June 23, 2011

Mr. Arnold M. Edelman, EIS Document Manager  
U.S. Department of Energy, GTCC EIS  
Cloverleaf Building, EM–43  
1000 Independence Avenue, SW  
Washington, DC 20585


Dear Mr. Edelman:

Enclosed please find the State of Nevada’s comments on DOE’s Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC–Like Waste.

If you have questions regarding these comments or would like additional information, please let me know.

Sincerely,

Joseph C. Strolin  
Acting Executive Director

JCS/js  
Enclosure  
cc Marta Adams, Senior Deputy Attorney General  
Nevada State Clearinghouse
1.0 General Comments

1.1 The Nevada Nuclear Security Site (NNSS) as a Potential Disposal Location

In comments on the Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) for the disposal of Greater-Than-Class C waste in 2007, the State of Nevada voiced serious reservations about the appropriateness of the Nevada Test Site (since renamed NNSS) as a location for disposal of GTCC waste. In those comments, the State pointed to continuing issues associated with allowable new activities at NNSS, given the site’s statutory designation as a “weapons testing site.” Those concerns still have not been resolved. In addition, while NNSS has been a site for the disposal of low-level and mixed hazardous and low-level radioactive waste, the nature and characteristics of GTCC wastes and the longer-lived radionuclides they contain pose added and unacceptable long-term risks, given the geophysical conditions at NNSS.

Many of the same conditions that made Yucca Mountain an unsuitable site for long-term geologic isolation of radioactive wastes are also present at the NNSS (i.e., active seismic area; fast groundwater pathways; potential for renewed volcanism; highly corrosive subsurface environment; etc.). In addition, there are serious issues involving the potential for cumulative impacts to the environment from past weapons testing activities (and resulting contamination) and from current and future low-level and mixed-low-level waste disposal activities.

NNSS also poses serious problems with regard to the transportation of GTCC waste and GTCC-like waste from generator and storage sites to any disposal facility that might be located at NNSS. As discussed below, of all the potential disposal locations evaluated in the DEIS, NNSS is by far the most problematic from a transportation standpoint. The fact that transportation factors were not used to discriminate between potential alternative disposal locations, and only overly general cumulative radiation dose calculations were used to compare one site to another with respect to transportation impacts, are major shortcomings of the DEIS.

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1 The Draft Environmental Impact Statement for Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste is referred to in these comments as the “DEIS”.  
2 Unless otherwise specified, the term “GTCC waste” as used in these comments refers to both GTCC low-level radioactive waste (as defined in the DEIS) and “GTCC-Like” waste.
The State’s comments on the 2007 NOI indicated that NNSS was an unacceptable location for disposal of GTCC waste and GTCC-like waste. There is nothing in this DEIS that would alter that assessment.

1.2 The need for NRC Regulation of any GTCC Waste Disposal Activities

The DEIS acknowledges that most of the GTCC waste to be disposed of will be commercial waste generated by current and future Nuclear Regulatory Commission (NRC) licensees, and that, by law, a GTCC waste facility must be regulated/licensed by the NRC. Inclusion of DOE’s GTCC-like wastes currently managed under DOE Orders and stored at DOE facilities that operate under DOE Orders requires that these be brought into the NRC regulatory regime. The DEIS does not directly address this issue and, in fact, does not even commit to the NRC licensing and regulation of any disposal facility established pursuant to the Final EIS. NRC licensing is not a simple process, as evidenced by the high-level waste program where the decision was made to co-mingle commercial and defense waste. Major issues and additional regulatory authority matters arise with respect to all of the DOE sites that are under consideration for a GTCC waste facility. The DEIS failed to describe how a NRC-regulated facility can co-exist with a DOE self-regulated facility or an EPA/state-regulated facility such as WIPP, and how the public can be assured that NRC regulatory authority has primacy at the GTCC facility.

Issues of NRC regulation also arise with regard to the transportation of GTCC waste, including the requirement for use of NRC certified shipping containers, requirements involving shipments notifications, NRC transportation safeguards regulations, and others.

