye County BOCC

Nye County Nuclear Waste Repository Project Office (NWRPO), Commenter ID No. T46

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19 MR. BROWN: And following Darrell, I believe
20 that Ian Zabarte with the Western Shoshoni government.
21 So proceed.
22 MR. LACY: Thank you. My name is Darrell
23 Lacy, representing Nye County, Nevada.
24 (Reading) Nye County is the site county for
25 two of the potential disposal sites, one at Yucca

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Mountain or generic, the Nevada National Security Site. We appreciate the opportunity to provide these summary comments and observations. We would intend to provide detailed comments by the June deadline.

We feel this EIS, in general, has several deficiencies and does not meet the requirements of NEPA. When the scoping hearings on this EIS were held in 2007, DOE had announced that it would submit a license application for Yucca Mountain, and Yucca Mountain was one of the proposed sites, and the Draft Supplemental EIS for Yucca Mountain considered disposal of Greater-than-Class C waste in that repository. T46-1

Four years later now, this Draft EIS excludes Yucca Mountain from consideration. The amount of Greater-than-Class C waste considered in the scoping for this was based on a once-through fuel cycle that we're not on Yucca Mountain to handle any spent fuel. Changes that might come out of the Blue Ribbon Commission that would include possibly reprocessing, this could significantly increase the amount of Greater-than-Class C waste and should be addressed in alternatives. T46-2

NRC regulations require that, in the absence of specific approval by the Commission, Greater-than-Class C waste must be disposed of in a geologic

T46-1 The EIS considered the range of reasonable alternatives for the disposal of the GTCC waste inventory, including disposal in a deep geologic repository.

The Secretary of Energy determined that a permanent repository for high-level waste and spent nuclear fuel at Yucca Mountain, Nevada, is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of this EIS.

DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

The Blue Ribbon Commission (BRC) on America's Nuclear Future, in its final report to DOE on January 26, 2012, provided recommendations, which included the development of one or more permanent deep geologic facilities for the safe disposal of spent nuclear fuel and high-level radioactive waste and the development of one or more consolidated interim storage facilities as part of an integrated, comprehensive plan for managing the back end of the nuclear fuel cycle. In its Strategy for the Management and Disposal of Spent Nuclear Fuel and High Level Radioactive Waste (DOE 2013), developed in response to the BRC Report, the Administration agreed "that the development of geologic disposal capacity is currently the most cost-effective way of permanently disposing of used nuclear fuel and high-level radioactive waste while minimizing the burden on future generations" and proposed to "engage in a consent-based siting process and begin to conduct preliminary site investigations for a geologic repository." The Administration's goal is to have a repository constructed and its operations started by 2048. The Administration will work with Congress using the strategy as an actionable framework for building a national program for the management and disposal of the nation's used nuclear fuel and high-level radioactive waste (DOE 2013).

T46-2 The GTCC LLRW and GTCC-like waste inventory evaluated in the EIS is based on the best available information on the stored and projected GTCC LLRW and GTCC-like wastes from ongoing and planned activities. The estimated 12,000 m^3 of GTCC LLRW and GTCC-like wastes is a relatively small volume of waste when compared to other wastes disposed of by DOE. For example, this volume of GTCC LLRW and GTCC-like wastes is only about 20% of the 59,000 m^3 of LLRW disposed of at one site (NNSS) in one year (fiscal year 2010). Any potential nuclear fuel cycles involving advanced reactors or recycling of used fuel and the wastes associated with these activities are uncertain at this time and therefore not estimated in this EIS. DOE believes that expanding the inventory to include potential GTCC LLRW and GTCC-like wastes from undefined or unplanned future activities would introduce excessive uncertainty in the EIS evaluations. DOE believes that the inventory included in the GTCC EIS is reasonable for the purposes of the NEPA process and that it provides a supportable basis for conducting the EIS evaluation and the identification of the preferred alternative in the Final EIS. In the future, should additional waste be identified, appropriate NEPA review would be conducted as needed to reflect these changes and also changes that would be needed to the existing infrastructure or the identification of additional disposal sites.

Nye County Nuclear Waste Repository Project Office (NWRPO), Commenter ID No. T46 (cont'd)

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1 repository as defined in 10 CFR, Part 60 or Part 63.
2 The only two sites in this discussion that meet this
3 requirement are Yucca Mountain and/or
4 WIPP.
5 This type of waste is currently excluded from
6 WIPP by legislation and agreements with the state of
7 New Mexico and was not included in the WIPP EIS when it
8 was cited or in any characterization activities that
9 have been done at WIPP.
10 The WIPP Land Withdrawal Act limits the total
11 radioactivity of remote handled TRU waste to 5.1
12 million curies. For comparison purposes, the total
13 radioactivity of the Greater-than-Class C waste
14 discussed here is estimated to be 157 million curies.
15 Reprocessing could greatly increase the amount of this
16 Greater-than-Class C waste above what was discussed in
17 the scoping of this EIS. WIPP was not licensed by the
18 NRC, and any assumption that legislation or NRC
19 regulations will be changed to suit DOE for this
20 process for Greater-than-Class C are invalid.
21 Performance assessments described in Draft
22 GTCC EIS are based on a number of generic and
23 simplified assumptions. The performance assessments
24 are not true indicators of the differences in
25 performance among the various sites or even disposal

T46-3

T46-4

T46-3 Disposal of GTCC LLRW and GTCC-like wastes at WIPP is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

T46-4 The specific locations that would be used at each potential site for development of a disposal facility for GTCC LLRW and GTCC-like wastes are not known at this time. The use of "reference locations" was used in the EIS to allow for a quantitative assessment of the impacts that could occur at each site. While some parameters could change within a short distance, most would not. The RESRAD-OFFSITE computer code was used to model the migration of radionuclides from the GTCC LLRW and GTCC-like wastes placed into the conceptual disposal facility designs for the three land disposal methods (not all three methods were evaluated for each site). Site-specific information provided by technical staff from various sites that were evaluated was used in these modeling analyses to the extent it was available, and conservative assumptions were used to fill any remaining data gaps. While the computer model was largely developed to support environmental restoration activities, it has a number of features that make it a good choice for use in this EIS. The analysis presented in the EIS is adequate for the comparison of the disposal alternatives evaluated. Fate and transport parameters utilized in the estimations were based on site-specific (e.g., specific to the reference location to the extent available) information and, as such, are considered reasonable for the purpose of the comparison made in the EIS. However, DOE recognizes that additional project- and site-specific information, such as the actual depth to groundwater over the entire disposal area, could be used to inform the implementation of a disposal facility at a given location. This additional information is expected to reduce the uncertainty associated with these types of

Nye County Nuclear Waste Repository Project Office (NWRPO), Commenter ID No. T46 (cont'd)

40

1 methods. Absent better information about the key
2 parameters considered, the performance assessments
3 provide little basis for decisionmakers to select a
4 preferred site or disposal alternatives.
5 This EIS should wait until the Yucca Mountain
6 issues are resolved by the courts or legislation and
7 the Blue Ribbon Commission make their recommendation
8 and the votes are finalized; then the Greater-than-
9 Class C waste should go though a new scoping process,
10 based on the available alternative sites and/or amounts
11 of materials that needs to be disposed of.
12 Without appropriate assumptions and detailed
13 analysis of the realistic alternatives, this EIS is
14 faulty and does not meet the minimum requirements of
15 NEPA and the CEQ.
16 We will submit detailed comments by the June
17 deadline. Thank you.
18 (Whereupon Exhibit No. 5 was marked for
19 identification.)

T46-4 (Cont.)

T46-5

evaluations to the extent possible. Site-specific information would be evaluated in any site-specific NEPA review that would be conducted based on a ROD for this EIS.

T46-5 DOE developed this EIS to support a decision on selecting a disposal facility or facilities for GTCC LLRW and GTCC-like waste, to address legislative requirements, to address national security concerns (especially for sealed sources), and to protect public health and safety. The purpose and need for action, as discussed above, is stated in the EIS (Section 1.1). DOE believes that this EIS process is not premature and is in compliance with NEPA.

The Secretary of Energy determined that a permanent repository for high-level waste and spent nuclear fuel at Yucca Mountain, Nevada, is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of the EIS.

Oak Ridge Reservation Local Oversight Committee, Commenter ID No. L289

LOC INC
Oak Ridge Reservation
Local Oversight Committee

received
APR 22 2011

April 12, 2011

Arnold Edelman
EIS Document Manager
Office of Environmental Management
U.S. Department of Energy
Cloverleaf Building, EM-43
1000 Independence Avenue, SW
Washington, DC 30585

Subject: Comments on the Draft Environmental Impact Statement (EIS) for the Disposal of Greater-Than-Class- C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D)

Dear Mr. Edelman:

The Citizens' Advisory Panel (CAP) of the Oak Ridge Reservation (ORR) Local Oversight Committee (LOC) has reviewed the subject draft EIS. These comments have not been reviewed or endorsed by the LOC Board and should be attributed to the CAP only.

The ORR currently stores minor quantities of wastes that are considered GTCC-like (2.9 m^3 of activated metals and 4.0 m^3 of remote-handled [RH] "other waste" with a projected additional 130 m^3 of the latter) and is expected to generate significant quantities of both contact-handled and RH GTCC-like wastes in the future. It is important for DOE to have disposal capabilities for all types of radioactive waste generated either by cleanup or ongoing missions, as well as civilian sources of GTCC waste. ORR has taken responsibility for disposal of large quantities of low-level waste generated by Environmental Management cleanup activities and historically acted as a regional disposal site; however it is an unsuitable location for disposal of GTCC or GTCC-like wastes.

Although DOE does not specify a preferred alternative, choice of one or more disposal sites should evaluate geologic suitability, the degree of engineering required to ensure long-term site performance, and willingness of the host community (or communities). For reasons of equity, each selected host community should receive financial and in-kind compensation to offset the potential environmental damages, security and emergency planning needs, and harm to its image for hosting a major radioactive waste disposal site. L289-1 L289-2

Anderson • Meigs • Rhea • Roane • City of Oak Ridge • Knox • Loudon • Morgan

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L289-1 DOE agrees that geologic suitability, engineering to ensure long-term site performance, and willingness of the host community are important factors when selecting the preferred alternative. These factors were taken into consideration in the selection of the preferred alternative.

L289-2 Even though it is beyond the scope of this GTCC EIS, the comment is noted. This GTCC EIS addresses the potential environmental impacts associated with the proposed development, operation, and long-term management of a disposal facility or facilities for GTCC low-level radioactive waste (LLRW) and DOE GTCC-like waste.

Oak Ridge Reservation Local Oversight Committee, Commenter ID No. L289 (cont'd)

A. Edelman
04/12/11
Page 2 of 2

The CAP appreciates the opportunity to comment on the draft EIS.

Sincerely,

Norman A. Mulvenon

Norman A. Mulvenon
Chair, LOC Citizens' Advisory Panel

cc: LOC Document Register
LOC Board
LOC CAP
John Owsley, Director, TDEC DOE-O
John Eschenberg, Asst. Manager for EM, DOE ORO
Pat Halsey, FFA Coordinator, DOE ORO EM
Jeffrey L. Crane, EPA Region 4
Ron Murphree, Chair, ORSSAB
Amy Fitzgerald, Assistant City Manager, COR

The Oak Ridge Reservation Local Oversight Committee, Inc. (LOC) is a non-profit regional organization that reflects the interests of local communities regarding DOE's environmental management program and the operation of the Oak Ridge Reservation. The Board of Directors of the LOC is composed of the County Mayors/Executives of the seven counties surrounding or downstream of the Oak Ridge Reservation (representing over 600,000 residents), the Mayor of the City of Oak Ridge, the chair of the Oak Ridge Environmental Quality Advisory Board, and the chair of the LOC's Citizens' Advisory Panel (CAP). The CAP makes recommendations to the LOC board, the DOE, and state and federal regulators on technical and other matters of concern to local stakeholders.

Oregon Conservancy Foundation, Commenter ID No. T120

Capital Reporting Company 56

MR. BROWN: David Hess is next, and Martha Perez will follow.

MR. HESS: Hi. My name is David Hess, and I'm also a member of the Oregon Progressive Party. And, you know, I'm here, actually, tonight to speak on behalf of Lloyd Marbet, who unfortunately wasn't able to be here. But following on Greg's thought, you know, we've been recently told by the FBI that the threat of terrorism in this region was so great that we had to rejoin the Joint Terrorism Task Force. I mean, we just couldn't be separated from it.

But now the federal government wants to come in here and tell us, don't worry, it's completely safe to bring 12,000 moving terrorist targets through your region; I don't see a conflict.

But on behalf of Lloyd Marbet, I want to read this statement. He says: I, Lloyd Marbet, apologize for not being able to attend this meeting due to conflicting events in my schedule, and I appreciate Dave Hess reading this short statement in the record. I, and the Oregon Conservancy Foundation, would like to go on record in opposition to any storage of radioactive waste as Hanford. Hanford needs to completely clean up its own nuclear waste. T120-1

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T120-1 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup effort will continue.

Oregon Conservancy Foundation, Commenter ID No. T120 (cont'd)

Capital Reporting Company 57

We also wish to go on record opposing any licensing extension of the Columbia Generating Station Nuclear Plant with its continuing accumulation of nuclear waste on site. The recent nuclear diaster at Fukushima shows the failure in disaster planning for all the nuclear power plants. T120-2

So this DVD that I have been handing out tonight -- and I have plenty more if you haven't got one yet -- is entitled "At the Source." It has a four-part interview with Dr. Jan Sherman. She is author of Life's Delicate Balance and editor of "Chernobyl: The consequence of the catastrophe for people and the environment."

So the interview covers the book, the Chernobyl book, which is a recent study of the health effects of above-ground nuclear testing, and responses to Stewart Brand's book Whole Earth Discipline with its misguided promotion of the greening of nuclear power. And it also contains free copies of both of Dr. Sherman's books. I really highly recommend that you download them and you read them and give them to your friends.

So Lloyd wants to end by saying: We need to make a massive commitment to renewable energy in response to the growing impact of climate change. T120-3

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T120-2 Stopping the generation of nuclear waste (i.e., nuclear power) is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

T120-3 Comment noted. Commitments to renewable energy are not within the scope of the GTCC EIS.

Oregon Conservancy Foundation, Commenter ID No. T120 (cont'd)

Capital Reporting Company 58

1 The time to disinvest ourselves of nuclear power is
2 now.

T120-3 (Cont.)

Oregon Department of Energy, Commenter ID No. E70

From:	Niles, Ken <ken.niles@odoe.state.or.us>
Sent:	Monday, June 27, 2011 4:43 PM
To:	gtccei s@anl.gov
Cc:	Edelman, Arnold
Subject:	Oregon Legislative Action Related to GTCC Draft EIS
Attachments:	Oregon HJM_28.pdf

Arnie,

I wanted to submit a House Joint Memorial passed last week by the Oregon Legislature that addresses – in part – the draft GTCC EIS.

OREGON DEPARTMENT OF ENERGY

Ken Niles
Administrator, Nuclear Safety and Energy
Emergency Preparedness Division
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1

Oregon Department of Energy, Commenter ID No. E70 (cont'd)

76th OREGON LEGISLATIVE ASSEMBLY--2011 Regular Session

Enrolled

House Joint Memorial 28

Sponsored by Representatives BAILEY, BERGER; Representatives BARKER, BARNHART, BENTZ, BEYER, BOONE, BREWER, BUCKLEY, CAMERON, CANNON, CLEM, CONGER, COWAN, DEMBROW, DOHERTY, ESQUIVEL, FREDERICK, FREEMAN, GARRARD, GARRETT, GELSER, GILLIAM, GREENLICK, HARKER, HOLVEY, HOYLE, HUFFMAN, HUNT, JENSON, KENNEMER, KOMP, KOTEK, MATTHEWS, MCLANE, NATHANSON, NOLAN, READ, ROBLAN, SCHAUFLER, SHEEHAN, J SMITH, SPRENGER, THOMPSON, TOMEI, WAND, WEIDNER, WINGARD, WITT; Senators BURDICK, DEVLIN, DINGFELDER, HASS, JOHNSON, MONROE, PROZANSKI, ROSENBAUM, SHIELDS, VERGER

To the President of the United States and the Senate and the House of Representatives of the United States of America, in Congress assembled:

We, your memorialists, the Seventy-sixth Legislative Assembly of the State of Oregon, in legislative session assembled, respectfully represent as follows:

Whereas the federal government is currently considering the Hanford Nuclear Reservation for *disposal of highly radioactive waste from across the nation*; and

Whereas this is the sixth time since environmental cleanup began at Hanford that the federal government has proposed bringing radioactive waste, including highly radioactive waste, to Hanford for storage, disposal or both; and

Whereas Hanford is the site of the largest environmental cleanup program in the world, due to more than 40 years of generating waste during the production of plutonium for our nation's nuclear weapons program; and

Whereas millions of cubic feet of solid waste were disposed of improperly and placed in trenches and burial sites at Hanford and, because of this operation, Hanford is the most contaminated nuclear site in the United States today; and

Whereas more than 50 million gallons of radioactive waste are currently stored in underground tanks at Hanford, and approximately 440 billion gallons of less contaminated liquids have been discharged into the soil, creating an area of groundwater contamination of more than 80 square miles beneath the site; and E70-1

Whereas throughout the history of the site, extensive amounts of radioactive elements are known to have been released into the environment, some decaying over time but others remaining present due to their abundance and persistence, including strontium-90, plutonium, cesium-137 and technetium; and

Whereas the operations of the Hanford site have resulted in more than 43 million cubic yards of radioactive waste and more than 130 million cubic yards of contaminated soil and debris, representing two-thirds of the nation's high-level radioactive waste by volume; and

Whereas analysis by the United States Department of Energy shows persistent contamination in Hanford groundwater for thousands of years, even before accounting for additional waste disposal from off-site; and

Whereas existing cleanup efforts have been valuable, and there is still significant work needed in order to successfully rehabilitate the area; and

Whereas proposals to bring in additional waste to Hanford for disposal distract from and are contrary to the cleanup effort; and

Whereas Hanford is located along the Columbia River, just upriver from Oregon, where more than one million people live downriver in Portland, Hood River, The Dalles and other Oregon communities; and E70-2

E70-1 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

However, regardless of where the GTCC waste disposal facility is ultimately located, a relatively small amount of GTCC LLRW and GTCC-like wastes may be transported through the Columbia River Gorge on their way to the disposal facility. The waste would be generated within the states of Oregon and Washington and would include actinide sealed sources and Cs-137 irradiators from local medical institutions, research facilities, universities, and other NRC and Agreement State licensees.

DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup effort will continue.

E70-2 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

If DOE decides to implement its preferred alternative for the TC&WM EIS, GTCC LLRW and GTCC-like wastes would not be shipped through the Columbia River Gorge for disposal at the Hanford Site until the waste treatment plant is operational. However, regardless of where the GTCC waste disposal facility is ultimately located, a relatively small amount of GTCC LLRW and GTCC-like wastes may be transported through the Columbia River Gorge on their way to the disposal facility. The waste would be generated within the states of Oregon and Washington and would include actinide sealed sources and Cs-137 irradiators from local medical institutions, research facilities, universities, and other NRC and Agreement State licensees.

The transportation of radioactive waste will meet or exceed DOT and NRC regulations that promote the protection of human health and the environment. These regulations include requirements for radioactive materials packaging, marking, labeling, placarding, shipping papers, and highway routing. The waste shipments would be on preferred routes, which are interstate highways or alternative routes designated by a state routing agency in accordance with DOT regulations (49 CFR Part 397, Subpart D). The GTCC LLRW and GTCC-like wastes would be shipped in approved waste packages and transportation casks. The robust nature of these casks limits the potential release of radioactive and chemically hazardous material under the severest of accident conditions. It is unlikely that the transportation of GTCC LLRW and GTCC-like wastes to any of the alternative sites evaluated in the EIS would cause an additional fatality as a result of radiation from either incident-free transportation or postulated transportation accidents.

Oregon Department of Energy, Commenter ID No. E70 (cont'd)

Whereas besides river contamination, those who live along the interstate system would be adversely affected by Hanford's selection as a site for permanent storage of radioactive waste, due to vast increases in truckloads of radioactive waste traveling along interstate routes, passing through our cities; and E70-2 (Cont.)

Whereas in the past, statements describing the scope of disaster involved following a foreseeable accident associated with a site for storage of radioactive waste were often considered extreme, after the events at Fukushima, Japan, all recognize that such dire outcomes may not be so easily dismissed; now, therefore, E70-3

Be It Resolved by the Legislative Assembly of the State of Oregon:

(1) The United States Department of Energy is urged to remove the Hanford Nuclear Reservation from the list of candidate sites for national permanent disposal of radioactive waste, both now and in the future. E70-4

(2) A copy of this memorial shall be sent to the President of the United States, to the Senate Majority Leader, to the Speaker of the House of Representatives, to the Secretary of Energy and to each member of the Oregon Congressional Delegation.

Adopted by House June 16, 2011

Ramona Kenady Line, Chief Clerk of House

Bruce Hanna, Speaker of House

Arpie Roblan, Speaker of House

Adopted by Senate June 22, 2011

Peter Courtney, President of Senate

Enrolled House Joint Memorial 28 (HJM 28-A) Page 2

E70-3 Impacts from potential accidents and intentional destructive acts resulting in potential releases of radioactive material were considered in the GTCC EIS in Sections 5.3.4.2, 5.3.4.4, and 5.3.9.3.

E70-4 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

Oregon Department of Energy, Commenter ID No. E72

Oregon
John A. Kitzhaber, M.D., Governor

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June 22, 2011

Arnold Edelman, Document Manager
Greater-Than-Class C Low-Level Radioactive Waste EIS
Office of Technical and Regulatory Support (EM-43)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0119

Dear Mr. Edelman:

Oregon appreciates the opportunity to review the *Disposal of Greater-than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste Draft Environmental Impact Statement* (DOE/EIS-0375-D), February 2011. Last month, the Acting Director of this agency – in a joint letter with the Director of the Washington State Department of Ecology – expressed strong opposition to the potential selection of the Hanford Site for disposal of wastes examined in this draft EIS. That letter pointed out the incompatibility of adding highly radioactive and long-lived waste to Hanford's subsurface, while tens of billions of dollars are being spent on the current cleanup effort.

The comments that follow in this letter expand on that position and also raise other concerns with various proposals considered in the draft GTCC EIS. In addition, we recognize that simply opposing the selection of Hanford without providing some alternatives to consider is not useful input to this process, so we do provide some recommendations for how to deal with the wastes covered by this proposed action.

Conflicts with the Hanford cleanup mission

As the U.S. Department of Energy's (DOE) Environmental Management program is fully aware, the Hanford Site is home to immense contamination from more than 40 years of plutonium production for America's nuclear weapons program. Hanford is also home to the largest environmental cleanup endeavor in the world – a cleanup that is now expected to stretch well past the year 2050.

Since cleanup began at Hanford in 1989, we and others have been increasingly frustrated by repeated attempts by DOE to add waste not associated with Hanford to the substantial environmental burden that exists here and that will exist for hundreds and even thousands of years into the future. DOE's own analysis in the draft Tank Closure & Waste Management

E72-1

E72-1 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup effort will continue.

Oregon Department of Energy, Commenter ID No. E72 (cont'd)

(TC&WM) EIS, released in late 2009, found that even after cleanup is complete, waste already in Hanford's soil column will continue to contaminate Hanford's groundwater for thousands of years. Modeling in the draft TC&WM EIS clearly indicated that additional waste from off-site would have unacceptable environmental consequences, especially if that waste contained mobile and long-lived contaminants such as iodine 129 and technetium 99.

In addition, uranium contamination in the Hanford soils and groundwater far exceeds acceptable levels. Despite DOE's best efforts, attempts to treat these plumes have to date been unsuccessful. The continued movement of uranium through the vadose zone and into groundwater is predicted in the draft TC&WM EIS to be the dominant risk far exceeding allowable levels over the next 10,000 years and beyond. As such, new wastes containing uranium would aggravate an already massive cleanup effort and increase the scope of environmental contamination.

The draft GTCC EIS recognizes the iodine and technetium limitation (and to a lesser extent the uranium problems) at Hanford. It recognizes the moratorium on sending new waste to Hanford until at least 2022. It also recognizes that use of Hanford for disposal of this waste would result in far more transportation than for any of the other alternatives that were considered. Given all this – plus the efforts that are underway to clean up the site – we have to ask the question: Why hasn't Hanford already been eliminated from consideration for this action? E72-1 (Cont.)