1.3 Seriously Deficient Transportation Analysis

The analysis of transportation impacts associated with shipments of GTCC waste and GTCC-like waste in the DEIS is seriously deficient. Most importantly, transportation system characteristics and the effects of waste shipments along specific routes (rail and highway) through specific communities, using specific modes of transport are not used as criteria in evaluating whether identified alternative disposal locations are viable or appropriate. Nor are transportation factors such as these used to compare alternative disposal sites and discriminate among the various sites. Because of the substantial nature of the shipping campaign required for the disposal of GTCC waste, transportation considerations should be a major factor in identifying alternative disposal sites. If that had been done, sites like NNSS, where transportation access is limited and extremely problematic, would have been eliminated from consideration.

Transportation of GTCC waste to any disposal facility located at NNSS would involve unacceptable impacts for the State of Nevada in general and the heavily populated Las Vegas metropolitan area in particular. Since there is no rail access to NNSS, and the cost for constructing such access would be in the neighborhood of $3 billion (according to DOE’s own estimates that were done for the Yucca Mountain project), it is entirely unrealistic to assume that GTCC waste would be shipped via rail to the site. Consequently, all of the waste would have to be moved to the site by truck, requiring 12,600 shipments. Many of these shipments, according to the DEIS, would be “Highway Route-Controlled Quantity” (HRCQ) shipments. By law, HRCQ shipments must use the Interstate highway system and would, of necessity, pass through...
the most heavily populated portions of Las Vegas and Clark County. Such a shipping campaign would put Las Vegas’ tourism-dependent economy at substantial risk in the event of an accident or terrorist attack against a shipment while in transit.

Transportation impacts associated with the disposal of GTCC waste generally, and with respect to NNSS in particular, do not appear to have been adequately addressed in the DEIS. The draft document uses an overly general approach to radiological impact assessment for GTCC waste shipments and ignores the importance of non-radiological factors in defining the true scope and nature of impacts associated with such transportation. Important non-radiological impacts are not used to discriminate among potential disposal locations. Additional issues that should have been covered in the DEIS include, but are not necessarily limited to, differential analyses of impacts associated with various modes of shipment (highway, rail, barge); routing issues and impacts, including the identification of specific preferred and alternative routes from generator/storage sites to proposed disposal locations and the unique characteristics along those routes; property value effects; and risk perception impacts (and their attendant economic consequences) associated with prospective GTCC shipments.

1.4 Lessons from the Failed Federal High-Level Radioactive Waste Program

In going forward with the identification of disposal sites for GTCC waste, DOE should be cognizant of the important lessons to be learned from the failed attempt to site a facility for disposal of high-level radioactive waste and spent nuclear fuel at Yucca Mountain. Such lessons have special relevance with regard to any proposal for siting a GTCC waste disposal facility in general and at NNSS in particular. Any criteria for selecting a disposal location from among various alternatives should reflect the two most important lessons to be gleaned from the failed Yucca Mountain program: (1) that any siting decision must have an impeccable scientific and technical foundation that is fully transparent; and (2) that no facility can or should be forced on an unwilling state.

The scientific and technical justification for any facility means not only that its design and operation be of the highest quality, but also that the geotechnical characteristics of the site can be shown to meet health and safety criteria that, themselves, are sound, scientifically based and objective. The fact that a facility for GTCC waste disposal will be a new, never-before-attempted project (similar to a HLW repository or the WIPP TRU waste facility) makes it imperative that it have the voluntary support of the host state. In this regard, it is not sufficient to garner support from small rural communities that can be readily enticed with promises of economic benefits. Local support alone will not be sufficient to ensure success in a siting program for a facility of this type.

The final EIS should contain (and clearly explain and justify) the specific criteria that will be used to ultimately select a site or sites for GTCC waste disposal. That criteria should include the scientific and technical factors by which sites and the facility-site interface will be evaluated and a requirement that prospective host state approval must be obtained before any siting decision can be finalized.
1.5 Definitional Issues

Strictly speaking, most GTCC waste covered by the DEIS is not low-level radioactive waste as that term is widely understood (and reacted to). While GTCC waste may be lower activity waste than spent fuel or high-level waste, its “orphan” situation (i.e., waste that doesn’t fit the definition of either LLW or HLW and for which there is no defined disposal path) reflects the difficulty inherent in attempting to define away the problem by appending the term “low-level radioactive waste” to its designation. Originally (and as contained in current regulation), GTCC waste was supposed to be disposed of in a high-level waste repository because GTCC waste contains longer-lived radioactive elements requiring longer-term isolation that would be unacceptable for LLW disposal facilities. The DEIS acknowledges that so-called “GTCC-Like waste” analyzed in the document is similar to non-defense generated TRU waste. The fact that GTCC waste is longer-lived and has a higher activity than LLW cannot be simply defined away by calling it LLW. In the past, GTCC waste was not considered LLW, and it is questionable whether that designation should be used at all. Simply calling the waste “GTCC” and acknowledging its unique characteristics and standing in the waste continuum would be more honest and encourage the more rigorous scrutiny disposal of such material deserves.

2.0 Specific Comments – DEIS Summary and Chapters 1 - 13

2.1 Summary, page S-3: GTCC-like waste

The DEIS states that, “Although GTCC-like waste is not subject to the requirements in the LLRWPA [Low Level Radioactive Waste Policy Amendments Act], DOE also intends to determine a path to disposal that is similarly protective of public health and safety.” The DEIS presents no reason why GTCC-like waste should be treated differently that commercial GTCC waste. Disposal of GTCC-like waste should be protective of public health and safety in the same way as GTCC waste that is governed by the LLRWPA and regulated by NRC. DOE indicates in this same paragraph that it does not intend to create a new classification for GTCC-like waste, but that is exactly what the DEIS proposes. DOE should make the commitment that disposal of all GTCC waste will be subject to NRC regulation and that all facilities for GTCC waste disposal will be licensed by the NRC.

2.2 Summary, page S-13: Resource Conservation and Recovery Act (RCRA)

The DEIS assumes that GTCC waste will be treated to render it “nonhazardous” under RCRA. However, the DEIS does not address whether this is even feasible. A more reasonable and realistic approach would be to assume that much of the waste will be mixed hazardous and GTCC, regulated under RCRA as well as other applicable laws and regulations.

2.3 Summary, Table S-3, page S-45: Bounding Analysis of Transportation Impacts

Bounding is a legitimate way to establish the upper and lower boundaries of a possible impact. However, in this case, the extremely simplistic nature of the bounding analysis does not convey the extent of the impacts. The NNSS is not accessible by rail line, a fact mentioned by
the GTCC DEIS. Therefore, the section of the DEIS that refers to rail impacts is not valid. The possibility exists that there could be intermodal transportation from two sites nearby, but the numbers of truck shipments to the NNSS will be identical in either the rail or truck scenario. For the NNSS transportation analysis, there is no lower bound possible. There is no bounding analysis. It should be reported this way in the DEIS, and an intermodal alternative, if desired, should be studied. It is important to point out that intermodal operations can substantially change the risks of a transportation program. If DOE is interested in shipping these materials via intermodal, it should assess the risks and inform the affected parties (notably California - Inyo County and San Bernardino County).

Furthermore, the analysis of transportation impacts completely ignores the significant transportation differences among potential disposal sites. The analysis focuses solely on the overly generalized RADTRAN evaluation of radiological impacts as the sole discriminator when major considerations like availability of rail access, proximity to the national rail and interstate highway system, availability of alternate routes, non-radiological impacts to population centers, etc., should have been assessed and used to determine which of the alternative disposal locations would be preferable. The way it appears in the DEIS, there are no substantial differences in transportation impacts among the various possible sites. This is emphatically not the case. In any comprehensive transportation analysis, NNSS would rank at the bottom of potential candidates due to the extremely poor transportation access, lack of rail access, and routes to the facility that impact the state’s major population centers and economic sectors.

2.4 Summary, page 49: Cumulative Impacts

The DEIS concludes that “for Alternatives 3 to 5 at the federal sites, the estimated impacts from the GTCC proposed action are not expected to contribute substantially to cumulative impacts for the various resource areas evaluated, with the likely exception of potential human health impacts in the long term.” However, with regard to NNSS, this conclusion appears to ignore the fact that thousands of GTCC waste shipments will be added to the thousands of LLW and MLLW shipments on the state’s highways due to ongoing LLW and MLLW disposal activities at NNSS. There is no analysis of the cumulative impacts associated with ongoing transportation activities at NNSS and the added impacts from proposed GTCC waste disposal shipments.