The draft GTCC EIS says that Hanford and other DOE sites were evaluated on the basis of "mission compatibility" – that they have radioactive waste disposal as part of their ongoing mission. Importing highly radioactive waste and disposing of it in the shallow or intermediate subsurface at Hanford is not at all compatible with the cleanup mission. It is actually counter to the cleanup, as much of the Hanford cleanup mission is already devoted to retrieving waste from Hanford's shallow and intermediate subsurface. Adding new off-site wastes would only exacerbate an already challenging situation.

The draft GTCC EIS does not have a preferred alternative as DOE indicates it does not have a preference at this time. DOE is also awaiting further input from Congress, which directed DOE to conduct this EIS. However, it is DOE's responsibility to eliminate alternatives that are not reasonable or protective. Using Hanford for disposal of GTCC wastes is neither reasonable nor protective and Hanford should be removed from consideration as an alternative. E72-2

Geologic versus near-surface disposal

Federal law (10 CFR 61.55) is clear that GTCC waste "is generally not acceptable for near-surface disposal." Congress did allow that there may be some instances where GTCC waste would be acceptable for near-surface disposal with special processing or design. These would be evaluated on a case-by-case basis.

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E72-2 The EIS analysis is used to assess the viability of an alternative as well as its relative performance compared to the other alternatives. Exclusion of a reasonable alternative from the EIS without first evaluating the site is contrary to a thorough NEPA analysis. All alternatives are retained in the Final EIS because such evaluations are needed to support selection of the preferred alternative. In addition, as discussed in Section 1.4.2, the conceptual disposal facility designs analyzed in the EIS could be modified to perform better in specific locations. Thus, poor performance in the EIS analysis does not necessarily exclude an alternative from consideration.

Oregon Department of Energy, Commenter ID No. E72 (cont'd)

As DOE began this EIS process, the proposed high-level waste repository at Yucca Mountain was one of the options to be considered. DOE also planned to examine the existing geologic disposal site – the Waste Isolation Pilot Plant (WIPP) in New Mexico (even though current law forbids use of this facility for these wastes).

With the apparent demise of Yucca Mountain and the considerable level of uncertainty over America's plans for a high-level waste repository, DOE analyzed only WIPP for geologic disposal. Given that there is still the expectation that at some point the United States will site and construct a high-level waste repository, we strongly recommend that DOE analyze a "generic" repository in a medium other than salt (since DOE has already analyzed WIPP) for disposal of part or all of the wastes considered in this EIS. E72-3

DOE also went forward with examination of a range of alternatives of near-surface or intermediate-depth disposal. This wide-sweeping look at alternatives to deep geologic disposal would be difficult to justify on a case-by-case basis and suggests that long-term protectiveness may be overshadowed by efforts to reduce potential disposal costs. Decisions related to waste disposal should be commensurate with both the hazards posed by the wastes and with the time frames over which the waste remains dangerous. The uncertainty surrounding a national high-level waste repository should not lead to a premature decision to use less than protective alternatives.

From the risk analysis in the GTCC EIS, it is clear that trench and borehole disposal leads to impacts vastly exceeding regulatory standards at many of the sites considered. Despite these results, DOE has retained all of the sites and methods for consideration within the draft GTCC EIS. We believe the trench and borehole methods should be withdrawn from consideration. Experience with near-surface trenches at Hanford and around the DOE complex have shown repeatedly that steel containers rapidly degrade in the soil. This is not surprising, as the pH and humidity in Hanford and other soils is high, even though the moisture content is low. E72-4

Arid vs. Wet sites

At a high level, DOE argues that a major discriminator between sites is whether they are arid sites or wet sites. While it is true that the relative differences in rainfall and snow melt from site to site are important, this glosses over other major factors that can and often do outweigh this as a factor. For example: uranium is highly mobile when complexed with carbonate at above neutral pH. The arid sites all tend to be carbonate and silicate rich and to have high pH soils, which renders uranium highly mobile. Wet sites often have a lower pH and binding capacity that may render uranium far less mobile. In addition, wet sites are likely to have reducing conditions in soils, which can greatly affect mobility of radioisotopes and other contaminants. Technetium is likewise somewhat less mobile at wet sites, while it is completely and freely mobile at many E72-5

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E72-3 The EIS considered the range of reasonable alternatives for the disposal of the GTCC waste inventory, including disposal in a deep geologic repository. DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

DOE recognizes that disposal of GTCC LLRW and GTCC-like wastes in the WIPP geologic repository would require modification to existing law. In addition, it may be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with the EPA, and the WIPP Hazardous Waste Facility Permit.

E72-4 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

E72-5 DOE recognizes the importance of waste form and potential chemical reactions in the subsurface environment. As mentioned in Section 1.4.2, the land-disposal facilities considered are conceptual and generic in nature so as to evaluate site performance. As such, a uniform release rate after a given time period was assumed for each waste category across all land-disposal sites irrespective of environment. While contaminant release will be highly dependent on the interactions of the contaminant with the soil chemistry or environment, the conceptual designs could be altered or enhanced, as necessary, to provide the optimal application at a given location as mentioned in Section 1.4.2. When comparing results across sites, the post-closure analysis clearly shows the potential for subsequent migration downward through the unsaturated zone(s) to groundwater (the water table) in most cases is highly dependent on the amount of water available to move the contamination. In addition, the analysis also shows the importance of the interactions of the contaminant with the soil chemistry or environment which is reflected through the use and impact of site-specific distribution (partition) coefficients, otherwise known as Kd factors, such as in different locations within the unsaturated zone at the same site. Thus, based on the post-closure analysis, which attempts to provide a simulation of complex soil and groundwater processes, it was shown that arid sites generally performed better than wet sites. Selection of the preferred alternative took this finding into account along with other site-specific factors that included potential effects of interactions of the contaminant with the soil chemistry or environment.

Oregon Department of Energy, Commenter ID No. E72 (cont'd)

arid sites. DOE should not rely on the misleading simple attribute of water availability in comparing arid versus wet sites in its evaluations. E72-5 (Cont.)

Models

The GTCC EIS relies on the use of the RESRAD computer model suite. Experience in Hanford's 100 and 300 Areas demonstrated serious flaws in the model. DOE now uses the "Surface Transport over Multiple Phases" (STOMP-W) and MODFLOW modeling codes for Hanford groundwater modeling. Though STOMP has serious limitations, it is vastly superior to RESRAD. STOMP-W is the basis of the TC&WM EIS now under development at Hanford.

In responding to commenters who noted RESRAD's limitations and offered alternatives, DOE acknowledges RESRAD's inadequacies. DOE replied that precise answers are not required; that all that is needed is an ability to compare the alternatives. DOE does a disservice to the public in making this argument and in using a flawed model. Given the fact these wastes will pose a hazard for thousands of years, DOE should use the best model that is available, while also recognizing its limitations. E72-6

Recommendations for Wastes Covered in the EIS

Activated Metals

The activated metals included in the EIS present some unique challenges. They are very radioactive in the near term with intense gamma radiation from cobalt 60. Some of the reactor vessels and associated components are quite large, which raise challenges in transport and in disposal other than in a trench. The high levels of radiation would make it difficult for workers to safely cut the vessels into smaller pieces to make them easier to transport or dispose. However, the EIS points out that little of these materials are currently in storage. Most activated metals are expected to be generated in the future and in many cases not for several decades. There is therefore no urgency to designate a disposal path for this waste stream. DOE should consider placing these reactor vessels and related components in surface or near-surface *storage* pending 50 to 75 years of decay to eliminate the hazard from the cobalt 60, prior to appropriate final disposal within the regions in which they originate. E72-7

Sealed Sources

The sealed sources can pose an immediate hazard. They are potentially attractive for use by terrorists. These should be rapidly recovered by DOE and stored in a highly secure storage facility pending the siting and construction of a high-level waste repository suitable to receive

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E72-6 The RESRAD-OFFSITE code, like all codes, has limitations. This code was selected for the GTCC EIS analysis because of its manageable number of input parameters, its comprehensive transport analysis for radionuclides in the unsaturated zones and saturated zone, and its flexibility in accepting radionuclide release rates calculated outside the RESRAD-OFFSITE framework. Furthermore, the RESRAD-OFFSITE code has been benchmarked with other computer codes. The results obtained from the code are considered to be technically sound estimates.

Additional site-specific information, if available, and different models, if necessary, would be used in any site-specific NEPA review that would be conducted based on a ROD for this EIS.

E72-7 The recommendations given (storage of activated metals to reduce the hazard level, disposal of sealed sources in a deep geologic repository, and disposal of non-defense transuranic waste consistent with that for defense-related transuranic waste) were taken into consideration, as appropriate, in the selection of the preferred alternative.

Oregon Department of Energy, Commenter ID No. E72 (cont'd)

them. Proper disposal in a deep geologic repository is the most protective approach. Given the limitation on the waste that can be received at WIPP, this reinforces the need for the nation to develop a new repository.

Other Wastes

The EIS points out that many of the GTCC-like wastes have long-lived transuranic radionuclides and will remain hazardous for many thousands of years. Similar wastes are currently being disposed of in a geologic repository (WIPP) because of this concern. We recommend DOE (and the U.S. Nuclear Regulatory Commission) consider and treat defense and non-defense transuranic wastes in a comparable manner with comparable protection by disposing of this waste solely into a deep geologic repository. E72-7 (Cont.)

We do not have sufficient information to assess whether exhumation of the West Valley disposal areas should occur. However, if the decision is made to exhume those wastes, they should be disposed of consistently with similar materials and consistent with our comments above.

EIS Organization/Readability

The authors, writers and editors of the GTCC EIS have done a commendable job of producing a clear, concise and highly readable document. DOE staff also did a good job in providing direct and clear responses to comments provided during the scoping for this EIS.

We also commend DOE for working with Native American tribes in allowing them to provide their perspective throughout the draft EIS. However, in so recognizing the special relationship between Native people and the land and environment, it raises the expectation that DOE will fully consider this perspective in selecting a preferred alternative and moving forward with a decision that honors the Treaty-reserved rights of the tribes.

We look forward to working with DOE as it completes analysis of the GTCC EIS. If you have any questions or comments about our recommendations, please contact myself or Dirk Dunning of my staff at 503-378-3187.

Sincerely,

Ken Niles
Nuclear Safety Division Administrator

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Oregon Department of Energy, Commenter ID No. E72 (cont'd)

Cc: Matt McCormick, U.S. Department of Energy, Richland
Scott Samuelson, U.S. Department of Energy, Office of River Protection
Jane Hedges, Washington Department of Ecology
Dennis Faulk, U.S. Environmental Protection Agency
Stuart Harris, Confederated Tribes of the Umatilla Indian Reservation
Russell Jim, Yakama Indian Nation
Gabriel Bohnee, Nez Perce Tribe
Max Power, Chair, Oregon Hanford Cleanup Board
Susan Leckband, Chair, Hanford Advisory Board

6

Oregon Hanford Cleanup Board, Commenter ID No. E71

From:	Niles, Ken <ken.niles@odoe.state.or.us>
Sent:	Monday, June 27, 2011 4:39 PM
To:	gtccels@anl.gov
Cc:	Edelman, Arnold
Subject:	Comments on behalf of the Oregon Hanford Cleanup Board
Attachments:	Oregon Hanford Cleanup Board_GTCC comments.pdf

Attached are comments that are being submitted on behalf of the Oregon Hanford Cleanup Board.

OREGON DEPARTMENT OF ENERGY

Ken Niles
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Oregon Hanford Cleanup Board, Commenter ID No. E71 (cont'd)

OREGON HANFORD CLEANUP BOARD

June 27, 2011

Arnold Edelman, EIS Document Manager
Greater-Than-Class C Low-Level Radioactive Waste EIS
Office of Technical and Regulatory Support (EM-43)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0119

Dear Mr. Edelman:

The Oregon Hanford Cleanup Board (Board) appreciates the opportunity to comment on the *Disposal of Greater-than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste Environmental Impact Statement* (DOE/EIS-0375-D), February 2011. The Board was created by the Oregon legislature to provide advice on issues involving the Hanford nuclear site that affect Oregonians. The Board includes state agency representatives, legislators, a Tribal representative, and public members with a range of expertise and interests that include nuclear engineering and physical and environmental sciences.

The Board discussed the GTCC EIS during our meeting on June 23-24, 2011. As part of that discussion, we reviewed the June 22 comment letter submitted by the Oregon Department of Energy (ODOE) and also reviewed the discussion between Board leaders and the EIS Document Manager on May 19 in Portland. The Board concurs with several of the positions stated by ODOE. Without elaborating on these specific topics the board acknowledges the more detailed discussion by ODOE and advises that:

1. Importing additional waste to Hanford should be dropped from further consideration. Import of additional waste is clearly incompatible with the existing mission of Hanford cleanup. Moreover, as shown in this EIS and in the U.S. Department of Energy's (DOE's) 2009 draft Tank Closure and Waste Management EIS for the Hanford Site, import of some of the waste forms and use of disposal approaches proposed in this document is projected to result in groundwater contamination and risks that greatly exceed regulatory standards. E71-1
2. DOE should re-evaluate disposal options framed by this EIS. Analyses presented in the EIS show that disposal in trenches and boreholes is not protective of human health at Hanford or at other sites evaluated in the EIS. Consistent with federal regulation (10 CFR 61.55) we recommend that geologic disposal be regarded as the default disposal method for all E71-2

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E71-1 The GTCC EIS evaluates the transportation impacts from the shipments that would be required to dispose of the entire inventory of GTCC LLRW and GTCC-like wastes at the Hanford Site and all the other sites being evaluated.

The GTCC EIS evaluates collective population risks during routine conditions and accidents, radiological risks to the highest exposed individuals during routine conditions, and consequences to individuals and populations as a result of transportation accidents, including the release of radioactive or hazardous chemical materials. For the truck option, it is estimated that about 12,600 shipments resulting in about 50 million km (30 million mi) of travel would be required. This transport of GTCC LLRW and GTCC-like wastes would not result in any LCFs, although one fatality directly related to an accident might occur (see Section 6.2.9.1).

In addition, Chapter 6 of the TC&WM EIS also has evaluated cumulative impacts addressing disposal of potential future wastes (including GTCC LLRW and GTCC-like waste) at the Hanford site.

E71-2 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

Oregon Hanford Cleanup Board, Commenter ID No. E71 (cont'd)

GTCC wastes except on a case-by case basis where alternate disposal methods are shown to clearly be protective.

3. Sealed sources represent a significant existing security threat to the Uni States. We recommend that these materials be recovered expeditiously and stored by DOE in a highly secure site pending permanent repository storage.
4. Like wastes should be handled and stored in a like manner. The board believes that all defense and non-defense wastes with transuranic radionuclides should be regulated and disposed in a similar manner, with permanent disposal in a deep geologic repository.

E71-2 (Cont.)

In addition, the Board is concerned with the apparent lack of clear decision processes for evaluating alternatives for GTCC waste disposal. It is unclear which procedures will be used and how criteria will be applied in making decisions to select specific sites and disposal methods for ultimate disposal of the wastes considered in this EIS. It is important to avoid using decision techniques which are based on political considerations, when the optimal solutions will be found according to the objective standards of rigorous decision analysis.

To ensure broad public acceptance of the decisions reached in the final EIS, it is important to articulate and to apply a well-defined, transparent decision process that considers factors such as consistency with federal regulations and guidance, compatibility with ongoing site mission, short- and long-term protectiveness, community support, life-cycle costs, etc. We recommend that the final EIS include a formal decision analysis process (including identification of uncertainties, all relative parameters, and values/utilities), and that the preferred alternative be based on results of that formal decision analysis.

E71-3

We look forward to working with DOE as it completes analysis of the GTCC EIS. If you have questions or comments about our recommendations, please contact Dirk Dunning of the ODOE staff at 503-378-3187.

Sincerely,

Max Power, Chair

E71-3 The basis for DOE's selection of the preferred alternative is presented in Section 2.9 of the EIS and identified in Section 2.10.

Oregon Legislative Assembly, Commenter ID No. L299

76th OREGON LEGISLATIVE ASSEMBLY-2011 Regular Session

Enrolled

House Joint Memorial 28

Sponsored by Representatives BAILEY, BERGER; Representatives BARKER, BARNHART, BENTZ, BEYER, BOONE, BREWER, BUCKLEY, CAMERON, CANNON, CLEM, CONGER, COWAN, DEMBROW, DOHERTY, ESQUIVEL, FREDERICK, FREEMAN, GARRARD, GARRETT, GELSER, GILLIAM, GREENLICK, HARKER, HOLVEY, HOYLE, HUFFMAN, HUNT, JENSON, KENNEMER, KOMP, KOTEK, MATTHEWS, MCLANE, NATHANSON, NOLAN, READ, ROBLAN, SCHAUPLER, SHEEHAN, J SMITH, SPRENGER, THOMPSON, TOMEI, WAND, WEIDNER, WINGARD, WITT, Senators BURDICK, DEVLIN, DINGFELDER, HASS, JOHNSON, MONROE, PROZANSKI, ROSENBAUM, SHIELDS, VERGER

To the President of the United States and the Senate and the House of Representatives of the United States of America, in Congress assembled:

We, your memorialists, the Seventy-sixth Legislative Assembly of the State of Oregon, in legislative session assembled, respectfully represent as follows:

Whereas the federal government is currently considering the Hanford Nuclear Reservation for disposal of highly radioactive waste from across the nation; and

Whereas this is the sixth time since environmental cleanup began at Hanford that the federal government has proposed bringing radioactive waste, including highly radioactive waste, to Hanford for storage, disposal or both; and

Whereas Hanford is the site of the largest environmental cleanup program in the world, due to more than 40 years of generating waste during the production of plutonium for our nation's nuclear weapons program; and

Whereas millions of cubic feet of solid waste were disposed of improperly and placed in trenches and burial sites at Hanford and, because of this operation, Hanford is the most contaminated nuclear site in the United States today; and

Whereas more than 50 million gallons of radioactive waste are currently stored in underground tanks at Hanford, and approximately 440 billion gallons of less contaminated liquids have been discharged into the soil, creating an area of groundwater contamination of more than 80 square miles beneath the site; and

Whereas throughout the history of the site, extensive amounts of radioactive elements are known to have been released into the environment, some decaying over time but others remaining present due to their abundance and persistence, including strontium-90, plutonium, cesium-137 and technetium; and

Whereas the operations of the Hanford site have resulted in more than 43 million cubic yards of radioactive waste and more than 130 million cubic yards of contaminated soil and debris, representing two-thirds of the nation's high-level radioactive waste by volume; and

Whereas analysis by the United States Department of Energy shows persistent contamination in Hanford groundwater for thousands of years, even before accounting for additional waste disposal from off-site; and

Whereas existing cleanup efforts have been valuable, and there is still significant work needed in order to successfully rehabilitate the area; and

Whereas proposals to bring in additional waste to Hanford for disposal distract from and are contrary to the cleanup effort; and

Whereas Hanford is located along the Columbia River, just upriver from Oregon, where more than one million people live downriver in Portland, Hood River, The Dalles and other Oregon communities; and

L299-1

L299-1 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

However, regardless of where the GTCC waste disposal facility is ultimately located, a relatively small amount of GTCC LLRW and GTCC-like wastes may be transported through the Columbia River Gorge on their way to the disposal facility. The waste would be generated within the states of Oregon and Washington and would include actinide sealed sources and Cs-137 irradiators from local medical institutions, research facilities, universities, and other NRC and Agreement State licensees.

DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup effort will continue.

Oregon Legislative Assembly, Commenter ID No. L299 (cont'd)

Whereas besides river contamination, those who live along the interstate system would be adversely affected by Hanford's selection as a site for permanent storage of radioactive waste, due to vast increases in truckloads of radioactive waste traveling along interstate routes, passing through our cities; and L299-2

Whereas in the past, statements describing the scope of disaster involved following a foreseeable accident associated with a site for storage of radioactive waste were often considered extreme, after the events at Fukushima, Japan, all recognize that such dire outcomes may not be so easily dismissed; now, therefore, L299-3

Be It Resolved by the Legislative Assembly of the State of Oregon:

(1) The United States Department of Energy is urged to remove the Hanford Nuclear Reservation from the list of candidate sites for national permanent disposal of radioactive waste, both now and in the future. L299-4

(2) A copy of this memorial shall be sent to the President of the United States, to the Senate Majority Leader, to the Speaker of the House of Representatives, to the Secretary of Energy and to each member of the Oregon Congressional Delegation.

Adopted by House June 16, 2011

Ramona Kenady Line, Chief Clerk of House

Bruce Hanna, Speaker of House

Arnie Roblan, Speaker of House

Adopted by Senate June 22, 2011

Peter Courtney, President of Senate

Enrolled House Joint Memorial 28 (HJM 28-A) Page 2

L299-2 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

If DOE decides to implement its preferred alternative for the TC&WM EIS, GTCC LLRW and GTCC-like wastes would not be shipped through the Columbia River Gorge for disposal at the Hanford Site until the waste treatment plant is operational. However, regardless of where the GTCC waste disposal facility is ultimately located, a relatively small amount of GTCC LLRW and GTCC-like wastes may be transported through the Columbia River Gorge on their way to the disposal facility. The waste would be generated within the states of Oregon and Washington and would include actinide sealed sources and Cs-137 irradiators from local medical institutions, research facilities, universities, and other NRC and Agreement State licensees.

The transportation of radioactive waste will meet or exceed DOT and NRC regulatory requirements that promote the protection of human health and the environment. These regulations include requirements for radioactive materials packaging, marking, labeling, placarding, shipping papers, and highway routing. The waste shipments would be on preferred routes, which are interstate highways or alternative routes designated by a state routing agency in accordance with DOT regulations (49 CFR Part 397, Subpart D). The GTCC LLRW and GTCC-like wastes would be shipped in approved waste packages and transportation casks. The robust nature of these casks limits the potential release of radioactive and chemically hazardous material under the severest of accident conditions. It is unlikely that the transportation of GTCC LLRW and GTCC-like wastes to any of the alternative sites evaluated in the EIS would cause an additional fatality as a result of radiation from either incident-free transportation or postulated transportation accidents.

L299-3 Impacts from potential accidents and intentional destructive acts resulting in potential releases of radioactive material were considered in the GTCC EIS in Sections 5.3.4.2, 5.3.4.4, and 5.3.9.3.

L299-4 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

Oregon Physicians for Social Responsibility, Commenter ID No. E46

From: John Howieson <howiesoj@comcast.net>
Sent: Wednesday, June 22, 2011 11:41 AM
To: gtcceis@anl.gov
Subject: Comment on Draft EIS for disposal of GTCC waste:

Comment on Draft EIS for disposal of GTCC waste:

Oregon Physicians for Social Responsibility concurs completely with comments submitted by U.S. Senators Wyden and Merkley, Oregon Nulear Safety Division Director Ken Niles and Portland Mayor Sam Adams opposing shipping of GTCC waste to the Hanford reservation. E46-1 After more than 20 years of cleanup effort at a cost of man billions of dollars it would be counterproductive to add to the burden of cleanup of this site. E46-2 In addition there are dangers attendant to transport of these highly radioactive materials that make this an unacceptable alternative. E46-3 As stated by Senator Wyden, this alternative should not have been included in the draft EIS.

John Howieson, MD

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E46-1 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup effort will continue.

E46-2 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

The EIS evaluates the transportation impacts from the shipments that would be required to dispose of all of the GTCC LLRW and GTCC-like wastes at each of the reference locations evaluated. The EIS addresses the collective population risks during routine conditions and accidents, the radiological risks to the highest exposed individuals during routine conditions, and the consequences to individuals and populations as a result of transportation accidents, including those that could release radioactive or hazardous chemical contaminants. The EIS also evaluated the impact of intentional destructive acts that could occur during waste handling, transportation, and disposal (see Section 2.7.4.3 of the EIS). The potential risk of such destructive acts is estimated to be low. DOE sites considered in the EIS are secure, and the packaging for the GTCC LLRW and GTCC-like wastes would be robust. Because GTCC LLRW and GTCC-like wastes are not readily dispersible, the potential physical impacts from an intentional destructive act (e.g., an explosive blast) would be no greater than those from the release of any radioactivity from a severe accident during waste handling, transportation, and disposal.

DOE's requirements for transportation of radioactive waste are developed and continually revised to ensure maximum protection of public health and the environment, thereby minimizing the risk of a traffic accident. DOE has established a comprehensive emergency management program that provides detailed, hazard specific planning and preparedness measures to minimize the health impacts of accidents involving loss of control over radioactive material or toxic chemicals. DOE's transportation emergency preparedness program was established to ensure that DOE and its contractors, state, tribal, and local emergency responders are prepared to respond promptly, efficiently, and effectively to accidents involving DOE shipments of radioactive materials. Should an accident occur that involves a release of radioactive material to the environment, it would be promptly remediated in accordance with these procedures. These measures would help DOE to minimize and mitigate any impacts on the environment.

E46-3 The EIS analysis is used to assess the viability of an alternative as well as its relative performance compared to the other alternatives. Exclusion of a reasonable alternative from the EIS without first evaluating the site is contrary to a thorough NEPA analysis. All alternatives are retained in the Final EIS because such evaluations are needed to support selection of the preferred alternative. In addition, as discussed in Section 1.4.2, the conceptual disposal facility designs analyzed in the EIS could be modified to perform better in specific locations. Thus, poor performance in the EIS analysis does not necessarily exclude an alternative from consideration.

Oregon Progressive Party, Commenter ID No. T133

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6 MR. BROWN: David Hess will follow Gregory.
7 MR. KAFOURY: Hi. I'm Greg Kafoury. I'm here
8 for the Oregon Progressive Party.
9 Why do we have to tolerate torture, black sites,
10 a government that listens to our phone calls, that
11 tracks our e-mails? Terrorism. Why do we have to
12 subject our children to being sexually abused at
13 airports? You have heard about the terrorists,
14 haven't you?
15 Now we're going to have to eat other people's
16 nuclear waste because of terrorism. Somebody is
17 going to get this stuff and make a dirty bomb. Well,
18 really? Ninety-eight percent of the radioactivity is
19 encased in steel. It's irradiated metal. What are
20 they going to do with that? Put it in the air?
21 Dissolve it in the water? Who you kidding?
22 You know, if somebody wants to hurt us -- and
23 our national security state is very busy dreaming up
24 plots to entrap more stupid people in so they can
25 parade them before press conferences and try and

T133-1

T133-1 Comment noted.

Oregon Progressive Party, Commenter ID No. T133 (cont'd)

Capital Reporting Company 55

1 scare us all. If you really want to hurt us, it's
2 really easy to do. All you have to do is climb over
3 a cyclone fence and slap some dynamite or plastique
4 to the side of one of these chemical plants.
5 You know, the highly respected GAO, the
6 government's investigative arm, in 2003 reported
7 there were 700 sites, chemical sites, where an
8 explosion could kill as many as a hundred thousand
9 people. There were many where you could kill a
10 million people. It's not that tough to do. Congress
11 investigated this. The chemical industry came in and
12 said, Well, we don't need federal regulation. Just
13 let us create some voluntary standards.
14 Congress said, Well, that's okay. Because the
15 chemical industry is the evil twin of the nuclear
16 industry when it comes to running Congress. And now
17 they try to scare us with a dirty bomb? Who are you
18 kidding? The truth is, we got rid of our nuclear
19 installation, the Trojan Nuclear Plant. A lot of the
20 people in this room worked for 15 years to make it
21 happen, and we backed them over the edge, didn't we?
22 Well, you know what? If there's one place that
23 doesn't deserve to get the poison pill, it's the
24 state of Oregon. And we are the big city near the
25 Columbia River. We are the big city downwind from

T133-2

866.488.DEPO
www.CapitalReportingCompany.com

T133-2 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

Oregon Progressive Party, Commenter ID No. T133 (cont'd)

Capital Reporting Company 56

1 Hanford. Not here.

T133-2 (Cont.)

Oregon State Legislature, Commenter ID No. W69

From: gtcceiswebmaster@anl.gov
Sent: Tuesday, May 24, 2011 10:28 AM
To: mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtcceis@anl.gov
Subject: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10069
Attachments: HanfordLetter_OregonLeg_GTCC10069.pdf

Thank you for your comment, Jules Bailey.

The comment tracking number that has been assigned to your comment is GTCC10069. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: May 24, 2011 10:28:03AM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10069

First Name: Jules
Last Name: Bailey
Organization: Oregon State Legislature
Address: 900 Court St. NE
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State: OR
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Privacy Preference: Don't withhold name or address from public record
Attachment: HanfordLetter_OregonLeg.pdf

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

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Oregon State Legislature, Commenter ID No. W69 (cont'd)

May 23, 2011

Secretary Steven Chu
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Arnold Edelman
GTCC EIS Document Manager
Office of Disposal Operations (EM-43)
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Secretary Chu and Mr. Edelman:

As State Legislators representing Portland, Oregon, we urgently and respectfully ask that the Hanford Nuclear Reservation be removed from the U.S. Department of Energy's list of candidate sites for national permanent storage of radioactive waste.

While we recognize the need for energy resources and proper storage of waste, Hanford Nuclear Reservation is not a viable option. We believe that there are important unresolved matters that demand further scrutiny before the site is committed to further storage of nuclear waste. W69-1

The Dept. of Energy is already engaged in one of the largest and most complex cleanup projects in U.S. history at Hanford. For forty years, millions of cubic feet of solid waste were disposed of improperly, placed in trenches and burial sites. W69-2

W69-1 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE also conducted a generic evaluation of commercial disposal facilities on nonfederal lands in the EIS to order to provide, to the extent possible, information regarding the potential long-term performance of other (nonfederal) locations for siting a GTCC waste land disposal facility.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

W69-2 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup effort will continue.

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

DOE believes that the analyses presented in the EIS are sufficient to compare the potential cumulative impacts of GTCC LLRW and GTCC-like waste disposal for the sites that were evaluated. In particular, existing concentrations of various radionuclides in contaminated soil and groundwater at the candidate sites were taken into consideration in the selection of the preferred alternative. Additional cumulative impact analyses would be conducted in site-specific NEPA reviews, if needed, for the alternative selected in a ROD. Such follow-on analyses would be based on additional site-specific information.

Oregon State Legislature, Commenter ID No. W69 (cont'd)

Because of this operation, Hanford is today the most contaminated nuclear site in the United States.

Currently, more than 50 million gallons of radioactive waste are stored in underground tanks. Approximately 475 billion gallons of less-contaminated liquids have been discharged into the soil, creating an area of groundwater contamination in excess of 100 square miles beneath the site.

Throughout the history of the site, over 65 radioactive elements are known to have been released into the environment. While some have decayed over time, others remain present due to their abundance and persistence. These include strontium-90, tritium, cesium-137, and cobalt-6. W69-2 (Cont.)

The operations of the Hanford Site have resulted in more than 43 million cubic yards of radioactive waste, and over 130 million cubic yards of contaminated soil and debris. This represents two-thirds of the nation's high-level radioactive waste in volume. Although existing efforts have been valuable, there is still significant work needed in order to successfully rehabilitate the area.

Hanford is just across the Columbia River from Oregon and is the most contaminated site in the Western Hemisphere. With over one million people living downriver in Portland, Hood River, The Dalles and other Oregon cities and towns, the contamination also exists within our communities.

The existing situation is perilous enough without adding further waste. Besides the river contamination, those living along the interstate system will be affected much more directly. If Hanford is selected, we will begin to see truckloads of radioactive waste traveling along interstate routes, passing through our cities. W69-3

Although not included in recent drafts of the Environmental Impact Statement, a 2008 USDOE study estimated 800 deaths would occur due to ambient radiation from the transport vehicles alone. This does not include the unimaginable number of deaths from a truck accident, earthquake or intentional attack that could happen in or near the centers of our population.

Another study vetted by nuclear scientists in 2004, indicated up to 57 square miles could be rendered uninhabitable, wiping out much of the City of Portland if an accident were to occur at the confluence of I-84 and I-205. While in the past, this was considered an extreme statement, after the events at Fukushima, no one can be so quick to dismiss such a possibility.

We, the undersigned, urge you to immediately remove Hanford from the list of candidate sites. W69-4

W69-3 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

However, regardless of where the GTCC waste disposal facility is ultimately located, a relatively small amount of GTCC LLRW and GTCC-like wastes may be transported through the Columbia River Gorge on their way to the disposal facility. The waste would be generated within the states of Oregon and Washington and would include actinide sealed sources and Cs-137 irradiators from local medical institutions, research facilities, universities, and other NRC and Agreement State licensees.

The transportation of radioactive waste will meet or exceed DOT and NRC regulatory requirements that promote the protection of human health and the environment. These regulations include requirements for radioactive materials packaging, marking, labeling, placarding, shipping papers, and highway routing. The waste shipments would be on preferred routes, which are interstate highways or alternative routes designated by a state routing agency in accordance with DOT regulations (49 CFR Part 397, Subpart D). The GTCC LLRW and GTCC-like wastes would be shipped in approved waste packages and transportation casks. The robust nature of these casks limits the potential release of radioactive and chemically hazardous material under the severest of accident conditions. It is unlikely that the transportation of GTCC LLRW and GTCC-like wastes to any of the alternative sites evaluated in the EIS would cause an additional fatality as a result of radiation from either incident-free transportation or postulated transportation accidents.

The EIS evaluated the transportation impacts from the shipments that would be required to dispose of all of the GTCC LLRW and GTCC-like wastes at the various disposal sites. The EIS addressed the collective population risks during routine conditions and accidents, the radiological risks to the highest exposed individuals during routine conditions, and the consequences to individuals and populations as a result of transportation accidents, including those that could release radioactive or hazardous chemical materials. About 12,600 shipments would be required to transport all of the GTCC LLRW and GTCC-like wastes to the Hanford Site for disposal. This would result in about 50 million km (30 million mi) of highway travel, with no expected LCFs. One fatality directly related to an accident might occur (see Section 6.2.9.1).

The EIS also evaluated the impact of intentional destructive acts that could occur during waste handling, transportation, and disposal (see Section 2.7.4.3 of the EIS). The potential for such destructive acts is low. DOE sites considered in the EIS are secured, and the packaging for the GTCC LLRW and GTCC-like wastes would be robust. The GTCC LLRW and GTCC-like wastes are not readily dispersible, and the impacts from any attempts to disperse these materials during transportation (such as the impacts from an explosive blast) would be greater than the impacts from any potential release of radioactivity. Impacts from severe natural phenomena, such as earthquakes and tornados, would not be expected to be significant, given that the GTCC LLRW and GTCC-like wastes are largely not dispersible and given the robust nature of the waste packages and containers.

DOE's standard operating procedure for transportation of radioactive waste is developed and continually revised to ensure that the utmost protection of public health and the environment is achieved and that the risk of a traffic accident is minimized. For example, DOE has established a comprehensive emergency management program (Transportation Emergency Preparedness Program or TEPP) that provides detailed, hazard specific planning and preparedness measures to minimize the health impacts from accidents involving loss of control over radioactive material or toxic chemicals. DOE's TEPP was established to ensure that its contractors and state, tribal, and local emergency responders are prepared to respond promptly, efficiently, and effectively to accidents involving DOE shipments of radioactive materials.

Oregon State Legislature, Commenter ID No. W69 (cont'd)

Respectfully,

Rep. Jules Bailey

Rep. Tobias Read

Rep. Ben Cannon

Rep. Carolyn Tomei

Rep. Michael Dembrow

Sen. Suzanne Bonamici

Rep. Margaret Doherty

Sen. Ginny Burdick

Rep. Lew Frederick

Sen. Richard Devlin

Rep. Chris Garrett

Sen. Jackie Dingfelder

Rep. Mitch Greenlick

Sen. Mark Hass

Rep. Mary Nolan

Sen. Rod Monroe

Sen. Chip Shields

If an accident that involved a release of radioactive material to the environment occurred, it would be remediated promptly in accordance with these procedures. These measures would help DOE minimize and mitigate any impacts on the environment.

W69-4 The EIS analysis is used to assess the viability of an alternative as well as its relative performance compared to the other alternatives. Exclusion of a reasonable alternative from the EIS without first evaluating the site is contrary to a thorough NEPA analysis. All alternatives are retained in the Final EIS because such evaluations are needed to support selection of the preferred alternative.

Oregon Wild, Commenter ID No. W7

From: gtcceiswebmaster@anl.gov
Sent: Friday, May 06, 2011 4:32 PM
To: gtcceiswebmaster@anl.gov
Subject: Receipt: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10007

Thank you for your comment, Doug Heiken.

The comment tracking number that has been assigned to your comment is GTCC10007. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: May 6, 2011 04:31:45PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10007

First Name: Doug
Last Name: Heiken
Organization: Oregon Wild
Address: PO Box 11648
City: Eugene
State: OR
Zip: 97440
Country: USA
Email: dh@oregonwild.org
Privacy Preference: Don't withhold name or address from public record

Comment Submitted:
Please keep Oregon Wild informed of opportunities to be informed of and comment on this proposal. W7-1

We are very interested in converting the waste to physical forms that are least likely to be mobilized over the short-term or long-term, e.g., potentially vitrification. W7-2

We are opposed to burying the waste in any geologic zone that is likely to be permeated by groundwater during the period that the waste remains hazardous. W7-3

We are opposed to waste disposal methods that are irreversible. It is wise to keep options open in case the situation changes, or technology changes or improves. W7-4

Please develop alternatives and detailed NEPA analysis to address these issues. W7-5

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

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W7-1 DOE's goal with regard to its public participation process is to be able to disseminate the information to the public so that input from the interested public can be obtained to inform the Final EIS. To this end, nine public hearings at venues accessible to the interested public for the various sites evaluated in the EIS were conducted. Notices were placed in various local newspapers to announce the public hearings before and during the scheduled hearings. DOE will also provide NOA of the Final EIS on the GTCC EIS web site and distribute an announcement to individuals and organizations on our mailing lists. For additional information, see Section J.1.

W7-2 Treatment of the wastes, such as vitrification, prior to disposal was considered to be outside the scope of the EIS. Such treatment would be done prior to receipt of the GTCC LLRW and GTCC-like wastes at the disposal site. The waste characteristics and physical form of the waste would have to meet the disposal facility waste acceptance criteria before being accepted for disposal.

W7-3 Comment noted.

W7-4 Long-term storage and a retrievable "disposal" option were considered to be outside the scope of the EIS because neither would provide a permanent disposal solution.

W7-5 The EIS considered the range of reasonable alternatives for disposal of the inventory of GTCC LLRW and GTCC-like wastes identified for inclusion in these analyses. Treatment of the wastes prior to disposal was considered to be outside the scope of the EIS. Such treatment would be done prior to receipt of the GTCC LLRW and GTCC-like wastes at the disposal site. The waste characteristics and physical form of the waste would have to meet the disposal facility waste acceptance criteria before being accepted for disposal. Long-term storage and a retrievable "disposal" option were considered to be outside the scope of the EIS because neither would provide a permanent disposal solution.

Physicians for Social Responsibility - KC, Commenter ID No. W563

From: gtcceiswebmaster@anl.gov
Sent: Monday, June 27, 2011 10:50 PM
To: gtcceiswebmaster@anl.gov
Subject: Receipt: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10563

Thank you for your comment, Ann Suellentrop.

The comment tracking number that has been assigned to your comment is GTCC10563. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 27, 2011 10:50:00PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10563

First Name: Ann
Middle Initial: C
Last Name: Suellentrop
Organization: Physicians for Social Responsibility - KC
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City: Kansas City
State: KS
Zip: 66103-1335
Country: USA
Email: annsuellen@gmail.com
Privacy Preference: Don't withhold name or address from public record

Comment Submitted:
No More Waste can get added to Hanford!! Put Clean-Up First!!! W563-1
Extremely radioactive wastes belong in deep geologic repositories, not in surface landfills. USDOE must start over and consider disposing of these wastes in a deep geologic repository in the North American Granite Shield, not limit to sites which USDOE owns. Hanford poses the highest truck risks. USDOE needs to redo IES and reissue for comment with the actual truck routes to Hanford through Oregon and WA and the cumulative risks from USDOE's other proposal to truck 3 million cubic feet of radioactive waste to Hanford. The cancer risks and groundwater contamination should disqualify use of Hanford for any more offsite wastes. This is especially important for children, who are much more vulnerable. This is a genocidal decision for the Tribes with Treaty rights to live on site and use the water. W563-2 W563-3 W563-4 W563-5

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

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W563-1 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup effort will continue.

W563-2 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW. For additional information, see Section J.2.3.

W563-3 The EIS considered the range of reasonable alternatives for the disposal of the GTCC waste inventory, including disposal in a deep geologic repository. DOE did not evaluate developing a geologic repository, such as in the North American Granite Shield, exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

W563-4 The primary radiological transportation risk to the public for any alternative, including Hanford, is from the low level of radiation emanating from the transport vehicle. As discussed in Section 5.3.9.1, the collective population risk is a measure of the total risk posed to society as a whole. A comparison of the collective population risk provides a meaningful evaluation of the relative risks between disposal locations, as provided in Tables 2.7 5 and 2.7 6. The magnitude of the collective population risk is primarily determined by the number of routes, the length of each route, the number of shipments along each route, the external dose rate of each shipment, and the population density along a given route. The primary differences between alternatives from the standpoint of transportation are the lengths of the routes as determined by the location of the disposal sites (destination of the shipments). Thus, higher collective population risks are associated with alternatives that require transportation over longer distances. All alternatives involve routes that have similar characteristics, with no significant differences for comparison among alternatives, requiring transportation through a range of rural and urban areas, including sensitive areas. In addition, the routes used in the analysis are considered representative routes (as discussed in Appendix C, Section C.9.4.1.1, because the actual routes used would be determined in the future. For each disposal site, the routes most affected would be the interstate highways that are in closest proximity to the site.

Physicians for Social Responsibility, Commenter ID No. W563 (cont'd)

DOE believes that the analyses presented in the EIS are sufficient to compare the potential cumulative impacts of GTCC LLRW and GTCC-like waste disposal for the sites that were evaluated. In particular, existing concentrations of various radionuclides in contaminated soil and groundwater at the candidate sites were taken into consideration in the selection of the preferred alternative. Also, while up to 12,600 truck shipments were assessed for transport of the GTCC LLRW and GTCC-like wastes to a proposed disposal facility, these shipments would be spread out over a 60 year time period, with the result that only about one to two shipments a day might be expected at the facility in addition to current traffic. Additional cumulative impact analyses would be conducted in site-specific NEPA reviews, if needed, for the alternative selected in a ROD. Such follow-on analyses would be based on additional site-specific information.

W563-5 DOE has considered cumulative impacts at the Hanford Site in this GTCC EIS. The disposal of GTCC LLRW and GTCC-like waste at the Hanford Site could result in environmental impacts that may warrant mitigation for Tc-99 and I-129 through limiting receipt of these waste streams (see Table 6.2.4.2 and Figure 6.2.4.1 in this EIS).

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

The methodology used to estimate the radiological human health impacts in the EIS is based on standard practices that are subject to revision as our understanding of the effects of radiation on humans evolves. The same methodology is used in the evaluation of all alternatives; thus, any modification of this methodology (e.g. taking an even more conservative approach for assessment of the area children) would not affect the comparisons among alternatives and the identification of the preferred alternative.

Plazm Media, Commenter ID No. W17

From: gtcceiswebmaster@anl.gov
Sent: Friday, May 13, 2011 12:41 AM
To: gtcceiswebmaster@anl.gov
Subject: Receipt: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10017

Thank you for your comment, josh berger.

The comment tracking number that has been assigned to your comment is GTCC10017. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: May 13, 2011 12:40:37AM COT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10017

First Name: josh
Last Name: berger
Organization: plazm media
Address:
City:
State:
Zip:
Country:
Email: design07@plazm.com
Privacy Preference: Withhold address only from public record

Comment Submitted:
Please do NOT bring more radioactive waste to the Hanford nuclear reservation. This is the worst possible thing that could be done. Highly radioactive and long-lived wastes should be disposed deep underground in stable geologic formations - not in landfills, trenches, boreholes and vaults which threaten groundwater and health. Besides, why don't we clean up the waste that is already there - leaching into the groundwater every day? That would be a good start. Think of all the people who live downstream. Thanks. W17-1 W17-2 W17-3

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

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W17-1 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

W17-2 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

W17-3 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup effort will continue.

Portland City Council, Commenter ID No. T127

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21 MS. GAUTREAUX: Because we actually have our
22 honorable mayor here tonight, I would very much like
23 to defer to the honorable mayor first.
24 MAYOR ADAMS: Thank you. Thank you for the
25 courtesy, and I apologize for skipping ahead in line

Portland City Council, Commenter ID No. T127 (cont'd)

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for those of you that signed up earlier. We have, actually, a budget hearing across town, but I wanted to personally deliver a summary of our remarks as Portland City Council.

The Portland City Council opposes the transportation of nuclear waste through our region and supports the alternatives in the GTCC EIS, which are most protective of the long-term health of Columbia River and its citizens. We are dismayed that there has been potential changes to the criteria of some of the proposals that might unduly rank Hanford as a suitable site. It is not. We believe that there are alternatives for dealing with this issue, but that Hanford is not the site. T127-1

Given that we already have many barriers to quickly and adequately cleaning up the existing nuclear waste at Hanford, one of the most polluted sites in the world, it is plainly unacceptable to consider importing additional waste from other sites. T127-2

The City urges the U.S. DOE to follow through on the agency's fourth strategic theme, environmental responsibility, protecting the environment by providing a responsible resolution to the environmental legacy of nuclear weapons and weapons production long before this is considered for any T127-3

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T127-1 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

If DOE decides to implement its preferred alternative for the TC&WM EIS, GTCC LLRW and GTCC-like wastes would not be shipped through the Columbia River Gorge for disposal at the Hanford Site until the waste treatment plant is operational. However, regardless of where the GTCC waste disposal facility is ultimately located, a relatively small amount of GTCC LLRW and GTCC-like wastes may be transported through the Columbia River Gorge on their way to the disposal facility. The waste would be generated within the states of Oregon and Washington and would include actinide sealed sources and Cs-137 irradiators from local medical institutions, research facilities, universities, and other NRC and Agreement State licensees.

The transportation of radioactive waste will meet or exceed DOT and NRC regulatory requirements that promote the protection of human health and the environment. These regulations include requirements for radioactive materials packaging, marking, labeling, placarding, shipping papers, and highway routing. The waste shipments would be on preferred routes, which are interstate highways or alternative routes designated by a state routing agency in accordance with DOT regulations (49 CFR Part 397, Subpart D). The GTCC LLRW and GTCC-like wastes would be shipped in approved waste packages and transportation casks. The robust nature of these casks limits the potential release of radioactive and chemically hazardous material under the severest of accident conditions. It is unlikely that the transportation of GTCC LLRW and GTCC-like wastes to any of the alternative sites evaluated in the EIS would cause an additional fatality as a result of radiation from either incident-free transportation or postulated transportation accidents.

The EIS evaluated the transportation impacts from the shipments that would be required to dispose of all of the GTCC LLRW and GTCC-like wastes at the various disposal sites. The EIS addressed the collective population risks during routine conditions and accidents, the radiological risks to the highest exposed individuals during routine conditions, and the consequences to individuals and populations as a result of transportation accidents, including those that could release radioactive or hazardous chemical materials.

About 12,600 shipments would be required to transport all of the GTCC LLRW and GTCC-like wastes to the Hanford Site for disposal. This would result in about 50 million km (30 million mi) of highway travel, with no expected LCFs. One fatality directly related to an accident might occur (see Section 6.2.9.1).

Portland City Council, Commenter ID No. T127 (cont'd)

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1 other uses.

2 Clean up Hanford first. Thank you.

T127-3 (Cont.)

DOE's standard operating procedure for transportation of radioactive waste is developed and continually revised to ensure that the utmost protection of public health and the environment is achieved and that the risk of a traffic accident is minimized. For example, DOE has established a comprehensive emergency management program (Transportation Emergency Preparedness Program or TEPP) that provides detailed, hazard specific planning and preparedness measures to minimize the health impacts from accidents involving loss of control over radioactive material or toxic chemicals. DOE's TEPP was established to ensure that its contractors and state, tribal, and local emergency responders are prepared to respond promptly, efficiently, and effectively to accidents involving DOE shipments of radioactive materials.