2.5 Summary, page 54: Developing a Preferred Alternative

The DEIS notes that existing NRC regulations require GTCC waste to be disposed of in a geologic repository unless alternative proposals are approved by the NRC. The DEIS assumes that alternative methods proposed by DOE (i.e., borehole disposal, trenches, vaults) will be approved by NRC. However, there is no evidence presented in the DEIS to support this assumption.

2.6 Chapter 1, page 1-9: GTCC-like Waste Definition

The text box at the top of the page states that “much of the GTCC-like waste meets the DOE definition of TRU waste.” If that is the case, the DEIS needs to explain why GTCC-like
waste is not disposed of as TRU waste. If DOE can define away the problem by classifying this waste as LLW, why instead cannot the waste be defined as TRU waste and disposed of at WIPP?

2.7 Chapter 1, page 1-35: NNSS

The U.S. Air Force, Nellis Air Force Base notes that the potential disposal area at NNSS identified in the DEIS is near a major Nellis training area (R-4806W) that ground parties use for training. The DEIS failed to assess the impacts of overflights or the impacts to the Nellis mission should overflights be prohibited. [Note – this comment was made by Deborah Stockdale, Chief, Asset Management Flight, Nellis Air Force Base and submitted to the Nevada State Clearinghouse.]

2.8 Chapter 1, Lines 24 to 45, page 1-3: Two-Tiered System of Transportation Impacts.

The DEIS confronts two different assessment problems. The first, classified as Group 1, consists of existing GTCC sources whose characteristics, risks, and disposal responsibility are well understood. Group 1 is ready for disposal now and is not subject to a great deal of uncertainty. Group 2 materials, on the other hand, consist primarily of GTCC wastes from West Valley, New York. The future of this waste is uncertain pending Congressional action. The disposition of Group 2 materials cannot be assessed as easily and the size of the future waste stream cannot be known very readily.

The DEIS assessed the uncertainty for Group 2 materials to the degree possible given its current knowledge. However, this assessment muddles the conclusions of the DEIS and makes the DEIS seem more authoritative than it actually is. A different and possibly better approach would have been to assess the impacts of Group 1 materials to the degree possible and then describe the problems facing the disposition of Group 2. The DEIS may have been strengthened or at least become clearer, by discussing the need for congressional leadership in resolving problems with Group 2 materials.

2.9 Chapter 1, Lines 24 to 41, page 1-8: Sealed Sources

The DEIS makes it clear that there are thousands of disused sealed sources all over the country, there are new sources being generated and moved around every year, and all of these sources will have to be managed in the coming decades. The decrease in sealed sources the DEIS indicates past 2030 is due to changes in technology, which seems speculative. The problem is the ongoing creation and management of these wastes and their dispersion throughout the country. While in use, they cannot be centralized.

Centralizing and managing the current inventory of sealed sources is a critical problem. The transportation impact assessment portion should study feasible transportation alternatives for each of the sites for existing inventories of sealed sources, present alternatives for those, and then develop a set of actions for the remaining sealed sources-it won't be much in terms of volume, but it will be important in terms of security and handling.
The problem of public safety discussed in the 2010 Radiation Source Protection and Security Task Force Report centers on the security of sealed sources. The current system of managing sealed sources seems adequate and addresses the public safety needs. The current program argues for the no action alternative. It does not appear to be an urgent requirement.

2.10 Chapter 2, page 2.9: Alternative Considered but not Evaluated in Detail

The DEIS notes that “reference locations” were limited to federal sites and that no specific locations were analyzed for commercial disposal locations. It appears that the entire assessment contained in the DEIS is focused on locating disposal facilities at federal sites, with a “generic” commercial location almost an afterthought. Since most of the GTCC waste is, in fact, commercial waste regulated and licensed by the NRC, it would seem more appropriate for the DEIS is be founded on the assumption that any disposal facility for such waste should be a commercial facility operating under NRC regulation. The fact that no commercial LLW disposal site is currently available for GTCC waste does not mean that one (or more) could not be available in the future if the DEIS concluded that this was the preferred option. After all, none of the federal sites are currently available for GTCC waste disposal, but that didn’t hinder the DEIS from including alternate federal sites in the analysis.