T127-2 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

T127-3 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup effort will continue.

Progressive Leadership Alliance of Nevada, Commenter ID No. T50

MR. BROWN: Thanks. Thanks, Walter.
Our next speaker is Launce Rake.
MR. RAKE: "Launce."
MR. BROWN: "Launce."
MR. RAKE: Good evening. My name is Launce Rake. That's L-A-U-N-C-E, R-A-K-E. I'm with the Progressive Leadership Alliance of Nevada, 708 South Sixth Street, Las Vegas 89101.
People have spoken eloquently on the technical problems with this EIS and with this proposal. With the proposed storage of Lower-Level Nuclear Waste at the Nevada Nuclear Security Site, I just wanted to say that, in the history of various experimentation and work with nuclear materials and

Progressive Leadership Alliance of Nevada, Commenter ID No. T50 (cont'd)

49

1 nuclear technologies, it's been a history of failures,
2 sometimes catastrophic failures.
3 We fail to protect groundwater. We fail to
4 live up to our legal obligations. We have failed to
5 consider the social and cultural implications of the
6 impacts of the technologies that we're working with.
7 That's true globally, and it's true specifically here
8 in our experience in Southern Nevada.
9 My group plan works with about 30 different
10 organizations as part of our coalition. I don't
11 believe any of them support this. So that would
12 indicate very wide, very deep opposition to this
13 proposal that needs to be taken into account with the
14 assessment of this very flawed proposal.
15 We have had experiences in Southern Nevada,
16 in Southern Utah, in this part of the world with the
17 failure of the companies working with atomic materials,
18 nuclear materials, and failure of the government to
19 protect citizens from exposure to nuclear materials and
20 radioactivity. We know that these failures could be
21 catastrophic or chronic, and that is why we oppose the
22 siting of this material anywhere near us.
23 We also support Hardened On-Site Storage as
24 the go-ahead mechanism for dealing with this unwanted
25 material for two reasons: One is it's the safest way

T50-1

T50-2

T50-1 Comment noted. The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE also conducted a generic evaluation of commercial disposal facilities on nonfederal lands in the EIS to order to provide, to the extent possible, information regarding the potential long-term performance of other (nonfederal) locations for siting a GTCC waste land disposal facility.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

T50-2 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

Progressive Leadership Alliance of Nevada, Commenter ID No. T50 (cont'd)

50

1 to deal with this material, for the time being. T50-2 (Cont.)

2 But the second is that we believe, I believe

3 that those elements, those commercial activities that

4 generate this material have, should have a legal and

5 moral responsibility to take care of that stuff. If T50-3

6 they do, it becomes disincentive to simply continue

7 their industrial processes and stick the material in

8 our backyard and pretend it doesn't exist.

9 Thank you.

T50-3 The Low-Level Radioactive Waste Policy Amendments Act (LLRWPAA, P.L. 99-240) assigns DOE responsibility for the disposal of GTCC LLRW generated by NRC and Agreement State licensees. The LLRWPAA (P.L. 99-240) does not limit DOE to using only non-DOE facilities or sites for GTCC LLRW disposal. Under NEPA, DOE must evaluate the range of reasonable alternatives for a GTCC LLRW disposal facility. DOE sites represent reasonable alternatives for a GTCC LLRW disposal facility. Changes in public policy that would assign GTCC LLRW disposal responsibility to entities other than DOE are outside of the scope of this EIS.

Public Safety Resources Agency, Commenter ID No. W3

From:	gtcceiswebmaster@anl.gov
Sent:	Saturday, April 02, 2011 2:54 PM
To:	mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtcceis@anl.gov
Subject:	Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10003
Attachments:	Draft_GTCC_EIS_GTCC10003.doc

Thank you for your comment, William Mead.

The comment tracking number that has been assigned to your comment is GTCC10003. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: April 2, 2011 02:53:27PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10003

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Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

1

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

William P. Mead
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14962 NE Rose Parkway
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March 27, 2011

I am submitting the following comments on DOE's Draft GTCC EIS behalf of PSRA, and request that they be included in the record and also that DOE specifically respond to the comments and objections that appear below:

2.7.4.2. Impacts on Members of the General Public.
[page 2-16; paragraph 4; lines 28-35]

Engineering measures are expected to reduce the water infiltration rate to 20% of the natural flow after 500 years after closure. "This reduced rate is assumed to be effective for the entire remaining period of analysis."

This 80% reduction of "the natural background infiltration rate" is based on "the use of an improved cover over the waste disposal units." This appears to base this assumption on a projected 10,000 year span on rainfall, entirely ignoring groundwater movement through aquifers.

This fallacy is continued in section 5.3.4.3., "Post Closure":
[page 5-65; paragraph 1]

"...The natural background infiltration rate was used at the perimeter of the waste disposal units. This method is assumed to be a reasonable way to model the use of an improved cover for the purposes of this analysis."

In paragraph 4 of page 5-65, the focus continues to be on the "cover" but does not address the vertical perimeter issues of groundwater intrusion. *Even though those effects are mentioned as being real,* no provision or mitigation studies have been cited to for this aspect of the repository's effect on the environment and future generations.

W3-1

W3-1 The disposal unit designs that were analyzed in the EIS are consistent with existing DOE disposal practices. The disposal units for the intermediate depth and enhanced near-surface concepts are located in the unsaturated zone, above the water table. Thus, groundwater flow is not expected to impact the disposal units. The cover directly above the waste is expected to provide sufficient protection from infiltration which is expected to move primarily in the vertical direction.

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 2

"The results indicated that the peak annual dose would increase as the water infiltration rate increased, because when more water would enter the waste disposal horizon, more radionuclides would be leached and released from the disposal facility. The increase in the peak dose would be approximately proportional to the increase in the water infiltration rate. This result is not unexpected, and it indicates the need for a very effective cover to minimize the amount of infiltration water that could contact the GTCC wastes."

It is not reasonable to concentrate on modeling an "improved cover" to the exclusion of other transmission factors. The vertical perimeter of the repository must also be impervious for 500 years.

This EIS appears to admit that water infiltration is expected, but limits any mitigation efforts to the "cover" cap to shield the waste from rain, but entirely ignores the issues of controlling groundwater travel that will transport contamination through the site and beyond those boundaries.

W3-1 (Cont.)

2.7.12 Cumulative Impacts.
[page 2-24; paragraph 2; lines 9-30]

DOE admits "the likely exception of potential human health impacts in the long term. That is, during the Post-Closure phase of the proposed action, potential leaching of radionuclides from the GTCC waste inventory into the groundwater could contribute to doses and LCF risks."

DOE admits past Te-99 leaks at Hanford and suggests that off-site I-129 and Te-99 wastes not be disposed of at Hanford.

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 3

Table 2.7-2 Comparison of Potential Impacts...
[page 2-30]
(3.) Borehole Method – Hanford
Water Resources:
"In addition, groundwater could become contaminated with radionuclides from GTCC waste disposal, as indicated by estimates from the post-closure performance of a borehole disposal facility."

(4) Trench Method – Hanford
[page 2-35]
Water Resources:
"Same as for the borehole method with regard to the potential for radionuclide contamination in groundwater from the proposed trench facility during the post-closure phase."

Table 2.7-3 Comparison of Potential Impacts on Human Health.
[page 2-41]

Of the 3 methods under consideration at Hanford – borehole, trench and vault – Hanford leads all sites as projecting the "Highest Individual Dose From [a] Waste Handling Accident" in REMs.

Table 2.7-5 Potential Transportation Impacts – Truck...
[page 2-52]

Hanford's selection would be the most hazardous of all sites for [1] Distance Travelled (50,300,000 km); [2] Collective Population Dose (160 person-REMs); [3] Collective Transportation Crew Dose (500 person-REMs); and [4] Accident Fatalities (1). Hanford would tie with NNSS for the highest number of "Collective Population LCFs (0.09) and "Collective Transportation Crew LCFs (0.3).

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 4

"LCF" means "Latent Cancer Fatalities", and "NNSS" is the "Nevada National Security Site"; the current name for the old Nevada Test Site where nuclear weapons were detonated above and below ground level.

This Table projects that by selecting Hanford, the number of miles travelled will be higher, and the number of exposures will be higher than at any other location in the United States – including where we used to test bombs that contaminated other states by fallout.

It should be noted that the figures for Rail Transportation are not much better. In any event, the majority of shipments during the expected 64 years of emplacement operations will be via truck.

Also, as noted in Table 5.3.9-4., "Potential Radiological Consequences to the Highest-Exposed Individual from Severe Transportation Accidents" [page 5-88], rail accidents were postulated to be approximately twice as serious than truck accidents because each rail car would carry twice the truck's normal load.

One problem that I see is that while DOE assumed the worst scenarios for truck and rail accidents, they appear to have assumed that a rail accident would only involve a breach of the contents of a single railcar. This is not a valid assumption and the impacts should be based on the effects of breaching of multiple railcars and the release of the contents into the environment. We have all seen images of several railcars on their sides after a derailment, and there is absolutely no reason to expect that it will not happen during transportation of these wastes. W3-2

If we assume that the technology for the alternatives were standardized for each of the 3 disposal options for each of the proposed sites, why would Hanford be so excessively hazardous when compared to other sites?

Considering that DOE would enforce uniform standards at each site, and that a series of operational protocols would be followed and compliance would be documented, why is Hanford postulated to be more dangerous for this proposal?

W3-2 The risks from severe truck and rail accidents presented in the EIS are considered to be representative of potential higher impacts that could occur. The EIS analysis assumed the shipment of waste in a general freight consignment with only one railcar shipped at one time. Many of the sites considered would not have enough waste for more than one railcar in a shipment over a period of many years. However, if a dedicated train were to be used for a rail shipment, with two or more railcars with waste, it is unlikely that there would be sufficient physical or thermal forces to breach even one Type B container. Dedicated trains would be operated at lower speeds consistent with their cargo (reducing the risk from physical impact or crush force) and dedicated trains would not be hauling other railcars with flammable material that could contribute to a fire (reducing the risk from thermal impacts) that would result in even a minor release of material from a cask.

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 5

2.8.3. Assumptions Used to Simulate the Integrity of Engineered Barriers and Waste Stabilizing Practices.
[page 2-56]

DOE postulates that engineered controls will remain intact for an initial 500 years but tried to project potential groundwater impacts out for the 10,000 years that the wastes must be isolated.

DOE admitted that "How and when the waste packages, engineering controls, and stabilization agents would begin to degrade and how this degradation would progress over time are very difficult to determine."

DOE continues by stating "For this EIS, it is assumed that the engineered controls would remain intact for the first 500 years after the closure of the disposal facility and that during this time, essential no infiltrating water would reach the wastes from the top of the disposal facility. It is assumed that after 500 years, the amount of infiltrating water that would contact the wastes would represent 20% of the site-specific natural infiltration rate for each of the sites evaluated, and that the water infiltration rate around and beneath the disposal facilities would be 100% of the natural rate of the site area." W3-3

DOE is chaining its assumptions in the hopes that they will become true.

In plain language, DOE is stating that its barriers are expected to last 500 years, but that the site must be protected for 10,000 years. It then infers that although the barrier around the waste may degrade, 80% of the groundwater will detour around the wastes, the problem won't really exist!

5.2.4.3. Radiological [Health] Impacts
[page 5-30]

It should be noted that the NCRP (National Council on radiation Protection & Measurements) recently updated its estimate on the amount of background radiation we receive. The old annual estimate was 360 mREM/year, but the new estimate nearly doubled to 620 mREM/year. W3-4

W3-3 The EIS analyses are based on conceptual engineering information and necessitated the use of a number of simplifying assumptions. This approach is consistent with NEPA, which requires such analyses to be made early in the decision-making process. The various land disposal conceptual designs were assumed to be constructed and operated in a comparable manner at each of the various sites. Information on the conceptual engineering designs for the three proposed land disposal methods is provided in Section D.3 of Appendix D in the EIS. By using the same conceptual designs at all of the sites evaluated in the GTCC EIS, except for cases where a design did not apply (e.g., an intermediate-depth borehole at a site with shallow groundwater), the potential impacts (e.g., radionuclides reaching the groundwater) at the different environmental settings could be readily compared.

In performing these evaluations, a number of engineering measures were included in the conceptual facility designs to minimize the likelihood of contaminant migration from the disposal units. No facility design can guarantee that radionuclide migration from the facility would not occur over and beyond a 10,000-year time period. It was assumed that these measures would perform similarly for all conceptual designs, remaining intact for 500 years after the disposal facility closed. After 500 years, the barriers would gradually fail. To account for these engineered features in the modeling calculations, it was assumed that the water infiltration to the top of the waste disposal area would be zero for the first 500 years and then 20% of the natural rate for the area for the remainder of the time period (through 10,000 years). A water infiltration rate of 20% of the natural rate for the area was only used for the disposal area; the natural background infiltration rate was used at the perimeter of the waste disposal units. Again, this approach enables a comparative evaluation of the influence that site-specific environmental factors would have on the potential migration of radionuclides from the disposal facilities and the potential impacts on human health. It should be emphasized that project- and site-specific engineering factors would be incorporated into the actual facility designs of the site or sites selected in a ROD to dispose of GTCC LLRW and GTCC-like wastes.

DOE recognizes that modeling potential releases of radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. Sufficient detail was included in these designs for use in the EIS analyses, consistent with the current stage of this process. Some of the input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

DOE believes that 500 years is a realistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, as discussed in Section E.2.2, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS (Phifer et al. 2007) that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study.

W3-4 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 6

The "natural" background sources have not changed (they average about 310 mREM/year) but we now receive an average of another 310 mREM/year from man-made sources, including medical procedures and consumer products.

DOE has already identified Hanford as the most dangerous site for this repository. Let's not add that jeopardy to our already-increasing radiologic burden.

W3-4 (Cont.).

An additional note:

I do not have the actual numbers available as I write this comment, however I remember from my research in the 1980s that the soils approximately one mile from the PUREX Plant's stack showed a higher inventory of Plutonium than was found at a distance of one kilometer from the hypocenter of the Nagasaki explosion.

I believe Nagasaki's contamination was about 5,500 pCi/m^2 while Hanford's was about 6,600 pCi/m^2; a difference of about 1,100 pCi/m^2 some forty years after the war had ended. I found it ironic that even though Hanford's plutonium was used to destroy Nagasaki, Hanford's contamination was greater than Nagasaki's at a distance forty percent greater from the relative sources of the plutonium.

The other significant factor was that Hanford's contamination of the 200 East area was of a type referred to as "dry" plutonium; the difference being that Hanford's plutonium was more likely to become airborne if the surface soil was disturbed, and was less likely to become "fixed" on the surface.

I would like to see this aspect of the potential impacts thoroughly reviewed in the EIS. It may be that the construction activity, which is different for the three disposal methods would not be suitable at the referenced location if it were to disturb the existing plutonium or cause it to become airborne to re-contaminate additional areas.

W3-5

W3-5 Existing contamination at potential disposal sites was taken into consideration when selecting the preferred alternative. The site-specific location chosen for implementation of a disposal facility would be thoroughly characterized and assessed in site-specific NEPA review.

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 7

5.3. Environmental Consequences.
[page 5-43]

"Because the proposed disposal facilities are expected to be available to contain the waste for a very long time (for the next hundreds of years), the decommissioning phase of the proposed action could be better evaluated at the time the disposal facility would be ready to be decommissioned. Hence, evaluations for the decommissioning phase are not included in this EIS; instead, subsequent NEPA documentation would be prepared at a later time to address the decommissioning phase."

This is the type of approach that contributed to much of our current problems involving radiologic wastes: Previous generations of DOE management focused on "production" and admitted that they planned to store wastes until a future generation was able to solve the problems of the high-level liquid wastes and the other types of wastes that were generated during the past 60 years.

The disposal facility is expected to operate for approximately 64 years and then be sealed. A responsible and honest EIS should include thorough EIS is intended to examine those issues instead of ignoring them. The EIS could indicate areas of needed research, with the understanding that future events or advances in technologies could modify the current document. W3-6

Examining potential future issues and solutions now makes sense and is supported by DOE's statements in section 5.5, "Inadvertent Human Intruder Scenario" [page 5-95]:

DOE states, "The designs considered for this EIS are suggested starting points for enhanced disposal facilities; if necessary, they could be fortified further, depending on site-specific considerations and the actual waste characteristics once a final site(s) and disposal method(s) were selected."

There is absolutely no rational justification for not including a basis for discussion and examination of decommissioning issues in this EIS. It will not be a complete document without identifying what is currently known to be required in the future, and the failure by DOE to include this critical component invalidates any claim of thoroughness.

W3-6 The EIS notes that the decommissioning of a GTCC waste disposal facility is part of the proposed action, but because the facility would not be closed and decommissioned until far into the future (after 2083), the impact analysis for the decommissioning phase would be conducted at that time. It is not possible at this time to evaluate with any degree of confidence the environmental impacts from decommissioning a facility that has not yet been selected.

The GTCC waste disposal facility would be designed to facilitate future decommissioning consistent with applicable law, guidance, and policies. The appropriate site-specific NEPA review will be conducted in the future as part of the decommissioning plan.

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 8

The next paragraph continues, "However, given enough time (on the order of thousands of years), it is possible that groundwater at the various sites could become contaminated with some highly soluble radionuclides (e.g., C-14, Tc-99, and I-129). Indirect impacts on surface water (except at NNSS) could also result from aquifer discharges (of contaminated groundwater) to seeps, springs, and rivers." W3-7

We have already experienced these types of discharges from Hanford's contaminated aquifers. We should not add more radiologic contamination to an area that is already dramatically contaminated by nuclear wastes.

5.3.4.1.1. Workers.
[page 5-52]

"It is assumed that all of the wastes would arrive at the site as solid materials that could be placed directly into the disposal facility. Any necessary waste treatment would have already occurred at the site that generated or staged the wastes prior to shipment, and the impacts associated with those activities are outside the scope of this EIS."

Although I can understand DOE's rationale for not including the exposures that may occur at the point of origin, I do not agree with it.

DOE has included truck and rail transportation exposures in this EIS and it also should include the exposures at the point of origin. W3-8

Any honest EIS would address the preparation of the wastes to be shipped. It is dishonest to not attempt to quantify the impacts at the originating site when those operations are an integral part of the project that is the subject of this EIS.

A major portion of the exposures will occur at the point of origin when the initial sources are transferred to storage and shipping containers. Those operations cannot be separated from this project's EIS because they must be accomplished before any wastes can be shipped to any repository or disposal facility.

W3-7 Comment noted.

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

W3-8 Operations such as the packaging and loading of shipments fall under the responsibility of the shipping organization and would be covered by the respective organization's operating procedures, safety measures, and NEPA reviews, as appropriate. Also, packaging and loading of the GTCC LLRW and GTCC-like wastes at each generator location would be the same for all alternative disposal sites, with the exception of remote-handled waste at WIPP, and would not be a discriminator in selecting an alternative.

Originating facilities handling GTCC LLRW or GTCC-like waste should already have plans in place to deal potential accidents or acts of terrorism.

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 9

We need an honest explanation of those actions and the expected risks to the workers and the communities involved. Those exposures are going to happen, regardless of the site that is finally selected, so we should address those issues and start planning our mitigation strategies.

DOE estimates that "activated metal wastes" may constitute about 17% of the total GTCC shipments. It also stated "The gamma exposure rates on the surfaces of these containers, assuming there would be no additional shielding, could exceed 1,000 roentgen/hour (R/h). These dose rates are somewhat small than, but generally comparable to, those associated with SNF and high-level radioactive wastes."

In other words, the radiation dose would be similar to someone who tried to walk in the separation canyon at PUREX when we recovered Uranium and Plutonium from spent nuclear fuel at Hanford.

W3-8 (Cont.)

As I write this, Japan is experiencing core damage and radiologic releases from SNF (Spent Nuclear Fuel) in 4 reactors and has increased the allowable dose for workers to approximately 25 REMs, an amount that is virtually guaranteed to result in additional LCFs.

A dose rate of 1,000 R/hr needs serious consideration in this EIS instead of pretending that the wastes will "auto-magically" jump directly from the source into a shipping package without human intervention.

The disposal operations are expected to continue at the repository "over a period lasting up to 64 years..." Unless DOE has a magic plan to get the wastes into shipping containers at the source without using workers, we can expect other communities will be involved in the packaging and shipping of wastes for that period of time.

Those exposures must be included in an hones EIS, and DOE's decision to ignore those realities violates the intent of those laws.

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 10

On page 5-70 [5.3.4.4.3. Disposal Options], DOE states "During transport to the disposal facility, waste materials would be in heavily shielded casks that would prevent the release of any radioactive material under any but the most severe conditions,... Once at the facility, waste would be unloaded from the transport vehicle and placed in secure temporary storage. CH waste containers such as 208-L (55 gal) drums or SWBs would be taken out of the transport packaging, such as a TRUPACT-II container, and staged in a temporary storage area at the WHB prior to emplacement in a disposal unit. RH waste would either be stored in its Type B transport cask or be removed from its cask and temporarily stored in a heavily shielded room in the WHB before emplacement. Only limited numbers of waste containers would be in the WHB at any given time."

This is a good description of what will be required at the final waste disposal site, and it explains how different protocols would be used when handling the relatively low-level CH waste, versus the need to actively isolate intensely radioactive RH wastes, the types that will emit radiation levels similar to spent (irradiated) reactor fuel. W3-8 (Cont.)

DOE's explanation of the precautions that are needed essentially validates my argument that we must include the potential exposures at the point of origin or package preparation. This EIS should be a complete overview of the entire process from the original source location to the final repository. RH wastes are not going to be created in the Type B transport cask, they have to be placed inside that container for shipping. We need to include an examination of those exposure scenarios just as surely as we need to know what to expect at the end of that journey.

The current U.S. Department of Homeland Security relocation guidelines of 2 REM/year [73 FR 45029] could also effect the originating communities in the event of an accident or intentional terrorist act. The EIS should include those communities instead of ignoring them.

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 11

6.1.2.1.6. Slope Stability, Subsidence, and Liquefaction.
[page 6-24]

DOE states, "However, groundwater levels in the 200 Areas are changing as a result of changes in wastewater discharge practices in the area."

This refers to groundwater movement in the area of the Hanford reservation that I referred to earlier in my comments. W3-9

It is not likely that we can accurately characterize the groundwater during even the expected operational time period of 64 years. It is even less likely that we will be accurate in predicting groundwater flow through and from the repository during the next 500 years. And, it is entirely specious to try to extrapolate groundwater movement during the next 10,000 years. When combined with the effects of the current wastes migrating near the referenced repository location, Hanford should not be considered for this project.

6.1.3.1.1. Rivers and Streams.
[page 6-29]

The argument and statement of the "American Indian Text" is so pertinent that I am going to cite it in its entirety and support it by including it in my comments:

"The Columbia River is the lifeblood of the Indian People. It supports the salmon and every food or material that they rely on for subsistence. It is an essential human right to have clean water. If water is contaminated it then contaminates all living things. Tribal members that exercise a traditional lifestyle would also become contaminated. A perfect example is making a sweat lodge and sweating. It is a process of cleansing and purification. If water is contaminated then the sweat lodge materials and process of cleansing would actually contaminate the individual." W3-10

W3-9 Modeling potential releases of radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. Sufficient detail was included in these designs for use in the EIS analyses, consistent with the current stage of this process. DOE acknowledges there are uncertainties during the 10,000 year period of analysis and what is predicted is not exact estimates of what will occur in the future. That does not mean the analysis is not useful. NEPA requires DOE to disclose estimates of long-term impacts and their uncertainties to inform the decision making process.

W3-10 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup effort will continue.

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 12

"Indian People are well known for adopting technology if it were instituted wisely and did not sacrifice or threaten the survival of the group as a whole. This approach applies to tribal use of groundwater. Even though groundwater was not used except at springs, tribes would have potentially used technology for developing wells and would have used groundwater if seen to be an appropriate action. The existing contamination is considered an impact to tribal rights to utilize this valuable resource."

The hyporheic zone in the Columbia River needs to be more fully characterized to understand the location and potential of groundwater contaminants discharging to the Columbia River."

"Contaminated groundwater plumes at Hanford are moving towards the Columbia River and some contaminants are already recharging to the river. It is the philosophy of the Indian People that groundwater restoration and protection be paramount to DOE's management of Hanford. Institutional controls, such as preventing use of groundwater, should only be a temporary measure for the safety of people and animals. It will be questioned when DOE views institutional controls as a viable long-term management option to allow natural attenuation. The timeline of natural attenuation may not best represent a Tribal preference of a proactive corrective cleanup measure(s) for contamination plumes. Cleanup should be a priority before considering placement of additional waste like GTCC in the 200 area."

W3-10 (Cont.)

6.1.3.1.2. Surface Water Quality.
[page 6-35]

"...Elevated nitrate concentrations at the Hanford Site shoreline are from the contaminated groundwater plumes emanating from the 200 Area. ... Tritium, Sr-90, I-129, and Pu-239/240 are present in worldwide fallout from historical nuclear weapons testing as well as in effluent from Hanford Site facilities."

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 13

"Surface water sampled across transects at various locations along the Columbia River shows a statistical increase in tritium and uranium between samples taken upstream at the site at Vernita Bridge and those taken downstream of the site at the Richland pump house. These constituents are known to be entering the river from contaminated groundwater beneath the Hanford Site."

The paragraph continues with the notation that the highest concentrations were measured near the Hanford town site, and at the 300 Area transect.

A few lines later, the DOE reports "Radionuclides consistently detected at low levels in Columbia River sediment in 2008 included K-40, Cs-137, U-234, U-235, Pu-238, Pu-239/240, and progeny products from naturally occurring radionuclides."

6.1.3.2 Groundwater.

The referenced location at Hanford is south of the 200 East Area, an area that is already highly-contaminated by past nuclear and chemical process dating back to 1943.

Hanford produced approximately 100 metric tonnes of Plutonium during its operations. The plutonium was created by irradiating uranium-238 in reactors and then dissolving the fuel rods in an acid bath inside a chemical separations canyon.

Hanford used three generations of chemical separation systems, each with different efficiencies, which meant that earlier processes did not recover as much uranium and plutonium as was achievable using newer technologies. In addition to not recovering a significant percentage of uranium and plutonium, these technologies created a volume of wastes that is difficult for persons to visualize. The major waste streams were composed of liquid "high level" wastes, with accompanying airborne releases of radiation and noxious gasses.

W3-11

W3-11 A number of sites in the 200 East Area had contaminants disposed starting in the early 1940's and 1950's, and received high volumes of liquids discharged with them. This results in the water forcing the contamination down through the soil which is reflected in some of the plumes in the Hanford Groundwater Monitoring Report.

The GTCC disposal facility reference location south of the 200 East Area is far from groundwater contamination found in the 300 Area. The reference location is a site which would be considered a "dry" site, meaning if the waste were disposed of at Hanford it would have a barrier placed on top to reduce the infiltration through the site. Therefore, the operation of the GTCC land disposal facility would not be expected to impact groundwater flow.

DOE took into consideration groundwater, human health and other environmental factors in the selection of the preferred alternative.

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 14

Each of the 220,400 pounds of plutonium that was produced and separated at Hanford generated approximately 4,132,000 gallons of high-level liquid wastes. Some were pumped directly into the aquifers by "reverse" (injection) wells, and other liquids were sent either to storage tanks which leaked, or to "cribs" that allowed the wastes to percolate into the soil. In one instance a crib approached criticality and was in danger of detonating as had happened in Russia in the 1950s. The trench was carefully exhumed and the wastes were dispersed to lower the chances of accidental criticality.

A significant amount of those wastes were disposed of at the 200 East Area adjacent to the site that would also host the GTCC repository. Several years ago the U.S. Geological Survey noted that 7 distinct aquifers were known to exist below Hanford, and also that the flow rates and directions for these aquifers was not uniform, nor characterized.

The groundwater in that area is already flowing into the Columbia River, bringing with it the current inventory of wastes that have escaped containment. Further characterization is essential so we know what to expect with the current wastes in the area, and also to better understand how construction, operation and closure of the proposed repository will effect groundwater flows in the surrounding areas. W3-11 (Cont.)

As previously cited, DOE acknowledges that the groundwater in the 300 Area is radiologically and chemically contaminated. Adding additional radionuclides to this contamination is not sound public policy for future human and environmental health.

Perhaps it would be wiser to strike Hanford from consideration for this proposal, and instead concentrate on the critically-important tasks that are needed to clean-up our sites that area still grossly contaminated from the production frenzy of the 1940s, 1950s, 1960s, 1979s and early 1980s.

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 15

6.1.3.2.1 Unsaturated Zone.
[page 6-36]

"In the vicinity of the GTCC reference location, the thickness of the vadose zone is about 100 m (330 feet."

6.1.3.2.2 Aquifer Units.
[page 6-37]

"On the north side of the 200 East Area, there is evidence of erosional channels that may allow interaquifer flow between the unconfined and uppermost basalt-confined aquifer. Depth to groundwater ranges from 0 m (0 feet) at the Columbia River to more than 100 m (330 feet) beneath parts of the central plateau."

"The hydrology of the 200 Area has been strongly influenced by the discharge of large quantities of wastewater to the ground over a 50-year period between the 1940s and 1990s. The discharges caused elevated groundwater levels across much of the Hanford Site, resulting in a large groundwater mound beneath the former U Pond in the 200 West Area and a smaller mound beneath the former B Pond, just to the northeast of the 200 East Area. The general increase in groundwater elevation caused the unconfined aquifer to extend upward into the Hanford Formation over a larger area, particularly near the 200 East Area. This resulted in an increase in groundwater velocity because of both the greater volume of groundwater and the higher permeability of the newly saturated Hanford Formation sediments."

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 16

6.1.3.2.3. Groundwater Flow.
[page 6-37]

"Groundwater in the unconfined aquifer system flows from recharge areas in the elevated region near the western boundary of the Hanford Site toward the Columbia River on the eastern and northern boundaries. The Columbia River is the primary discharge area for the unconfined aquifer. The Yakima River borders the Hanford Site on the southwest and is generally regarded as a source of recharge. The rate of total discharge of groundwater from the Hanford Site aquifer to the Columbia River is in the range of 1.1 to 2.5 cms (39 to 88 cubic feet per second), a very small rate relative to the river's average flow of 3,300 cms (116,500 cubic feet per second)."

Although the DOE is correct in its statement that the discharge rate is small in relation to the Columbia River's average flow, the discharge will have a very significant impact if it is a direct source of contamination. W3-12

"Studies have indicated that the residence time of groundwater at the Hanford Site is on the order of thousands of years in the unconfined aquifer and more than 10,000 years for groundwater in the shallow confined aquifer, consistent with the recharge conditions expected for a semiarid climate. However, groundwater travel time from the 200 East Area to the Columbia River has been shown to be much faster, in the range of 10 to 30 years, because of the large volumes of wastewater discharged at the site in the past and the relatively high permeability of the Hanford Formation sediments."

It appears that instead of siting the repository in an area that is stable for 10,000 years, DOE is suggesting that the reference site for this 10,000 experiment should be sited in an area where Hanford's previous liquid waste discharges have accelerated the travel time from the site into the Columbia River to a mere 10 to 30 years! W3-13

In the mid-1980s my research for a legislative project indicated that 59 billion gallons of liquid high-level wastes had been admitted via cribs or injected directly into Hanford's soils and aquifers. At that time DOE stated that that calculation was not correct, but it refused to provide the accurate amount on the basis that it was "classified national security production information."

W3-12 Comment noted.

W3-13 DOE disagrees with the statement that the location of the GTCC disposal site is not stable. The reference locations were placed near existing disposal operations at the DOE sites. While some parameters could change within a short distance, most would not. Site-specific information was provided by the sites and that information was used in these modeling analyses to the extent it was available. Conservative assumptions were used if information was not available. For more information on past Hanford site discharges, which are not part of the scope of the GTCC EIS, see the final TC&WM EIS.

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 17

On page 6-40, DOE now admits that between 1944 and the end of the 1990s, they discharged approximately "4.44 x 10^{11} gallons" of liquid to disposal ponds and cribs. Even though DOE finally gave a figure, I noted that they did not clarify its meaning for those persons who may be concerned about the issue but somewhat fuzzy on math. DOE made sure we understood that 208 liters meant a 55 gallon drum, and that 100 meters equaled 330 feet, but they should have been more honest here by plainly admitting that the total was 444 BILLION gallons. This type of obfuscation destroys our trust of DOE's *information and raises questions about their motives in repository* proposals.

6.1.3.2.3 Groundwater Quality
[page 6-40]

"Groundwater in the unconfined aquifer beneath large areas of the Hanford Site has been contaminated by radiological and chemical constituents because of past site operations. These contaminants were primarily introduced through wastewater discharged to cribs, ditches, injection wells, trenches, and ponds. Additional contaminants from spills, leaking waste tanks, and burial grounds (landfills) have also entered groundwater in some areas. Contaminant plumes had sources in the 200 East Area and extend to the east and southeast; contaminant concentrations in these plumes are expected to decline through radioactive decay, mineral adsorption, chemical degradation, and dispersion. However, contaminants also exist within the vadose zone beneath waste sites as well as in waste storage and disposal facilities. These contaminants have the potential to continue to move downward into the aquifer." W3-14

"Currently, no active groundwater remediation is occurring at the operable unit (200-PO-1) underlying the southern portion of the 200 East Area."

In other words, DOE is actively remediating groundwater at 100-D, 100-H, 100-K and the 200 West Area, but is ***not*** remediating groundwater in the 200 East Area where they want to dig this repository.

W3-14 DOE Hanford has prioritized groundwater remediation activities by taking into account several factors. Groundwater contaminant plumes close to the river (i.e., in the 100 and 300 areas) have a high priority because they have the shortest travel times to the river. The vadose zone is also thinner in these areas and DOE has taken advantage of this easier access to contaminant plumes with a number of innovative containment and barrier designs. In 2012, DOE implemented a groundwater pump and treat system in 200 West to confine and remove contaminants near source areas and mitigate impacts to large areas of the unconfined aquifer down gradient from the sources. Active groundwater remediation beneath the 200 East area is much more difficult and less effective. This is an area of high hydraulic conductivity in the aquifer and the plumes in this area are relatively dispersed. Confinement and removal is not as an effective option for groundwater remediation in this area. DOE's strategy for the 200 East area relies primarily on detection and removal of contaminants in the vadose zone and natural attenuation in the aquifer.

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 18

"Operable Unit 200-PO-1 encompasses the southern portion of the 200 East Area and a large part of the Hanford Site extending to the east and southeast. Groundwater within 200-PO-1 is contaminated with plumes of tritium, nitrate, and I-129 that exceed drinking water standards."

Table 6.1.3-1 Maximum Concentrations of Selected Groundwater Contaminants at Operable Unit 200-PO-1 During FY 2006. [page 6-42]

The 200 East Area showed higher than allowable levels of arsenic, gross alpha, gross beta, I-129, Nitrate, SR-90, Te-99, and Tritium.

Considering what we know about the radiological and chemical contamination that exists and is migrating from the 200 East Area into the Columbia River, why would DOE even consider Hanford's 200 East Area for a disposal facility that will increase these contaminants? W3-14 (Cont.)

Conclusion and Recommendation.

In summary, DOE's proposal for the reference site at Hanford's 200 East Area will require it to dig into the soils that are already highly contaminated by past waste disposal methods to such an extent that it has dramatically altered the groundwater characteristics and effectively destabilized and countered any ability to isolate wastes away from the Columbia River.

A realistic and honest review of the reference site's characteristics would preclude further consideration: It is being proposed for an area that is already contaminated, the existing wastes have not been responsibly managed, and the groundwater of the site has not been remediated.

Of additional concern is DOE's focus on protecting the repository from a few inches of rainfall by "capping" the project, while entirely ignoring any proposal to isolate the repository from the groundwater intrusion that poses the greatest threat. W3-15

W3-15 The disposal units for the intermediate depth and enhanced near-surface concepts are located in the unsaturated zone, above the water table. Thus, groundwater flow is not expected to impact the disposal units. The cover directly above the waste is expected to provide sufficient protection from infiltration which is expected to move primarily in the vertical direction.

Public Safety Resources Agency, Commenter ID No. W3 (cont'd)

PSRA: Draft GTCC EIS, Page 19

The repository is expected to operate for 64 years and then be closed. DOE estimates that engineered barriers will protect the top from rainfall for 500 years, but the GTCC wastes will be dangerous for another 10,000 years. Conversely, water that was essentially stationary and required 10,000 years to reach the Columbia River is now moving through the site at a rate a thousand times faster because it is being pushed by contaminated mounds of radwaste.

I also question the validity of DOE's decision to not examine the repository's decommissioning plans: Those plans should be included in a responsible EIS because they will effect the environment and they might help up to identify issues that need to be addressed, such as the horizontal intrusion of groundwater through the repository, and any remedial engineering that might be indicated to reduce permeability of the repository. The repository will only operate for 64 years, so we *really should include those issues in the EIS, even if only as a basis for* future discussion and possible design changes. W3-16

Although I understand that the preparation of the shipments at the source's point of origin does not have a direct impact for any of the proposed locations, the EIS should include a discussion of those issues and expected exposures and accidents so we have a better understanding of them. The same waste packages that we intend to be very careful in handling at the final repository will also require even more diligence at the packaging facility. DOE should include this data as an Appendix or at least cite a single volume that is available for reference. This would be beneficial to source communities as a basis for disaster planning. W3-17

I believe that the reference site in Hanford's 200 East Area is not a proper location for the proposed GTCC Waste Repository. We need to place this waste is a stable dry soils that have a reasonable expectation of isolating it from the environment for the approximate 10,000 years needed to allow radioactive decay. Hanford's grossly contaminated groundwater will rapidly facilitate the movement of additional contamination into the Columbia River. W3-18

W. P. Mead
Director, PSRA

W3-16 The EIS notes that the decommissioning of a GTCC waste disposal facility is part of the proposed action, but because the facility would not be closed and decommissioned until far into the future (after 2083), the impact analysis for the decommissioning phase would be conducted at that time. It is not possible at this time to evaluate with any degree of confidence the environmental impacts from decommissioning a facility that has not yet been selected.

The GTCC waste disposal facility would be designed to facilitate future decommissioning consistent with applicable law, guidance, and policies. The appropriate site-specific NEPA analysis will be conducted in the future as part of the decommissioning plan.

W3-17 Operations such as the packaging and loading of shipments fall under the responsibility of the shipping organization and would be covered by the respective organization's operating procedures, safety measures, and NEPA reviews, as appropriate. Also, packaging and loading of the GTCC LLRW and GTCC-like wastes at each generator location would be the same for all alternative disposal sites, with the exception of remote-handled waste at WIPP, and would not be a discriminator in selecting an alternative.

W3-18 The specific locations that would be used at each potential site for development of a disposal facility for GTCC LLRW and GTCC-like wastes are not known at this time. The use of "reference locations" was used in the EIS to allow for a quantitative assessment of the impacts that could occur at each site. The reference locations were placed near existing disposal operations at the DOE sites. While some parameters could change within a short distance, most would not. Site-specific information provided by technical staff from various sites that were evaluated was used in these modeling analyses to the extent it was available, and conservative assumptions were used to fill any remaining data gaps. The analysis presented in the EIS is adequate for the comparison of the disposal alternatives evaluated. Fate and transport parameters utilized in the estimations were based on site-specific (e.g., specific to the reference location to the extent available) information and, as such, are considered reasonable for the purpose of the comparison made in the EIS. However, DOE recognizes that additional project- and site-specific information, such as the accelerated travel time to the Columbia River, could be used to inform the implementation of a disposal facility at a given location. This additional information is expected to reduce the uncertainty associated with these types of evaluations to the extent possible. Site-specific information would be evaluated in any site-specific NEPA review that would be conducted based on a ROD for this EIS

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

Pueblo de San Ildefonso DECP, Commenter ID No. L279

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April 27 2011

SI11-DECP-466

April 25, 2011

Greater-Than-Class C Low-Level Radioactive Waste EIS
Office of Technical and Regulatory Support (EM-43)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585–0119

To Whom it May Concern:

The Pueblo de San Ildefonso (the Pueblo) Department of Environmental and Cultural Protection (DECP) has completed a review of the U.S. Department of Energy's (DOE's) Greater-Than-Class C (GTCC) Low-Level Radioactive Waste EIS. Our comments, both general and section-specific, are enclosed.

Thank you for the opportunity to interact on a Government-to-Government basis, and to have our concerns addressed.

Sincerely,

Neil S. Weber, Director
Department of Environmental and
Cultural Preservation
Pueblo de San Ildefonso

Enclosure

Pueblo de San Ildefonso DECP, Commenter ID No. L279 (cont'd)

GENERAL COMMENTS

General Comment #1: LANL has a poor history with trenches and bore holes. Past efforts are now expensive, dangerous clean-ups. Yes, current technology and practices are much-improved over the past, but the past efforts represented the state of the art for their time, much as the current alternatives do for this time. Current bore holes and trenches may well be the leaking Solid Waste Management Units of the future. L279-1

General Comment #2: The Pueblo has grave concerns with reliance on Institutional Controls (IC). The Pueblo has been here long before LANL, and will continue to be here long after LANL is gone. IC does not provide any assurance of safety for a time span of relevance to the Pueblo. L279-2

General Comment #3: The Pueblo has grave concerns with reliance on concrete barriers, for the reasons stated in the comment above.

COMMENTS ON SPECIFIC SECTIONS

S.2.6.4 Los Alamos National Laboratory (LANL)

"(TA)-54 on Mesita del Buey: Zone 6, North Site, and North Site Expanded; Its northern border coincides with the boundary between LANL and the San Ildefonso Pueblo; Engineered shafts are actively used to dispose of RH LLRW." L279-3

Comment: This section should note that there are plumes from leaking shafts in this area, which borders the Pueblo's Sacred Area.

S.3 SUMMARY AND COMPARISON OF POTENTIAL ENVIRONMENTAL IMPACTS

"On the basis of the site-specific precipitation rates that were assumed, it is estimated that the federal sites located in the arid regions of the country (Hanford Site, LANL, NNSS, and WIPP Vicinity) would generally have lower long-term human health impacts from the groundwater pathway than would the sites located in more humid regions (such as SRS)."

Comment: However, arid regions may be 100% groundwater dependent; which magnifies the risk to groundwater resources, even though humidity may be lower. L279-4

"The exception is INL, this assumption was made as a conservative approach to account for the basalt layer that is present in some parts of INL."

Comment: LANL also has basalt layers, and "surge beds", which may represent fast paths to groundwater. Any exception for INL based on basalt may apply to LANL also.

L279-1 Comment noted.

The three land disposal facility conceptual designs (above-grade vault, enhanced near-surface trench, and intermediate-depth borehole) were selected as being representative of a range of land disposal configurations (varying degrees of waste consolidation and geometry) that could be employed for the disposal of the GTCC LLRW and GTCC-like waste inventory. As discussed in Section 1.4.2, each concept has its roots in practice at DOE sites. The same vault, borehole, and trench characteristics were considered for the disposal sites evaluated in order to compare the performance of each site's natural hydrological, geological, and meteorological properties relative to contaminant fate and transport once any engineered barriers would begin to fail.

The conceptual nature of these configurations takes into account the characteristics of all of the disposal sites for which they were considered, but their designs (e.g., width, depth, cover depth, reinforced containment) could be altered or enhanced, as necessary, to provide an optimal solution at a specific location. As an example, the cover depth could be adjusted to ensure that roots from vegetation would not compromise the top of the engineered barrier. In addition, the dimensions of the generic land disposal units (e.g., trench - width and depth, borehole – diameter and depth, vault – width, depth, and height) were selected based on similar existing facilities, existing equipment and methods for construction, and optimized (maximized waste volume disposed of for a given disposal unit volume; simple waste handling procedures to minimize exposure) for the types of waste packages considered. All designs could also accommodate different disposal packages (existing and proposed) with minor variations in their dimensions, but the EIS analyses would remain relevant for each option considered. As an example, actual implementation of a disposal option at a specific location at a given site may have to be modified (i.e., the depth of a trench or a borehole may need to be reduced to avoid groundwater issues).

Past operational experience with these types of disposal facilities at DOE sites has shown that when properly implemented, they can provide isolation of radioactive waste from the environment for extended time periods. Past problems that have arisen with each option provide additional information to improve the design and performance of future land disposal facilities. Issues related to performance over time would be analyzed in a project-specific analysis to address technical and long-term cultural concerns (e.g., tribal issues).

L279-2 DOE appreciates the input provided by the Pueblo de San Ildefonso, on the EIS, both in the tribal narratives and in comments on the Draft EIS. This input was considered by DOE in identifying a preferred alternative.

In the EIS, it was assumed that institutional controls of the land disposal units would be maintained for 100 years and that corrective measures could be implemented during this time period to ensure that the engineered barriers lasted for at least 500 years. This assumption is consistent with the institutional control time frame given in both NRC and DOE requirements and was determined to be a reasonable approach for assessing the long-term performance of the disposal units in the EIS.

In evaluating the performance of the proposed land disposal facilities, a number of engineering measures were assumed in the conceptual facility designs to minimize infiltration of water into the wastes and thereby minimize contaminant migration from the disposal units. These measures would also limit exposure pathways, such as the ingestion of plants having very long roots. It was assumed in this EIS that these measures would remain intact for 500 years after the disposal facility closed. Any defects identified in the disposal facilities were assumed to be corrected during the 100-year institutional control period, so that the 500-year time period would be met.

Pueblo de San Ildefonso DECP, Commenter ID No. L279 (cont'd)

S.5 UNCERTAINTIES ASSOCIATED WITH THE EVALUATIONS IN THE DRAFT GTCC EIS

Comment: The lack of knowledge of the LANL subsurface should be discussed in this section. L279-5

S.6.3.2 Construction and Operational Experience

"DOE successfully demonstrated the use of borehole facilities to dispose of radioactive waste at NNSS (formerly NTS)," L279-6

Comment: The success of borehole disposal has not been proven for a time frame of relevance to the Pueblo.

S.6.4.1 Human Health Impacts – "However, when the impacts of Tc-99 from past leaks and cribs and trenches (ditches) are combined, DOE believes it may not be prudent to add significant additional Tc-99 to the existing environment." L279-7

Comment: This section should discuss contaminants adding to the leaks which exist at LANL.

While this time period of 500 years may not be long enough to be of relevance to various American Indian tribes, it was determined to be a reasonable basis to use for comparing the merits of various land-disposal concepts and sites in the EIS and to allow for the selection of a preferred alternative.

L279-3 Text has been added to S.2.6.4 and section 8.1.3.2 to identify the existence of contaminant plumes from leaking shafts.

L279-4 The site-specific environmental factors identified in the comment were evaluated in the EIS as appropriate. DOE agrees that arid regions may be 100% dependent on groundwater. The issue of precipitation as well as depth to groundwater was also taken into consideration in the selection of the preferred alternative in the Final EIS. Site-specific analysis would be conducted for those sites selected as a preferred alternative to address any specific impacts related to the various environmental resource areas including geology (e.g. basalt and surge beds underlying the site).

L279-5 Should LANL be selected, site-specific analysis would be conducted to further identify and evaluate LANL subsurface geology and hydrology.

L279-6 Should LANL be selected, site-specific analysis and consultation with the Pueblo governments would be conducted to further evaluate issues related to performance over time of the disposal method selected for implementation.

L279-7 DOE believes that the analyses presented in the EIS are sufficient to compare the potential cumulative impacts of GTCC LLRW and GTCC-like waste disposal for the sites that were evaluated. In particular, existing concentrations of various radionuclides in contaminated soil and groundwater at the candidate sites were taken into consideration in the selection of the preferred alternative. Additional cumulative impact analyses would be conducted in site-specific NEPA reviews, if needed, for the alternative selected in a ROD. Such follow-on analyses would be based on additional site-specific information.

Pueblo of Acoma, Commenter ID No. W15

From:	gtcceiswebmaster@anl.gov
Sent:	Wednesday, May 11, 2011 3:42 PM
To:	mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtccels@anl.gov
Subject:	Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10015
Attachments:	GTCC_EIS_GTCC10015.docx

Thank you for your comment, Laura Watchempino.