2.11 Chapter 2, pages 2-21 to 2-22: Transportation

As noted, the transportation analysis in the DEIS is fundamentally flawed. The overly general assessment of radiological impacts completely ignores the significant diversity in transportation-related factors among alternative disposal locations. In addition, there is no indication that, even in assessing radiological health impacts, the DEIS considered important differentiating characteristics – such as the lack of rail access to NNSS; the added impacts to workers and the public from intermodal operations (the only way to evaluate rail shipments to NNSS) caused by the need to handle waste twice and the incorporation of truck/highway impacts once the waste is removed from trains; and other such factors.

2.12 Chapter 4, pages 4-66 to 4-67: WIPP Transportation Overview

The DEIS states: “The transportation of GTCC LLRW and GTCC-like waste necessary for the disposal of all such waste at WIPP was evaluated.” The evaluation appears to have ignored the past 20 years of cooperative planning by DOE and the Western Governors’ Association (and other State Regional Groups) for the ongoing shipments of transuranic waste to WIPP. This is a serious omission that should be rectified in the Final EIS. There are many similarities between the current WIPP transuranic waste transportation program and the GTCC transportation program that DOE would be required to develop and implement under the proposed action in this DEIS.

Beginning in the 1980s, the Western Governors’ Association (WGA) adopted and reconsidered at three-year intervals, a series of resolutions on waste management generally, and spent nuclear fuel (SNF) and high-level radioactive waste (HLW) transportation in particular. These resolutions were specifically addressed to DOE and emphasized the need for a comprehensive transportation plan that did not take safety for granted.
In this DEIS, DOE should have explicitly examined and endorsed the detailed recommendations of the Western Governors’ Association for any future large-scale shipments of radioactive waste to disposal facilities. While these WGA recommendations were primarily addressed to SNF and HLW, they apply equally to the nationwide, multi-decade, GTCC waste disposal program evaluated in this DEIS. In order to develop a safe and effective waste disposal system, WGA recommended that “the federal government must expand its focus beyond siting, and develop, in coordination with states and tribes, a logical and timely transportation program.” This requires policy commitments from DOE and other federal agencies to:

- Fix the shipping origins and destination points as early as possible;
- Ensure the availability of rail and truck shipping casks;
- Conduct full scale testing of casks for transport of spent nuclear fuel and HLW;
- Prepare a comprehensive transportation plan that includes the analysis of all needed transport safety activities in a single document;
- Develop responsible criteria for selecting shipping routes;
- Develop a sound methodology for evaluating optional mixes of routes and transportation modes; and
- Conduct a thorough review of the risks of terrorism and sabotage against spent fuel and HLW shipments and work with state governments to assume that adequate safeguards are in place prior to shipments occurring.”

The WGA policy resolution also calls on DOE or any other operator of a repository or storage facility to consider specific elements of the WIPP transportation program, including: (1) a safety and public information program similar to that developed with Western states; (2) the WIPP Transportation Safety Program Implementation Guide; (3) the WIPP example of working through its regional cooperative-agreement groups to propose a set of shipping routes to affected states and tribes for their review and comment, resulting in the identification of a set of primary and secondary routes; (4) a tracking system, such as TRANSCOM, capable of notifying the vehicle operator, DOE, states and tribes of current location, potential bad weather and road conditions, and occurrence of incidents; and (5) the responsibility of the generators of spent nuclear fuel and HLW and the federal government, not the states and tribes, to pay for all costs associated with assuring safe transportation, including emergency response, shipment escorts and inspections, and route evaluations. Transportation of GTCC waste should likewise be conducted using such a program.

2.13 Chapter 5, pages 5-18 to 5-91: Assessment Approach and Assumptions (Section 5.2)

The analysis of impacts throughout the DEIS ignores the potential for impacts related to risk, risk perception and the stigmatizing potential of a program and facilities involving large amounts of material identified as “nuclear” and “radiological”. These “special” impacts have the potential to generate significant economic and social consequences such as losses in property values, decreases in tourism and tourism-related revenues, suppression of economic development

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due to perceived risks, radiological-related accidents, terrorism/sabotage, etc. While such impacts are not required (by statute or regulation) to be addressed in an EIS, the fact that the GTCC DEIS involves a proposed course of action that spans many decades, impacts potentially wide areas and populations, and deals with waste that the public perceives as highly dangerous more than justifies going the extra mile and evaluating the potential for such “special” impacts in discriminating among possible disposal locations.4