The comment tracking number that has been assigned to your comment is GTCC10015. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: May 11, 2011 03:41:50PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10015

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Attachment: C:\fakepath\GTCC EIS.docx

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

1

Pueblo of Acoma, Commenter ID No. W15 (cont'd)

Arnold Edelman, Document Manager

Email: gtcceis@anl.gov

Draft Environmental Impact Statement for the Disposal of Greater –Than-Class C (GTCC) Low- Level Radioactive Waste and GTCC-Like Waste

The *Draft Environmental Impact Statement for the Disposal of Greater –Than-Class C (GTCC) Low- Level Radioactive Waste and GTCC-Like Waste* released by the Department of Energy (DOE) is premature since the vast majority of waste will not exist for at least 20 years. Nor has the Blue Ribbon Commission on America's Nuclear Future presented its final recommendations for the disposal of high level nuclear waste and GTCC waste. W15-1

Hardened On-Site Storage and No Action Alternatives

DOE should consider a "no disposal" option with the intent on exploring a retrievable storage option called Hardened On-Site Storage (HOSS), which is similar to one of the disposal concepts (vaults) that DOE is considering for storage.

HOSS could also be used to store spent nuclear fuel at the reactor site where it is generated, thus allowing a dual purpose for these storage facilities. Transportation of the spent fuel offsite would be eliminated and the storage/disposal issue could be linked to the communities that produced it. HOSS also addresses security issues with fewer intermediary steps. HOSS would allow GTCC waste and irradiated spent fuel to remain at commercial nuclear power plants in long-term storage so that they can be monitored and are protected from aircraft crashes or terrorist attacks. W15-2

HOSS is more protective of human health and the environment than any of the alternatives presented in the DEIS and the Nuclear Regulatory Commission has determined that spent nuclear fuel can stay at commercial reactors for up to 100 years.

Additionally, any discussion of the long-term disposal of GTCC waste from nuclear reactors must include curbing the initial generation of the waste. A "No Action" alternative that discusses a halt to the construction of new taxpayer funded nuclear reactors must be analyzed. The Nuclear Regulatory Commission has not given its approval for a permanent nuclear waste disposal repository in the United States, but it continues to approve the start-up new uranium mines and mills, often in cultural and iconic landscapes, such as the Grand Canyon in Arizona and Mt. Taylor in New Mexico. Yet the Nuclear Waste Policy act of 1982 has required the development of one or more other repositories for the long-term disposal of nuclear waste. W15-3

Waste Isolation Pilot Plant

The DOE should avoid the consideration of an alternative that would "dump" GTCC waste on states or communities that are already disproportionately impacted by the nuclear fuel cycle, from hosting uranium mines, processing facilities or national labs that conduct experiments with the use of nuclear power.

The long-term care and maintenance of over 160,000,000 curies of radioactivity is *30 times more radioactivity* than originally planned for the Waste Isolation Pilot Plant (WIPP) in New Mexico and would eliminate the ban on commercial waste. It would open the door for the transformation of WIPP into a dumping ground for the nation's high-level waste and spent nuclear fuel, also currently banned at the WIPP site. W15-4

W15-1 The scope of this EIS is adequate to inform decision-making for the disposal of GTCC LLRW and GTCC-like waste. Sufficient information is available to support the current decision-making process to identify (an) appropriate site(s) and method(s) to dispose of the limited amount of GTCC LLRW and GTCC-like waste identified in the EIS.

DOE believes that this EIS process is not premature and is in compliance with NEPA. On the basis of an assumed starting date of 2019 for disposal operations, more than half (about 6,700 m^3 [240,000 ft^3] of the total GTCC LLRW and GTCC-like waste inventory of 12,000 m^3 [420,000 ft^3]) is projected to be available for disposal between 2019 and 2030. An additional 2,000 m^3 (71,000 ft^3) would become available for disposal between 2031 and 2035. This information is presented in Figure 3.4.2-1. DOE believes this EIS is timely, especially given the length of time necessary to develop a GTCC waste disposal facility.

The Blue Ribbon Commission (BRC) on America's Nuclear Future, in its final report to DOE on January 26, 2012, provided recommendations, which included the development of one or more permanent deep geologic facilities for the safe disposal of spent nuclear fuel and high-level radioactive waste and the development of one or more consolidated interim storage facilities as part of an integrated, comprehensive plan for managing the back end of the nuclear fuel cycle. In its Strategy for the Management and Disposal of Spent Nuclear Fuel and High Level Radioactive Waste (DOE 2013), developed in response to the BRC Report, the Administration agreed "that the development of geologic disposal capacity is currently the most cost-effective way of permanently disposing of used nuclear fuel and high-level radioactive waste while minimizing the burden on future generations" and proposed to "engage in a consent-based siting process and begin to conduct preliminary site investigations for a geologic repository." The Administration's goal is to have a repository constructed and its operations started by 2048. The Administration will work with Congress using the strategy as an actionable framework for building a national program for the management and disposal of the nation's used nuclear fuel and high-level radioactive waste (DOE 2013).

W15-2 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

W15-3 Stopping the generation of nuclear waste is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes.

Comment noted. The Nuclear Was Policy Act of 1982 applies to the disposal of Spent Nuclear Fuel and High Level Waste.

W15-4 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would

Pueblo of Acoma, Commenter ID No. W15 (cont'd)

Los Alamos National Laboratory

There are significant groundwater contamination risks associated with the disposal of GTCC radioactive waste at Los Alamos National Laboratory (LANL) in New Mexico. LANL buries its low-level radioactive waste in unlined trenches, pits and shafts at Area G. A final determination by DOE and the New Mexico Environment Department on the burial of hazardous and radioactive wastes at Area G has not yet been made and is a highly controversial issue. A decision to add GTCC waste to the mix would predetermine the outcome of that decision, posing a threat to groundwater in the region for generations to come. W15-5

Conclusion

The DOE acted irresponsibly in releasing nuclear power generation into the stream of commerce. Commercial nuclear waste disposal has now become a critical issue of our time, far beyond the capacity of any current disposal alternatives. W15-6

The DOE should not proceed with a final GTCC EIS, but instead should develop a new DEIS that includes HOSS facilities as the best solution for GTCCC wastes in this century and for new geologic disposal sites to dispose of GTCC waste in the next. In the alternative, DOE should issue a supplement to its *1997 Final Waste Management EIS* that looks at reasonable alternatives for "GTCC-like" waste and other wastes for which long-term storage and disposal has not been determined, along with updated information and policy directives from the Blue Ribbon Commission on America's Nuclear Future. W15-7

be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

A number of comments, primarily from sources within New Mexico, were made supporting the use of WIPP and the WIPP Vicinity for the disposal of GTCC LLRW and GTCC-like wastes. These comments generally noted that as an operating facility for disposal of defense-generated TRU waste, WIPP was a logical choice to provide the necessary disposal capability for GTCC LLRW and GTCC-like wastes to address this national need. Legislative action would be necessary to allow for the disposal of GTCC LLRW and GTCC-like wastes in the WIPP repository. In addition, the evaluation for a near-surface land disposal facility at the WIPP Vicinity reference locations indicated that potential human health and environmental impacts would be minimal.

The State of New Mexico has indicated a willingness to accept GTCC LLRW and GTCC-like wastes for disposal at WIPP. Twenty-eight New Mexico State Senators signed a proclamation made in the Fiftieth Legislature, First Session, 2011, stating: "Be it resolved that we, the undersigned, support the opportunity for other potential missions in southeast New Mexico to adequately address the disposal of defense high-level waste, commercial high-level waste, Greater Than Class C LLRW and surplus plutonium waste, as well as the interim storage of spent nuclear fuel." In response to the Draft GTCC EIS, Secretary David Martin, Secretary of the New Mexico Environment Department, sent a letter to DOE on June 27, 2011, stating that "the Department encourages DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type." In addition, the Governor of New Mexico, in a letter to DOE Secretary Steven Chu on September 1, 2011, stated that the State of New Mexico encourages DOE to support the proposed location of WIPP as the preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes.

W15-5 Comment noted. This issue as well as other factors were taken into consideration when selecting the preferred alternative for the disposal of GTCC LLRW and GTCC-like waste.

W15-6 Even though it is beyond the scope of this GTCC EIS, the comment is noted. This GTCC EIS addresses the potential environmental impacts associated with the proposed development, operation, and long-term management of a disposal facility or facilities for GTCC low-level radioactive waste (LLRW) and DOE GTCC-like waste.

W15-7 The action alternatives evaluated in the GTCC EIS did not include interim storage of GTCC LLRW and GTCC-like wastes until a geologic repository for spent nuclear fuel and high-level radioactive waste becomes available because such interim storage (e.g., HOSS) is outside the scope of the GTCC EIS. The purpose of the GTCC EIS is to evaluate the range of reasonable alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. The No Action Alternative evaluates continued storage of GTCC LLRW and GTCC-like wastes consistent with ongoing practices.

Pueblo of Acoma, Commenter ID No. W15 (cont'd)

DOE explained in the WM PEIS (DOE, 1997, *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste*, DOE/EIS-0200-F, Office of Environmental Management, Washington, D.C.) that additional analyses would be prepared to implement DOE's programmatic decisions. The GTCC EIS analyzes the potential environmental impacts associated with the disposal of GTCC LLRW and GTCC-like (DOE) wastes. Since the WM PEIS relates only to DOE waste, the inclusion of commercial waste in the WM PEIS is premature until the GTCC EIS is finalized and a ROD is issued. Depending on the outcome of this ROD, DOE will evaluate whether additional programmatic or site-specific NEPA reviews or updates to previous decisions are needed, as appropriate. Any additional NEPA reviews or considerations will be conducted with full opportunity for public input, consistent with Council on Environmental Quality and DOE NEPA requirements.

R Graham Graphics, Commenter ID No. W108

From: gtcceiswebmaster@anl.gov
Sent: Wednesday, June 15, 2011 7:20 PM
To: gtcceiswebmaster@anl.gov
Subject: Receipt: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10108

Thank you for your comment, Robert Graham.

The comment tracking number that has been assigned to your comment is GTCC10108. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 15, 2011 07:19:17PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10108

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Comment Submitted:
Secretary Chu and Mr. Edelman:

The Hanford Nuclear Reservation is the wrong place to store and dispose of highly dangerous radioactive material. It is already the most contaminated site in the Western Hemisphere and the Department of Energy is already engaged in one of the largest and most complex cleanup projects in U.S. history at Hanford. You should stop nuclear waste from leaking into the Columbia River and clean up the existing site at Hanford. No new nuclear waste should be transported to Hanford. W108-1

Using the Hanford site means thousands of trucks with dangerous radioactive waste would be traveling along the Columbia River Gorge National Scenic Area. The risk of an accident is simply too great, and the environmental and human health costs are unacceptable. W108-2

The Draft of the Environmental Impact Statement (DEIS) fails to consider the risks involved in transporting these waste materials to Hanford. The DEIS does not include a 2008 USDOE study estimated that 800 adult cancer deaths would occur due to ambient radiation from the transport vehicles alone. Nor does the DEIS include the number of deaths and environmental damage resulting from a truck accident. W108-3 W108-4

1

W108-1 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup effort will continue.

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

W108-2 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

If DOE decides to implement its preferred alternative for the TC&WM EIS, GTCC LLRW and GTCC-like wastes would not be shipped through the Columbia River Gorge for disposal at the Hanford Site until the waste treatment plant is operational. However, regardless of where the GTCC waste disposal facility is ultimately located, a relatively small amount of GTCC LLRW and GTCC-like wastes may be transported through the Columbia River Gorge on their way to the disposal facility. The waste would be generated within the states of Oregon and Washington and would include actinide sealed sources and Cs-137 irradiators from local medical institutions, research facilities, universities, and other NRC and Agreement State licensees.

The transportation of radioactive waste will meet or exceed DOT and NRC regulatory requirements that promote the protection of human health and the environment. These regulations include requirements for radioactive materials packaging, marking, labeling, placarding, shipping papers, and highway routing. The waste shipments would be on preferred routes, which are interstate highways or alternative routes designated by a state routing agency in accordance with DOT regulations (49 CFR Part 397, Subpart D). The GTCC LLRW and GTCC-like wastes would be shipped in approved waste packages and transportation casks. The robust nature of these casks limits the potential release of radioactive and chemically hazardous material under the severest of accident conditions. It is unlikely that the transportation of GTCC LLRW and GTCC-like wastes to any of the alternative sites evaluated in the EIS would cause an additional fatality as a result of radiation from either incident-free transportation or postulated transportation accidents.

The EIS evaluated the transportation impacts from the shipments that would be required to dispose of all of the GTCC LLRW and GTCC-like wastes at the various disposal sites. The EIS addressed the collective population risks during routine conditions and accidents, the radiological risks to the highest exposed individuals during routine conditions, and the consequences to individuals and populations as a result of transportation accidents, including those that could release radioactive or hazardous chemical materials. About 12,600 shipments would be required to transport all of the GTCC LLRW and GTCC-like wastes to the Hanford Site for disposal. This would result in about 50 million km (30 million mi) of highway travel, with no expected LCFs. One fatality directly related to an accident might occur (see Section 6.2.9.1).

DOE's standard operating procedure for transportation of radioactive waste is developed and continually revised to ensure that the utmost protection of public health and the environment is achieved and that the risk of a traffic accident is minimized. For example, DOE has established a comprehensive emergency management program (Transportation Emergency Preparedness Program or TEPP) that provides detailed, hazard specific planning and preparedness measures to minimize the health impacts from accidents involving loss of control over radioactive material or toxic chemicals. DOE's TEPP was established to ensure that its contractors and state, tribal, and local emergency responders are prepared to respond promptly, efficiently, and effectively to accidents involving DOE shipments of radioactive materials.

R Graham Graphics, Commenter ID No. W108 (cont'd)

I am joined in opposition to transporting more nuclear waste to Hanford by Friends of the Columbia Gorge, Heart of America Northwest, Columbia Riverkeeper, 17 Oregon legislators, Congressman Earl Blumenauer, U.S. Senator Merkley, U.S. Senator Wyden and many others. W108-5

Thank you for your time and consideration.

Questions about submitting comments over the Web? Contact us at: gtccelswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

2

If an accident that involved a release of radioactive material to the environment occurred, it would be remediated promptly in accordance with these procedures. These measures would help DOE minimize and mitigate any impacts on the environment.

W108-3 A number of commenters indicated they believed shipping offsite waste would result in 800 LCFs. This value for transportation risk does not exist in this GTCC EIS. DOE believes that the value of approximately 800 LCFs, cited in the public comments, is from the results provided in the *Draft Global Nuclear Energy Partnership Programmatic Environmental Impact Statement* (GNEP PEIS) regarding transportation of spent nuclear fuel (SNF) and HLW. This value represents the maximum impacts associated with 50 years of transportation activities supporting the operations of all existing U.S. commercial light-water reactors if they all were replaced with high-temperature, gas-cooled reactors. The GNEP PEIS was canceled by DOE on June 29, 2009 (74 FR 31017).

The GNEP PEIS involved many more shipments than those for disposal of GTCC LLRW and GTCC-like wastes. Because of this, the resulting estimated impacts for that program (now terminated) were much greater than those given in this EIS. The same types of analyses were done in both the GNEP PEIS and this EIS, but no LCFs are expected to result from transportation of the GTCC LLRW or GTCC-like wastes to the potential disposal sites considered in the GTCC EIS due to the much lower shipment numbers.

Tables 2.7-5 and 2.7-6 summarize the transportation impacts for truck and rail, respectively, for all alternatives. The accident fatalities column indicates the potential number of fatalities from transportation accidents, and the collective population LCFs column includes accident risks (from radioactive material releases) as well as from normal transport.

W108-4 Many commenters made reference to an estimate of 800 LCFs in the *Draft Global Nuclear Energy Partnership Programmatic Environmental Impact Statement* (GNEP PEIS, DOE/EIS 0396). This value is not relevant to the proposed action in the GTCC EIS. This value represents the maximum impacts associated with 50 years of transportation activities supporting the operations of all existing domestic commercial light-water reactors if all of them were replaced with high temperature, gas-cooled reactors. DOE cancelled the GNEP PEIS process on June 29, 2009 (74 FR 31017).

The GNEP PEIS involved many more shipments than those for disposal of GTCC LLRW and GTCC-like wastes. Because of this, the resulting estimated impacts for that program (now terminated) were much greater than those given in this EIS. The same types of analyses were done in both the GNEP PEIS and this EIS, but no LCFs are expected to result from transportation of the GTCC LLRW or GTCC-like wastes to the potential disposal sites considered in the GTCC EIS due to the much lower shipment numbers.

W108-5 See response to W108-2.

Rosemere Neighborhood Association, Commenter ID No. T134

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Okay. This is Dvija Michael Bertish.

MR. BERTISH: There's a few of you left at least. That's good. Dvija Michael Bertish, Rosemere Neighborhood Association based in Vancouver, Washington, abutting I-5, which is one of the transportation corridors. So our neighborhood would be directly affected. And our organization and those of our supporters oppose this proposal.

Relative to the Environmental Impact Statement, we ask that there be no pursuit of a Final Environmental Impact Statement until the comments that have been produced by all of the various public forums be addressed as a systematic response summary matrix and adjustments made to the Environmental Impact Statement to discuss how those grievances would be addressed in any final. T134-1

So no Record of Decision based on that. And we would ask that, actually, the Environment Impact Statement be back-pedaled and redone, because not every alternative has been adequately outlined under the guidelines of NEPA. T134-2

Personally, and representing the interests of T134-3

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T134-1 In preparing the Final GTCC EIS, DOE gave equal consideration to all public comments received. DOE responses to these comments are provided in this appendix. Changes in response to these comments are noted in our responses to the comments and "side-bars" indicating changes to the Final EIS are included in this document.

As part of the NEPA process, DOE engages the public in providing input. This input is considered in evaluation of the various alternatives presented in the EIS. Cumulative impacts from other actions at the site are also considered in making a final decision.

T134-2 The scope of this EIS is in compliance with the NEPA guidelines and is adequate to inform decision-making for the disposal of GTCC LLRW and GTCC-like waste. Sufficient information is available to support the current decision-making process to identify (an) appropriate site(s) and method(s) to dispose of the limited amount of GTCC LLRW and GTCC-like waste identified in the EIS.

DOE believes that this EIS process is not premature and is in compliance with NEPA. On the basis of an assumed starting date of 2019 for disposal operations, more than half (about 6,700 m^3 [240,000 ft^3] of the total GTCC LLRW and GTCC-like waste inventory of 12,000 m^3 [420,000 ft^3]) is projected to be available for disposal between 2019 and 2030. An additional 2,000 m^3 (71,000 ft^3) would become available for disposal between 2031 and 2035. This information is presented in Figure 3.4.2-1. DOE believes this EIS is timely, especially given the length of time necessary to develop a GTCC waste disposal facility.

DOE developed this EIS to support a decision on selecting a disposal facility or facilities for GTCC LLRW and GTCC-like waste, to address legislative requirements, to address national security concerns (especially for sealed sources), and to protect public health and safety. The purpose and need for the proposed action, as discussed above, is stated in the EIS (Section 1.1). The scope of the EIS is focused on addressing the need for developing a disposal capability for the identified inventory of GTCC LLRW and GTCC-like wastes. DOE plans a tiered decision-making process, in which DOE would conduct further site-specific NEPA reviews before implementing an alternative ultimately selected on the basis of this EIS.

T134-3 Comment noted.

Rosemere Neighborhood Association, Commenter ID No. T134 (cont'd)

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our organization and our fellow partners, we don't believe that the U.S. Department of Energy nor the regulatory commission of the United States can adequately protect the public by creating another repository that's shallow. We do not believe that the justification for this, keeping this stream of nuclear medicine or nuclear weapons that are dispersed around the world and bringing them to one place, would solve that problem. T134-3 (Cont.) T134-4

That is not an adequate justification to create a suppository. We believe that the U.S. Department of Energy is disingenuous and that it has -- at the last meeting, we provided comments, similar to what the lady before me just spoke about, the MOX fuel that was being readied for the Hanford generating station. And the Department of Energy representative said that had nothing to do with them and that it was all Energy Northwest's doing. But you work in partnership, and so we feel, based on that, that it's not a trustworthy thing to say that we can agree that you would be able to protect such a repository that would multiply the degree of contamination at the site.

I mirror the comments of most all of the people that were here tonight, including elected officials

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T134-4 Comment noted. DOE believes that disposal of the GTCC LLRW and GTCC-like waste would take such material out of the public domain and put it in a place that would be currently inaccessible and difficult to retrieve.

Rosemere Neighborhood Association, Commenter ID No. T134 (cont'd)

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1 from both -- elected and appointed officials from
2 both Oregon and Washington who say, Don't bring the T134-5
3 stuff here. We agree.
4 And there was a gentleman who asked earlier
5 where the stuff was coming from and why couldn't it
6 be left where it was in terms of nuclear waste, and
7 it's my understanding -- and it's common knowledge --
8 that it's even being discussed that we would be
9 importing nuclear waste from Europe and that it would
10 travel through the United States, and that there
11 would be American corporations springing up that
12 would deal with the waste stream and transmute it and
13 say, Pay us and we'll take your waste off your hands T134-6
14 and we'll do dump it at Hanford. It's already moved
15 across the Great Lakes from Canada. There's a
16 company in Tennessee that wants to take it from
17 Germany, and we have no say in all this. And we
18 don't think it is appropriate.
19 Leave it where it's at. Make the people who
20 make the stuff responsible for it forever. Leave it T134-7
21 in place, make them deal with it, and we'll deal with
22 our own. Thank you.

T134-5 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

T134-6 See response to T134-5.

T134-7 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

Leaving the waste in place (i.e., the No Action Alternative) is evaluated in the EIS to provide a baseline for comparison with the action alternatives. This evaluation confirmed the risks posed by these wastes and the need to develop appropriate disposal capability. The potential radiation doses for the No Action Alternative covered a time period of 10,000 years in a manner comparable to that done for the action alternatives. Relatively high impacts could occur shortly after the 100-year institutional control period under this alternative.

Santa Clara Pueblo, Commenter ID No. L95

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June 24, 2011

Arnold Edelman,
GTCC DEIS Document Manager
Office of Environmental Management
US Department of Energy
Cloverleaf Building, EM-43
1000 Independence Avenue SW
Washington, DC 20585

Re: Santa Clara Pueblo's Comments on the Draft *Environmental Impact Statement for the Disposal of Greater-Than-Class-C (GTCC) Low Level Radioactive Waste and GTCC-Like Waste* (DOE/EIS-0375-D)

Dear Mr. Edelman:

Santa Clara Pueblo submits the following comments on the Draft *Environmental Impact Statement for the Disposal of Greater-Than-Class-C (GTCC) Low Level Radioactive Waste and GTCC-Like Waste* ("GTCC DEIS").

We trust these comments will be respected as part of our government-to-government relationship with the U.S. Department of Energy ("DOE"), which is formalized not only in the DOE Order 144.1 (approved January 16, 2009) and the DOE American Indian and Alaska Native Tribal Government Policy ("DOE Indian Policy") but also more specifically through an Accord developed in 1992 directly between our Pueblo and the DOE which was restated and reaffirmed by both governments in 2006 ("2006 Accord"). L95-1

While we applaud the DOE for its efforts to try to meaningfully involve Tribal governments early in the process of developing the GTCC DEIS and for including Tribal viewpoints in the draft document, we are dismayed that much of the Tribal input was not actually factored into the analysis conducted by the DOE for the GTCC DEIS.

We begin our comments with some background information regarding Santa Clara Pueblo to provide context for our comments and then follow with specific comments regarding the GTCC DEIS with a focus on why the DOE's preferred alternative for a disposal facility or disposal facilities for Greater-Than-Class-C ("GTCC") low level radioactive waste and DOE GTCC-like L95-2

L95-1 DOE initiated government-to-government consultations with potentially affected American Indian tribes in a timely manner consistent with DOE Order 144.1 and DOE's NEPA implementing guidelines. These consultations were done at a time that DOE had compiled and developed sufficient information for the Draft EIS (including identification of the GTCC LLRW and GTCC-like waste inventory) to allow for an informed consultation with potentially affected American Indian tribes. These consultations resulted in some of the tribes providing narrative text for inclusion in the EIS.

DOE considered the input provided by American Indian tribes (as reflected in the tribal narratives in the EIS) in identifying the preferred alternative. Tribal narratives identified several tribal issues related to NNSS, Hanford, INL, and LANL; however, no affiliated tribes were identified for the purpose of developing tribal narratives associated with WIPP and SRS.

The Department is committed ensuring government to government consultations and following the policy, principles, and commitments in the DOE Order on American Indian Tribal Government Interactions and the American Indian and Alaska Native Tribal Government Policy (DOE Order 144.1). DOE formally consulted with the Santa Clara Pueblo and American Indian Tribes to assure that tribal rights, responsibilities, and concerns are addressed prior to making any final decision on the selection of (an) alternative(s) for the disposal of GTCC LLRW and GTCC-like waste and/or implementing GTCC programs that may affect the Pueblos and American Indian Tribes.

Text prepared by potentially affected American Indian tribes is included in this EIS. DOE considered this text for Hanford, INL, LANL, and NNSS; however, DOE also needed to ensure consistency in the EIS analyses between the various sites, so that an even comparison could be made between alternatives as required by NEPA. Because of this, it was not possible to fully utilize all of the information provided by the tribal governments in order to perform specific analyses associated with exposure events unique to a given American Indian tribe (such as greater intakes of fish, game, and plants; the use of sweat lodges; and the use of natural pigment paints for traditional ceremonies). Once a decision is made on a specific site location and method, appropriate site-specific NEPA review would be conducted, as needed.

However, the information provided in these narratives was considered in the identification of the preferred alternative presented in this EIS. The information provided in the narratives for Hanford, INL, LANL, and NNSS was very useful, and DOE appreciates the time and effort expended by the various tribes in supporting this EIS process. For additional information, see Section J.2.5.

L95-2 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE also conducted a generic evaluation of commercial disposal facilities on nonfederal lands in the EIS to order to provide, to the extent possible, information regarding the potential long-term performance of other (nonfederal) locations for siting a GTCC waste land disposal facility.

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waste should *not* include any such disposal at Los Alamos National Laboratory ("LANL"). L95-2 (Cont.)

Although the DOE must adhere to specific a regulatory and statutory process for this particular environmental impact statement in order to comply with the National Environmental Policy Act ("NEPA"), the Low-Level Radioactive Waste Policy Amendments Act of 1985, and the Energy Policy Act of 2005, please remember that this is no sterile regulatory matter for Santa Clara Pueblo. The Pajarito Plateau, where LANL is situated, contains many areas of traditional importance to the Santa Clara Tribal community. Environmental degradation of this place that is profoundly holy to the Santa Clara community affects the cultural survival of Santa Clara Pueblo. While others may believe it appropriate to bury more waste at LANL because they only see barren land or otherwise "undeveloped and relatively undisturbed areas," *see* GTCC DEIS at 1-35 (discussing LANL proposed waste disposal location), we do not believe it is appropriate because these areas both at and near LANL are actually our Bethlehem, our Mecca, our Jerusalem. Imagine if you were asked to comment on a proposal to dispose of wastes, some of which have half-lives in excess of 10,000 years, in your most holy place of worship. Would that be a simple regulatory matter to you? As you review these comments, please bear this in mind and please remember that, prior to the Manhattan Project, the Pajarito Plateau was pristine and Santa Clara's connection to this area goes back to the beginning of time. L95-3

I. Overview regarding Santa Clara Pueblo

Santa Clara Pueblo is a federally-recognized Indian tribe located in northern New Mexico, approximately twenty-five (25) miles northwest of the City of Santa Fe. Much of the City of Española, approximately one (1) mile to the west of our Tribal government offices, actually is located within the exterior boundaries of Santa Clara lands. While our Tribal offices are approximately eighteen (18) miles away from LANL, our closest border is actually only about five (5) miles from the current-day boundaries of LANL. In fact, early maps reveal that LANL once shared a boundary with Santa Clara Pueblo and that the area now located between LANL and Santa Clara was once referred to as "Area E." Our traditional lands include lands taken for the Manhattan Project.

While we always will emphasize the need for DOE to respect its government-to-government relationship with the Pueblo, Santa Clara Pueblo is not only a government in some bureaucratic sense of the word. In the broader cultural sense, we are also an Indian community of people, a society unto ourselves numbering less than a few thousand, distinct from every other Indian community in our traditions. We have similarities with the other Pueblos in New Mexico, especially those who also speak our Tewa language, but we are a separate sovereign Indian nation, recognized as such over the past 400 years by three different sovereign governments – Spain, Mexico, and the United States of America. Tribal leaders at Santa Clara Pueblo still carry the canes presented to our ancestral leaders by the Spanish and Mexican governments, as well as a similar cane presented by President Abraham Lincoln after New Mexico was annexed by the United States. Tribal protection and management of our natural resources along our ancestral homelands in the Jemez Mountains, Pajarito Plateau, and Rio Grande Valley began many thousands of years ago, long before the Spanish, Mexican, or American periods of our

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

L95-3 DOE has taken into consideration the concerns of the Santa Clara Pueblo related to cultural and religious concerns in the selection of the preferred alternative for the disposal of GTCC LLRW and GTCC-like waste.

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history.

The modern-day boundaries of our Pueblo include over 53,000 acres of land. This acreage figure includes some of our traditional lands that we have fought to regain but does not encompass all of our aboriginal territory. Many of the various vegetative communities and the innumerable wildlife species they support have significant traditional and spiritual value to us as a people. The Pajarito Plateau contains many areas of cultural importance to our people and our cultural practices connected to these areas continue to this day. Some of these places and practices were already highlighted in the comments already provided by Santa Clara Pueblo for this GTCC DEIS (*See* GTCC DEIS, Appendix G at G-79 through G-92).

II. Disposal of GTCC and the DOE's GTCC-like waste at LANL should not be part of DOE's preferred alternative because such disposal at LANL is in direct opposition to the purpose of the DOE's 2005 Order on Consent with the State of New Mexico and directly contravenes the DOE's clean-up and footprint reduction missions for LANL

The GTCC DEIS assumes there will be a need to dispose of approximately 420,000 cubic feet of GTCC and GTCC-like waste, some of which exists now but some of which is expected to be generated within the next twenty to thirty years. *See* GTCC DEIS at S-10 and 1-3. According to the GTCC DEIS, some of the radionuclides in the GTCC wastes are present in high concentrations or have very long half-lives (in excess of 10,000 years) such that disposal facilities are needed for a 10,000 year timeframe. *Id.* at S-9 and 1-3. Some of the options assessed in the GTCC DEIS are to dispose of these wastes at LANL in intermediate-depth boreholes, enhanced near-surface trenches, or above-grade vaults on Mesita del Buey. The locations for LANL assessed are primarily within Technical Area ("T.A.")54 with some locations identified at the adjacent TA-51. *Id.* at 1-35 and 8-1.

Strangely, the GTCC DEIS states explicitly that there are no settlement agreements or consent orders for LANL that would be affected by the proposal to bury these wastes at LANL at TA-54. *See id.* at 8-98. Yet, TA-54 is the very location of extensive remediation under a March 2005 Compliance Order on Consent between the New Mexico Environment Department and LANL ("2005 Consent Order"). The purposes of the 2005 Consent Order are: (1) to define the extent of releases of contaminants at LANL; (2) to evaluate corrective measures to clean up contaminants and prevent or mitigate the migration of contaminants; and (3) to implement such corrective measures. In fact, extensive work is underway now to identify how all the existing unlined subsurface pits, trenches and shafts in Material Disposal Area G at TA-54 will be comprehensively remediated and closed in conjunction with the 2005 Consent Order. TA-54 is scheduled to be closed to new waste disposal following the 2005 Consent Order remediation. Therefore, the proposal in the GTCC DEIS to turn TA-54 back into an active waste disposal area would contradict the very purpose of the remediation effort already underway. L95-4

Moreover, DOE, through its Environmental Management ("EM") branch, has made clean-up of legacy wastes and reduction of the footprint in the nuclear complex two of its top four priorities for its current mission as part of its "Journey to Excellence." *See* U.S. DOE, Office of

L95-4 DOE is performing environmental restoration activities at LANL. The ongoing cleanup effort will continue.

A discussion of the 2005 consent order was added to Section 8.5 in the EIS. The 2005 Consent Order is currently under re-negotiation with NMED. Once the agreement is finalized (projected in 2016), it will supersede the 2005 Consent Order.

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Environmental Management, *Roadmap - EM Journey to Excellence* (Revision 0- December 16, 2010). According to EM's roadmap:

> Footprint Reduction is defined as remediation of an area and the immediately surrounding buffer zone, if necessary, such that cleanup has achieved all regulatory requirements (i.e., all soil contamination has been remediated, contaminated facilities dispositioned, and a groundwater remediation system is in-place and operable) and whereby the previously affected land area may be made available for potential beneficial reuse, transitioned to long-term remedial operations, or made ready for transfer for long-term environmental stewardship.

Id. at 9.

Disposing of GTCC and DOE GTCC-like waste at LANL would defeat EM's recently heralded mission of footprint reduction since, according to the GTCC DEIS, the acreage needed for GTCC and GTCC-like waste at TA-54 and TA-51 at LANL would be 110 acres for boreholes, 50 acres for trenches, and 60 acres for the vaults. *See* GTCC EIS at S-21through S-24. It is hard to envision how, as part of footprint reduction, the "previously affected land area" already scheduled for clean-up of legacy waste at TA-54 could then be "made available for potential beneficial reuse, or transitioned to long-term remedial operations, or made ready for transfer for long-term environmental stewardship" if the new use for the land is to build another whole new waste disposal area on 50 to 110 acres. L95-4 (Cont.)

The GTCC DEIS states that DOE will choose its preferred alternative and that the preferred alternative must, among other things, fulfill DOE's statutory mission and responsibilities. *See* GTCC DEIS at S-53. Since permanent disposal of GTCC waste at LANL would contravene the DOE's own stated mission and would contravene and undermine the 2005 Consent Order with the State of New Mexico, the DOE should reject any alternative that includes storage at LANL when choosing its preferred alternative for the final EIS for this waste stream.

III. Disposal of GTCC and the DOE's GTCC-like waste at LANL should not be part of DOE's preferred alternative because new information about seismic risks at LANL makes LANL a clearly unsafe and unjustifiable choice

LANL was built on the Pajarito Fault System along the Rio Grande Rift. The Pajarito Fault connects to a number of secondary faults -- the Santa Clara Canyon Fault, the Rendija Canyon Fault, the Guaje Mountain Faults, and the Sawyer Canyon Fault. This fault system connects to Santa Clara Pueblo's landbase and, among other concerns, Santa Clara Pueblo remains deeply concerned that this fault system provides a means of transport for groundwater contamination to our lands. *See* GTCC DEIS at G-82. L95-5

The GTCC DEIS does acknowledge the seismic faults at and around LANL and does incorporate information from the seismic hazard study for LANL conducted in 2007, *see* GTCC DEIS at 8-19 through 8-22, but there is newer information about the seismic risks that was not incorporated

L95-5 The site-specific environmental factors identified were evaluated in the EIS as appropriate. In terms of recent analyses, an update to the Probabilistic Seismic Hazards Assessment of the Los Alamos National Laboratory (May, 2007) was completed in 2009 (Final Report, Update of the Probabilistic Seismic Hazard Analysis and Development of CMRR Design Ground Motions, Los Alamos National Laboratory, New Mexico, URS Corporation for Los Alamos National Laboratory, October 2009). This update indicates that the ground motions associated with seismic hazard at Los Alamos were slightly lower than predicted in the 2007 study. In design and evaluation of LANL nuclear structures, DOE looks at the potential for earthquakes on all known seismic sources in the vicinity of LANL that could produce strong ground shaking. The seismic hazard at LANL is defined at annual frequencies of exceedance from less than 1x10-2 (1/100 years) to about 1x10-6 (1/1,000,000 years). The 2,500 year return period event that is referred to is associated with the design basis earthquake. This does not mean that the DOE does not look at the impact of more rare events in managing the seismic risk to the laboratory. The facility designs are conservative. A properly designed structure has less than a 1% probability of failure if the 2,500 year event were to occur. The GTCC EIS did take into consideration all the latest information available related to seismic issues in selecting the preferred alternative.

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in the GTCC DEIS. In April of this past year, LANL "self-reported" to the National Nuclear Safety Administration another analysis from LANL's Seismic Analysis of Facilities and Evaluation of Risk (SAFER) Project which showed "that a large earthquake . . . might occur in north-central New Mexico every 2,500 years." *See* news release, "Preliminary study assesses potential impact of seismic event at Los Alamos," at http://www.lanl.gov/news/releases/.This self-reported analysis from LANL is in keeping with findings from CIRES, the Cooperative Institute for Research in Environmental Science, which is an earth sciences research institute jointly operated by the National Oceanic and Atmospheric Administration and the University of Colorado at Boulder. CIRES has reported that volcanos in the Rio Grande Rift, in which LANL is located, are "dormant, [but] not extinct" and that "a large earthquake (7.0 magnitude or larger) will occur at some point in the future." *See* http://cires.colorado.edu/science/groups/sheehan/projects/riogrande/faq.

While LANL's self-reporting of a large earthquake in a 2,500 year timeframe may seem like a long enough period of time to dismiss risks, 2,500 years needs to be compared to the half-life of some GTCC wastes which the DOE has indicated could remain radioactive for *10,000 years.* L95-5 (Cont.)

The DOE thus should eliminate LANL from any of its alternatives for GTCC and GTCC-like waste disposal and not include LANL within its preferred alternative because the location of LANL in a seismic fault zone between a rift and a dormant volcano, when coupled with LANL's own acknowledgement that a large earthquake is quite possible within the timeframe necessary for safe disposal of this waste, make LANL a choice where the impacts on the human environment of GTCC and GTCC-like waste disposal are not only significant but are unsafe and unjustifiable.

As if NEPA impacts were not reason enough, according to the GTCC DEIS, to comply with the Low-Level Radioactive Waste Policy Amendments Act of 1985, GTCC waste must be disposed of in a facility that is adequate to protect public health and safety (and is licensed by the NRC, which LANL is not). *See* GTCC DEIS at 1-2. Consequently, given the nature of the newer information about seismic risks at LANL as those risks relate to the long half-lives of some of the radionuclides in GTCC wastes, LANL cannot meet the specified criteria for GTCC waste disposal in the Low-Level Radioactive Waste Policy Amendments Act of 1985.

IV. Disposal of GTCC and the DOE's GTCC-like waste at LANL should not be part of DOE's preferred alternative because of the significant and adverse impacts to the Santa Clara Pueblo community

Santa Clara Pueblo was invited by the DOE to provide comments early on in the GTCC process and we did so. *See* GTCC DEIS, Appendix G, at G-79 through G-92. In the Tribal Narrative we provided with some of our neighboring Pueblos, we described how our practices result in exposures beyond those exposures experienced by the general public or even the DOE's choice of a Maximally Exposed Individual, the so-called "hypothetical resident farmer." *See* GTCC DEIS at E-8 through E-9. L95-6

L95-6 Text prepared by potentially affected American Indian tribes is included in this EIS. DOE considered this text for Hanford, INL, LANL, and NNSS; however, DOE also needed to ensure consistency in the EIS analyses between the various sites, so that an even comparison could be made between alternatives as required by NEPA. Because of this, it was not possible to fully utilize all of the information provided by the tribal governments in order to perform specific analyses associated with exposure events unique to a given American Indian tribe (such as greater intakes of fish, game, and plants; the use of sweat lodges; and the use of natural pigment paints for traditional ceremonies). Once a decision is made on a specific site location and method, appropriate site-specific NEPA review would be conducted, including appropriate analysis of exposure events unique to the impacted local American Indian tribes.

However, the information provided in these narratives was considered in the identification of the preferred alternative presented in this EIS. The information provided in the narratives for Hanford, INL, LANL, and NNSS was very useful, and DOE appreciates the time and effort expended by the various tribes in supporting this EIS process. For additional information, see Section J.2.5.

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In the Tribal Narrative we already provided for the GTCC DEIS, we described how Santa Clara Pueblo members utilize springs and seeps and other surface sources of water in our traditional areas in their natural, unfiltered state, as part of our cultural practices and how our potters have "direct and intimate contact with stream and surface clay deposits." *Id.* at G-82. We also described how we use natural pigment paints for ceremonies which are placed on our bodies and kept there for long periods of time during which there is considerable physical activity that opens the pores. *Id.* at G-82 and G-83. We actually enumerated many of the traditional plants and animals located on or near the proposed GTCC and GTCC-like waste disposal area at LANL and noted that we collect and utilize numerous wild plants and herbs for medicinal and other cultural purposes. *Id.* at G-83. It is also important to note that our use of traditional animals is more extensive than the general public or even the DOE's assumed "hypothetical resident farmer." When we harvest elk or deer, in addition to the meat, we consume the bone marrow, the organs, and the blood. We also noted that, if LANL were chosen for GTCC disposal, the Pueblos along the transportation routes would be exposed twice - once to current LANL waste leaving for the Waste Isolation Pilot Plant, and secondly to new GTCC waste shipments that are arriving from DOE and commercial facilities from all over the country. *Id.* at G-89.

Santa Clara and our neighboring Pueblos were not the only Tribes to describe the nature and extent to which Tribal interaction with the natural world is underestimated in DOE risk assessments. For example, in the Tribal Narrative for the Confederated Tribes for the Umatilla Indian Reservation, the Umatillas advocated that the DOE incorporate into the risk assessment for GTCC disposal the Umatillas own Tribal-specific exposure scenario, taking into account their cultural values and unique lifestyles and interactions as Indian people and using appropriate Tribal reference populations instead of the generic Caucasian 20-30 year old "Reference Man." *See id.* at G-124 through G-136. This is necessary, the Umatillas explained, because the links between Indian individuals and their resources are a far more complex and interconnected web than is depicted in the DOE analyses. *See id.* at G-98. The Nez Perce Tribe in its Tribal Narrative expressed a similar sentiment that we echo here as well: for Native people, everything in the environment is viewed as living and having a spirit. *Id.* at G-65.

Despite these explanations provided in advance to DOE by Santa Clara Pueblo and other Tribes about why there are considerably more exposures and more complex exposures for Tribal members neighboring these DOE facilities, the DOE did not actually take this into account in any such analysis in the GTCC DEIS, at least for Santa Clara Pueblo or any of the other Pueblos surrounding LANL.

In the text of the GTCC DEIS, DOE indicated that because it "respects the unique and special relationship between American Indian tribal governments and the Government of the United States," the "DOE has presented tribal views and perspective in this Draft EIS to ensure full and fair consideration of tribal rights and concerns before making decisions or implementing programs that could affect tribes." GTCC DEIS at 8-1. Yet, it does not appear that the comments previously submitted by Santa Clara have been considered in the analysis. They were reprinted in the document but not included in or actually factored into the DOE analysis thus far. This is evidenced by the environmental justice section for LANL in the GTCC DEIS which

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simply states that:

> [b]ecause the health impacts on the general population within the 80-km (50-mi) assessment area during construction and operations would be negligible, no impacts on minority and low-income populations as a result of the construction and operations of a GTCC waste disposal facility are expected.

Id. at 8-93. L95-6 (Cont.)

We understand and respect that many Tribes shy away from the term "environmental justice" because they believe the interpretation of Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, 59 Fed. Reg. 7629 (Feb. 11, 1994) ("Executive Order 12898"), simply relegates Tribes to being just another minority group. Minority group status alone, of course, fails to recognize Tribes' sovereign status, the government-to-government relationship, and the Federal trust responsibility to Tribes. However, at Santa Clara Pueblo, we believe environmental justice is not the only avenue for analysis for DOE to use in its NEPA process but still is an important analysis for DOE to conduct properly with respect to Tribes.

In 1997, the Council on Environmental Quality issued a guidance document regarding environmental justice that "interprets NEPA as implemented through the CEQ regulations in light of Executive Order 12898." *See* CEQ, *Environmental Justice: Guidance Under the National Environmental Policy Act* (Dec. 10, 1997), http://ceq.eh.doe.gov/nepa/regs/ej/justice.pdf ("CEQ Environmental Justice Guidance"). L95-7

As explained in the CEQ Environmental Justice Guidance, Executive Order 12898 "recognizes the importance of research, data collection, and analysis, particular with respect to multiple and cumulative exposures to environmental hazards for . . . Indian tribes. Thus, data on these exposure issues should be incorporated into NEPA analyses as appropriate." CEQ Environmental Justice Guidance at 3. The CEQ Environmental Justice Guidance also instructs that "[a]gencies should recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action" and that such factors "should include . . . the effect of any disruption on the community structure associated with the proposed action." *Id.* at 9.

One area where the GTCC DEIS particularly fails to address "the effect of any disruption on the community structure" of Santa Clara Pueblo associated with proposed GTCC waste disposal at LANL is in the discussion of cultural resources. The LANL section of the GTCC DEIS does note that "numerous cultural resources have been identified in TA-54" including "[e]ighteen archaeological sites" but then simply indicates that the DOE will have to consult with affected tribes at some later time "to determine if traditional cultural properties are present within the GTCC reference location." *Id.* at 8-62. This statement seems to completely ignore the fact that the surrounding Pueblos (which included Santa Clara Pueblo) have *already* explained in the GTCC DEIS that there *are* traditional cultural properties and sacred sites in the area at issue. *See* L95-8

L95-7 The comment on addressing Environmental Justice in the NEPA process is well taken. During the preparation of this EIS, DOE invited interested pueblos, including the Santa Clara Pueblo, to join in a partnership to draft portions of text that would reflect pueblo perspectives. These writings were incorporated into Chapter 8, the LANL Chapter of this EIS and the full text can be found at Appendix G. The narrative text developed by the pueblos and included in this EIS provides tribal perspectives related to the various environmental resource areas evaluated in the EIS. The narratives recognize the interrelationships among cultural, social, occupational, historical, or economic factors that will potentially impact the tribes based on the proposed action.

DOE considers Executive Order 12898 to apply as much to Indian tribal populations as it does to other population groups covered by the Order. The Environmental Justice Analysis found in Section 8.2.7, indicates that there would not be disproportionately high and adverse risks to any minority or low-income population. Were the LANL site to be selected as an option, among the most potentially affected populations in the 80-km (50-mi) assessment area are the adjacent Pueblos. In line with Environmental Justice considerations subsequent NEPA analysis to support any GTCC implementation schemes involving LANL would consider unique exposure pathways (such as subsistence fish, vegetation, or wildlife consumption, spring or well water use) to determine additional potential health and environmental impacts.

In terms of consultation, the Department considers its consultations with the tribes as important components of its overall responsibilities to host communities. In the process of identifying preferred alternative described in Section 2.10, DOE considered the information provided by the tribes for this EIS. In making final decisions where the choice of a host site raises concern to a tribe or tribes, DOE would undertake appropriate consultations to ensure consistency with the DOE American Indian Policy, DOE Order 144.1, and Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.

L95-8 As required by NEPA, the EIS evaluates the potential impacts of the proposed action on cultural resources at the various DOE sites in sufficient detail to assess the potential impacts of the proposed alternatives. DOE recognizes that development of a disposal facility for GTCC LLRW and GTCC-like wastes would require that future land uses be restricted at and near the site for the protection of the general public. This action could affect areas that may be important to American Indian tribes.

DOE considered the text provided by the participating affiliated American Indian tribes for each of DOE sites evaluated in selection of the preferred alternative. Information provided by the tribal governments associated with exposure pathways unique to American Indian tribes (e.g., greater intakes of fish, game, and plants; use of sweat lodges; use of natural pigment paints for traditional ceremonies) would be evaluated in site-specific NEPA analyses for the alternative(s) selected in a ROD for this EIS.

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id. at 8-62 through 8-64 and G-89.

It is important to note that our 2006 Accord with the DOE states that the DOE "will avoid unnecessary interference with traditional practices." 2006 Accord at 3. Moreover, Executive Order No. 13007, *Indian Sacred Sites* (May 24, 1996) states that, when not clearly inconsistent with essential agency functions, executive branch agencies "shall . . . avoid adversely affecting the physical integrity of [Indian] sacred sites." In addition, this issue is addressed in the CEQ Environmental Justice Guidance. The CEQ Environmental Justice Guidance indicates that, when impacts are "significant" in accordance with NEPA, those impacts need to be addressed in an environmental justice analysis for an environmental impact statement. NEPA regulations defining the term significance instruct that significance can refer to the intensity of an impact which can include unique characteristics of the geographic area such as proximity to cultural resources. *See* CEQ Environmental Justice Guidance at 26; *see also* 40 C.F.R. §1508.27. Consequently, looking at this issue through these different lenses - Tribal sovereignty, executive orders, or environmental justice - all lead to the same place: LANL is an improper choice for a preferred alternative for GTCC disposal because of the manner in which such disposal would have significant impacts on Santa Clara Pueblo. And, when one factors in the more comprehensive and holistic approach to addressing the extensive nature and type of exposures that Santa Clara people have with the surrounding environment at and near LANL, which is advocated in the CEQ Environmental Justice Guidance and was advocated by Santa Clara Pueblo and the other Tribes in the Tribal Narratives Section of the GTCC DEIS, it is clear that the impacts to Santa Clara Pueblo of disposing of GTCC and GTCC-like waste at LANL would be disproportionately high and adverse. This is due to the greater nature and type of interaction that the Santa Clara Pueblo community has with the natural resources and animals at and near LANL and the manner in which disruptions to our traditional uses undermine the entire ecological, cultural, human health, and social fabric of our existence as an Indian nation. L95-8 (Cont.)

V. Disposal of GTCC and the DOE's GTCC-like waste at LANL should not be part of DOE's preferred alternative because of the cumulative impact it would have on the Natural Resource Damage Assessment and Restoration Process for LANL

NEPA regulations state that agencies, in assessing cumulative impacts in an environmental impact statement, have to address:

> the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. L95-9

40 C.F.R. at §1508.7.

One "reasonably foreseeable future action" that was not analyzed in the GTCC DEIS is the work of the LANL Trustee Council, comprised of the DOE, the Department of Interior, the United

L95-9 DOE is performing environmental restoration activities at LANL. The ongoing cleanup effort will continue.

DOE believes that the analyses presented in the EIS are sufficient to compare the potential cumulative impacts of GTCC LLRW and GTCC-like waste disposal for the sites that were evaluated. In particular, existing concentrations of various radionuclides in contaminated soil and groundwater at the candidate sites were taken into consideration in the selection of the preferred alternative. The EIS evaluated the cumulative impacts of constructing and operating a GTCC waste disposal facility in combination with the impacts of past, present, and reasonably foreseeable future actions taking place within and around each of the candidate sites. For most resource areas, the impacts of past and present actions are generally accounted for in the affected environment section. For example, the current air quality reflects both past and present activities occurring in the region. Off-site activities might also contribute to cumulative impacts; these include clearing land for agriculture and urban development, grazing, water diversion and irrigation projects, power generation projects, waste management activities, industrial emissions, and the development of transportation and utility networks. Reasonably foreseeable future actions at each of the candidate sites include those that are ongoing, under construction, or planned for future implementation. These are also described and considered at each location. Additional cumulative impact analyses would be conducted in site-specific NEPA reviews, if needed, for the alternative selected in a ROD. Such follow-on analyses would be based on additional project- and site-specific information.

Once a decision is made on selection of a disposal location for GTCC and GTCC-like LLRW, appropriate site-specific NEPA analysis and other analysis as appropriate, including addressing the Natural Resource Damage Assessment and Restoration process will be undertaken. Input from site-specific groups dealing with the NRDA Restoration Program, such as the LANL Trustee Council will be consulted if LANL is selected as a preferred alternative.

Santa Clara Pueblo, Commenter ID No. L95 (cont'd)

Mr. Edelman
Santa Clara Pueblo's Comments on the GTCC DEIS
June 24, 2011
Page 9

State Department of Agriculture, the State of New Mexico, Santa Clara Pueblo, San Ildefonso Pueblo, and Jemez Pueblo, to collaboratively address natural resource damage assessment and restoration ("NRDAR") at LANL. The DOE has to factor in the cumulative impact that disposal of GTCC and GTCC-like waste at LANL would have on the NRDAR process.

The NRDAR process is governed by the Comprehensive Environmental Response, Compensation, and Liability Act. The purpose of NRDAR is to assess the extent to which natural resources have been injured by the release of hazardous substances from LANL and the extent to which there has been lost use of those resources because of the injury. The ultimate goal of NRDAR is to restore the natural resources and the services they provide to the same condition they would have been in without the release of the contaminant substances or to provide some sort of equivalent replacement. Restoration processes can address conditions that were not fully addressed through the remediation process. L95-9 (Cont.)

Just as disposal of GTCC and GTCC-like waste at LANL would undermine the remediation process (*see* section II. above), such disposal at LANL would also undermine the restoration process now finally underway. This is a cumulative impact that underscores why LANL is an improper choice for GTCC or GTCC-like waste disposal.

VI. Next steps DOE must take in addressing these comments, which include government-to-government consultation with Santa Clara Pueblo

No final environmental impact statement regarding disposal of GTCC and the DOE's GTCC-like waste should be issued without first consulting with Santa Clara Pueblo to ensure compliance with our 2006 Accord. *See* 2006 Accord at 3 ("DOE will consult with the Pueblo to assure that tribal rights, responsibilities, and concerns are addressed prior to the DOE taking action, making decisions, or implementing programs that may affect the Pueblo."). Such government-to-government consultation is also required to ensure DOE has lived up to its commitment to "protect and promote" Tribal Trust resources in order try to avoid impacts to those resources. *See* DOE Indian Policy at 3 (Section I). L95-10

For all the reasons we have stated above and in the Tribal Narrative we already provided before the GTCC DEIS was issued, we urge that LANL options be excluded from the preferred alternative for disposal of GTCC waste. However, if LANL is included in the preferred alternative, then government-to-government consultation with Santa Clara Pueblo must first occur to ensure impacts are avoided or properly mitigated if impacts cannot be avoided. DOE Indian Policy is clear that, when avoidance of impacts through "DOE trust protection measures" cannot be fully carried out, the DOE will work with the affected Tribe regarding corrective measures. *Id.* Consultation with any affected Tribes is also part of the DOE's environmental justice duties. *See* CEQ Environmental Justice Guidance at 10; *see also* Comprehensive Presidential Documents No. 279, *Memorandum from the President to the Heads of Departments and Agencies, EPA-175-N-94-001* (Feb. 11, 1994) at http://www.epa.gov/fedfac/documents/executive_order_12898.htm#memo1. L95-11

L95-10 DOE will ensure compliance with the 2006 Accord and will continue to consult with the Santa Clara Pueblo and other affected Pueblo's, as appropriate, related to selection of LANL as a preferred alternative if that is the case.

L95-11 The EIS analysis is used to assess the viability of an alternative as well as its relative performance compared to the other alternatives. Exclusion of a reasonable alternative from the EIS without first evaluating the site is contrary to a thorough NEPA analysis. All alternatives are retained in the Final EIS because such evaluations are needed to support selection of the preferred alternative. In addition, as discussed in Section 1.4.2, the conceptual disposal facility designs analyzed in the EIS could be modified to perform better in specific locations. Thus, poor performance in the EIS analysis does not necessarily exclude an alternative from consideration.

Santa Clara Pueblo, Commenter ID No. L95 (cont'd)

Mr. Edelman
Santa Clara Pueblo's Comments on the GTCC DEIS
June 24, 2011
Page 10

VII. Conclusion

The CEQ, in its NEPA regulations, advises that:

> NEPA's purpose is not to generate paperwork–even excellent paperwork–but to foster excellent action. The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment.

40 C.F.R. §1500.1(c).

It is with this spirit that Santa Clara Pueblo offers these comments, because the environment that we seek to have DOE protect, restore, and enhance, is connected to, and part of, our home and place of worship, which is integral to the cultural survival of the Santa Clara people.

For all the reasons discussed herein, Santa Clara Pueblo urges you in the strongest possible terms to ensure LANL not be included in the DOE's preferred alternative for a disposal facility or disposal facilities for GTCC waste and for the DOE's GTCC-like waste.

Sincerely,

Walter Dasheno, Sr.
Governor

cc:

Members of the Santa Clara Tribal Council
DOE Secretary Steven Chu
NNSA Administrator Thomas P. D'Angostino
DOE Director of Intergovernmental and Tribal Affairs David Conrad
Senator Jeff Bingaman
Senator Tom Udall
Representative Ben Ray Lujan
Representative Martin Heinrich
Representative Steve Pearce
Governor Susana Martinez
New Mexico Environment Department Secretary F. David Martin
New Mexico Indian Affairs Department Secretary Arthur Allison
Joseph M. Chavarria
Jessica Aberly

Santa Clara Pueblo, Commenter ID No. L95 (cont'd)

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INDIAN PUEBLO
ESPANOLA, NEW MEXICO
87532
OFFICE OF GOVERNOR

RESOLUTION NO. 2011 - 20

APPROVING THE SUBMISSION OF COMMENTS FOR SANTA CLARA PUEBLO TO THE DEPARTMENT OF ENERGY REGARDING THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE DISPOSAL OF GREATER-THAN-CLASS-C (GTCC) LOW LEVEL RADIOACTIVE WASTE AND GTCC-LIKE WASTE

WHEREAS, Santa Clara Pueblo (the "Pueblo") is a sovereign Indian tribe, recognized as such by the United States Government, with the Pueblo's Tribal Council as its governing body, whose authority is defined by the Pueblo's Constitution and Bylaws approved on December 20, 1935; and,

WHEREAS, the Pueblo has maintained a recognized and formalized government-to-government relationship with the Department of Energy (the "DOE") as set forth first in 1992 and then in 2006 in the *Restatement of Accord between the Pueblo of Santa Clara, a Federally-Recognized Indian Tribe and the United States Department of Energy* (October 31, 2006); and,

WHEREAS, the DOE has issued a draft Environmental Impact Statement (the "DEIS") regarding the DOE's proposed disposal of Greater-Than-Class-C ("GTCC") and GTCC-like waste; and

WHEREAS, the DOE does not have a preferred alternative in the GTCC DEIS but analyzes various alternatives for GTCC and GTCC-like waste disposal at Los Alamos National Laboratory ("LANL"); and,

WHEREAS, the Tribal Council opposes the disposal of GTCC and GTCC-like waste at LANL because of its concerns about the impacts to the Santa Clara Pueblo community that would result from disposal of such waste at LANL and because disposal of such waste at LANL would undermine remediation and restoration efforts and would be unsafe due to the recently-acknowledged increased risks of seismic events at LANL; and, L95-12

L95-12 Comment noted. Human health impacts were one of the many factors considered in the selection of the preferred alternative. DOE is performing environmental restoration activities at LANL.

Santa Clara Pueblo, Commenter ID No. L95 (cont'd)

WHEREAS, after careful consideration, the Tribal Council is of the view that it is in the best interest of the Pueblo to submit the attached comments regarding the GTCC DEIS;

NOW THEREFORE BE IT RESOLVED that the Tribal Council hereby approves the attached comments regarding the GTCC DEIS.

BE IT FURTHER RESOLVED that the Tribal Council authorizes and directs the Governor to execute and submit the attached comments regarding the GTCC DEIS on behalf of the Pueblo.

CERTIFICATION

I, the undersigned, duly elected Governor of the Santa Clara Pueblo, do hereby certify that the Tribal Council, at a duly called meeting that was convened with proper notice and was held on the 24 day of June, 2011, at Santa Clara Pueblo, New Mexico, a quorum being present, approved the foregoing Resolution with 9 in favor, and 0 opposed, 1 abstaining, 2 being absent.

Governor Walter Dasheno, Sr.

ATTEST:

Secretary Francis Tafoya

Santa Clara Pueblo, Commenter ID No. T86

Capital Reporting Company 29

MR. BROWN: Great. Thanks, Scott.

Nathaniel is next and Marian Naranjo will follow Nathaniel. Thank you.

MR. FUENTES: Good evening, everyone. My name is Nathaniel Fuentes. I am a tribal descendent of Chapo Wingate, also known as Santa Clara.

I don't have anything in hand, written before me. So please excuse me. I want to address this particular situation about transporting new waste to Area G in Los Alamos or anywhere here in the state.

As I said in the beginning, I am a tribal descendent for Chapo Wingate, and my people, the Pueblo people, have been here for millenniums, and as this waste builds and continue to accumulate and if it is transported to our state and to Los Alamos, as these safeguards begin to fail and radioactive material is then exposed to our environment, it is more than likely that my people will end up having to deal with this

T86-1

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T86-1 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE also conducted a generic evaluation of commercial disposal facilities on nonfederal lands in the EIS to order to provide, to the extent possible, information regarding the potential long-term performance of other (nonfederal) locations for siting a GTCC waste land disposal facility.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

Santa Clara Pueblo, Commenter ID No. T86 (cont'd)

Capital Reporting Company 30

1 situation in ten to 20 generations at the very least,
2 if not even sooner.
3 I remember when I was a child and being able
4 to smell and taste the air of New Mexico for the first
5 time, and I remember -- some people don't have this far
6 back memory of being like two years old, but I'm able
7 to remember -- and the air and the taste was something
8 that was more unique than anything, and I knew for some
9 reason in my heart and in my spirit that this was a
10 part of me.
11 And to have nuclear waste come and be added
12 into my back yard, it kind of -- it kind of disheartens
13 what I've gotten to know, and it only says that we are
14 expendable and that what we know and what we've done
15 and how we live is also expendable.
16 I believe that we shouldn't have any more
17 nuclear waste come into our state, to come to Area G
18 because in 500 years and in 20 generations my great-
19 great-great grandchildren may be walking a pilgrimage
20 and going on a ceremony or some type of spiritual walk
21 only to then be exposed by an abandoned city that had
22 spelled safeguards that were only going to last for 500

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T86-1 (Cont.)

T86-2

T86-2 See response to T86-1.

Santa Clara Pueblo, Commenter ID No. T86 (cont'd)

Capital Reporting Company 31

1 years. To have them exposed during some type of
2 initiation or some type of story telling down the line,
3 it really disheartens me to think about that.
4 And I would really urge the people of this
5 community as you become more naturalized, if you're not
6 already, and you see down in the future 20 generations
7 of your children and their children, think about that.
8 Another thing to think about is as if these
9 type of materials are stored in such an area and the
10 fight for water increases here in this area and our
11 rainwaters and our show caps begin to become less and
12 less and our river becomes more and more dry and
13 Cochiti Dam becomes lower and lower and our winds
14 become stronger and stronger, I think we might have a
15 problem more sooner than 500 years; maybe in ten years.
16 Really don't know, and that's exactly what this all is.
17 We should really take in account the lessons
18 that the Japanese have had to face and deal with not T86-3
19 once but twice, and think about those types of
20 situations here in our area. We do live in a rift.
21 Los Alamos is on fault lines, and Area G is in a sacred T86-4
22 site to my people.

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T86-3 Even though it is beyond the scope of this GTCC EIS, the comment is noted. This GTCC EIS addresses the potential environmental impacts associated with the proposed development, operation, and long-term management of a disposal facility or facilities for GTCC low-level radioactive waste (LLRW) and DOE GTCC-like waste.

T86-4 The site-specific environmental factor, seismic activity, was evaluated in the EIS as appropriate. Both environmental and cultural resource issues were taken into consideration in the selection of the preferred alternative.

Santa Clara Pueblo, Commenter ID No. T86 (cont'd)

Capital Reporting Company 32

1 So I don't understand really what the issue
2 is. I don't think it should be an issue.
3 Thank you.

T86-4 (Cont.)

Santa Clara Pueblo, Commenter ID No. T93

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14 MR. BROWN: Okay. Mary will be followed by
15 Doug Doran.
16 MS. WEAKKEE: Good evening. My name is Mary
17 Weakkee, and I'm with the Santa Clara Pueblo, Arkhopo
18 Wingate (phonetic), and I'm also half Comanche.
19 I work for the Museum of New Mexico, Office of
20 Archeological Studies. I really didn't expect to
21 speak. However, if I saw there not speaking, I
22 couldn't sleep tonight.

Santa Clara Pueblo, Commenter ID No. T93

1 My feelings are for my grandchildren. I know
2 these sites, and my job is to record them and preserve
3 them and study them and carry on that knowledge to my
4 children, and it would devastate me to know that
5 they're just going to punch holes and lay trenches and
6 destroy something that's been there for thousands of
7 years.
8 I've seen it done. I've seen sites. I see
9 after we finish digging, destroy days, destroy, you
10 know, archeological sites, and to have them pour this
11 poison into my mother. My children bathe to purify
12 themselves. I bathe to purify myself before I dance
13 I pray for this place all the time even though
14 I do archeology for the state. I open the sites. I
15 pray for the safety of the archeologists spiritually.
16 I close the sites. I pray for them after the closing
17 of the sites so that none of us go home and be harmed.
18 How can I stand here and listen to how much
19 harm is going to be done by DOE and be ignorant and
20 close my eyes and sleep and hear my children, my
21 grandchildren running back and forth?
22 And to think that their children are going to

Santa Clara Pueblo, Commenter ID No. T93

Capital Reporting Company 50

be affected. The old people already suffer now. I've seen it, and how can I tell stories about my people when the alternative for burial is cremation?

I study human remains. I do burials. That's my position with the Office of Archeological studies, and, yes, I get criticized by my people. But I know that these histories and these words and these views have to be retained, and these sensitive sites that these people consider as nothing? Well, I don't consider that.

And I hope that everybody looks to another alternative, please. WE still use all the minerals. I've seen minerals used. I've seen what pains they use, what ceremonial purposes. I've seen so many, many things, and I can live these spiritual happenings.

I dance so that we can have rain. I go and do water ceremonies so we can drink and have safe waters. I just hope that we can all think about what's going to happen, and there has to be a voice, maybe from Creator, but right now my concern is with our generations to come. T93-1

And I will continue to dig and record and

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T93-1 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE also conducted a generic evaluation of commercial disposal facilities on nonfederal lands in the EIS to order to provide, to the extent possible, information regarding the potential long-term performance of other (nonfederal) locations for siting a GTCC waste land disposal facility. It would not be reasonable to analyze in detail an essentially unlimited number of additional non-DOE or nonfederal sites.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

Santa Clara Pueblo, Commenter ID No. T93

1 respect and honor my people until I can't anymore. And
2 thank you very much.
3 (Applause.)

SHINE Medical Technologies, Commenter ID No. W532

From:	gtcceiswebmaster@anl.gov
Sent:	Monday, June 27, 2011 12:11 PM
To:	mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtcceis@anl.gov
Subject:	Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10532
Attachments:	SHINE_Medical_Technologies_Draft_EIS_Comments_GTCC10532.docx

Thank you for your comment, Gregory Piefer.

The comment tracking number that has been assigned to your comment is GTCC10532. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 27, 2011 12:11:09PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10532

First Name: Gregory
Last Name: Piefer
Organization: SHINE Medical Technologies
Address: 8123 Forsythia St.
Address 2: Suite 140
City: Middleton
State: WI
Zip: 53562
Country: USA
Email: greg.p@shinemed.com
Privacy Preference: Don't withhold name or address from public record
Attachment: C:\fakepath\SHINE Medical Technologies Draft EIS Comments.docx

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

SHINE Medical Technologies, Commenter ID No. W532 (cont'd)

June 20th, 2011

Greater-Than-Class C Low-Level Radioactive Waste EIS
Office of Technical and Regulatory Support (EM-43)
U.S. Department of Energy
1000 Independence Avenue, SW.
Washington, DC 20585-0119

Dear Madam or Sir:

Thank you for the opportunity to provide comment on the draft EIS. As the CEO of a company that will produce half of US demand for medical molybdenum-99 (^{99}Mo) by 2015, I am keenly aware of the pressing need for a GTCC waste disposal site. The opening of such a site will be of tremendous benefit to SHINE Medical Technologies and companies like ours that are currently working to address the recurring medical isotope shortages this country has seen over the past several years. As you may know, ^{99}Mo is the precursor for a range of radiopharmaceuticals that are used in over 55,000 medical procedures each day to diagnose a wide variety of ailments, including heart disease and cancer. Today, the US imports all of this essential isotope from foreign countries, where the vast majority of ^{99}Mo is produced in aging nuclear reactors using proliferation-sensitive highly enriched uranium.

In contrast, SHINE will produce ^{99}Mo domestically, without a reactor, using low-enriched uranium, and creating over 200 times less nuclear waste than current production methods. The opening of a GTCC waste disposal site will be of significant benefit to our ability to provide this essential medical isotope for our neighbors and our country. I encourage DOE to move expeditiously in opening a reliable GTCC disposal site consistent with all applicable laws and regulations. W532-1

Additionally, on behalf of SHINE, I offer the following suggestions for incorporation into the final EIS:

1. SHINE would like to see waste associated with its production of ^{99}Mo to be included in the GTCC EIS inventory. At peak production SHINE will generate less than 48 kCi of GTCC waste annually. We are planning to store the GTCC LLRW produced by SHINE at the generating site for 65 weeks prior to shipment to the disposal facility to allow the short-lived radionuclides to decay. The total volume of GTCC LLRW generated by SHINE will be approximately 1870 cubic feet annually. The draft EIS assumes a disposal operations start date in 2019, and makes no mention of interim storage before that date. SHINE will begin operations in 2015 and will have limited capacity to store the GTCC waste on-site. SHINE recommends that interim storage at the GTCC site be incorporated before the 2019 disposal operations start date. W532-2

Sincerely,

Gregory Piefer, PhD
CEO, SHINE Medical Technologies

W532-1 GTCC waste from the production of Mo-99 is included in the GTCC LLRW waste inventory (See Appendix B).

W532-2 Storage of the GTCC LLRW waste prior to the availability of the GTCC disposal facility is not within the scope of the EIS.

SHINE Medical Technologies, Commenter ID No. W532 (cont'd)

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8123 Forsythia St. Suite 140
Middleton, WI 53562

Snake River Alliance, Commenter ID No. E4

From:	Beatrice Brailsford <bbrailsford@snakeriveralliance.org>
Sent:	Monday, June 27, 2011 3:03 PM
To:	gtcceis@anl.gov
Subject:	Snake River Alliance draft EIS comments
Attachments:	gtcc comments.pdf

Beatrice Brailsford
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bbrailsford@snakeriveralliance.org

1

Snake River Alliance, Commenter ID No. E4 (cont'd)

June 27, 2011

Arnold Edelman
Document Manager
Office of Technical and Regulatory Support (EM-43)
U.S. Department of Energy
1000 Independence Avenue, SW.
Washington, DC 20585–0119
By email to gtccgcis@anl.gov

Re: Department of Energy draft environmental impact statement on the disposal of greater-than-Class C low-level radioactive waste and GTCC-like waste (DOE/EIS-0375-D)

Dear Mr. Edelman:

The Snake River Alliance has served as Idaho's grassroots nuclear watchdog since 1979. The following comments and questions on the above draft EIS are submitted on behalf of our dues-paying members.

By law, the federal government, specifically the Department of Energy (DOE), is responsible for the disposal of Greater-than-Class C (GTCC) waste. For decades it's been accepted that GTCC waste is not suitable for near-surface disposal. In fact, NRC regulations require GTCC waste be disposed of in a deep geologic repository unless it approves an alternative method. If the disposal method is to be changed, that policy decision must be made after far more robust consideration than is included in the draft EIS. Furthermore, the draft EIS seems to ignore the legal requirement for a deep geologic repository for high-level waste, which is not the Waste Isolation Pilot Plant. E4-1 E4-2

The draft EIS looks at how to dispose of 12,000 cubic meters (1,100 already in storage; 11,000 projected) containing 160 million curies. Far and away the bulk of the radioactivity comes from future decommissioning of *commercial* nuclear reactors.

The DOE has chosen to look at four disposal scenarios: deep geologic disposal; intermediate depth borehole (30 to 40 meters below ground); "enhanced" near-surface trenches (5 to10 meters deep); and above ground vaults. All the sites considered are already controlled by the DOE. All but one is in the West. The draft EIS does not even attempt to assert that these sites are the best choices for GTCC disposal based on any objective criteria at all. Of all the arid sites, the Idaho National Laboratory would have the *highest* long-term human health impacts because of exposure through radioactively contaminated groundwater. E4-3

E4-1 While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), this regulation also indicates that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

E4-2 Comment noted. The scope of the EIS does not include the disposal of high-level waste.

E4-3 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE also conducted a generic evaluation of commercial disposal facilities on nonfederal lands in the EIS to order to provide, to the extent possible, information regarding the potential long-term performance of other (nonfederal) locations for siting a GTCC waste land disposal facility.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.