2.14 Chapter 9, page 9-52, Lines 10: Absence of Rail Access to NNSS

NNSS not only lacks direct rail access, it is unlikely that NNSS would ever have direct rail access. The 2008 DOE Supplemental EIS for Yucca Mountain estimated that construction of the Caliente rail alignment to the now cancelled repository site would have cost $2.7 billion or more. Based on that analysis, construction of a rail line to the proposed GTCC disposal area at NNSS would likely cost more than 5-10 times the estimated total cost ($250-520 million) to construct and operate a disposal facility at NNSS. (GTCC DEIS, page 2-65) The absence of direct rail access to NNSS means that the number of truck shipments in Nevada would not be reduced by intermodal transfer at any receiving location in or near Nevada. Under any intermodal scenario, there would still be 12,600 truck shipments to NNSS.

2.15 Chapter 9, page 9-52, Lines 10-11: Intermodal Access to NNSS via Las Vegas

DOE erroneously suggests that NNSS could receive intermodal shipments of GTCC via Las Vegas, asserting that “the closest access to commercial rail service is in Las Vegas.” DOE should drop this sentence in the Final EIS, unless DOE can identify a specific location in Las Vegas where rail shipments of GTCC could be received and transferred to trucks for shipment to NNSS. Moreover, intermodal transfer in Las Vegas would still require 12,600 truck shipments to NNSS.

2.16 Chapter 9, page 9-52, Lines 11-13: Truck shipments through the “Spaghetti Bowl”

The DEIS suggests that, absent being “discouraged” (presumably by the State of Nevada and Clark County), DOE could legally ship LLRW through Las Vegas using the I-15 and US 95 interchange (the “Spaghetti Bowl”). DOE should clarify its position on the legality and advisability of shipping GTCC waste through Las Vegas using the I-15 and US 95 interchange. The policy of avoiding metro Las Vegas and the Spaghetti Bowl for LLW and MLLW shipments to the NNSS is part of an agreement between the State of Nevada and DOE at the secretarial level related to the designation of NNSS (then NTS) as a regional LLW disposal facility in the Record of Decision to the Waste Management Programmatic EIS. Under that agreement, DOE

4 Extensive research into the nuclear-related special impacts of a major federal program has been carried out by the State of Nevada in studies that spanned more than a decade. Information on these impacts can be found in the report: A Mountain of Trouble, A Nation at Risk – Report on Impacts of the Proposed Yucca Mountain High-Level Nuclear Waste Program (http://www.state.nv.us/nucwaste/yucca/impactreport.pdf).
agreed to use shipping routes for LLW and MLLW that avoided Metro Las Vegas, the I-15/US 95 interchange, and Hoover Dam (which, at the time, could still be used for such shipments).

2.17 Chapter 9, page 9-52, Lines 13-14: Intermodal facility at “Caliente, New Mexico”

There is no intermodal facility at Caliente, New Mexico. Indeed, there is no Caliente, New Mexico, although there is a small unincorporated community named Ojo Calient in Taos County, New Mexico. The DEIS apparently meant to refer to Caliente, Nevada. Caliente, Nevada is clearly identified as the intended location in the reference (DOE 1999) cited in the DEIS (see comment 2.18).

2.18 Chapter 9, page 9-52, Lines 13-16: Intermodal facility at Caliente, Nevada

The DEIS should clearly state that there is, at present, no intermodal facility at Caliente, Nevada, which could be used for GTCC shipments to NNSS. To our knowledge, there are no plans for construction of an intermodal facility at Caliente, Nevada, which could be used for GTCC shipments to NNSS. DOE should drop this reference to intermodal facilities in the Final EIS unless DOE is proposing to construct and operate such a facility at Caliente, Nevada. Moreover, intermodal transfer at Caliente would still require 12,600 truck shipments to NNSS. In addition, it is the position of the State of Nevada that any intermodal transfer facility would be a defacto waste storage facility for commercial, NRC-licensed material and, as such, would require a license from the NRC.

2.19 Chapter 9, page 9-52, Lines 18-20: Route from Caliente to NNSS

The DEIS identifies SR 375, US 6, and US 95 as a potential route from Caliente to NNSS “to avoid Las Vegas.” If GTCC waste shipments are considered to be HRCQ shipments, DOE would not be able to use this route under U.S. Department of Transportation regulations governing HRCQ shipments. Such GTCC waste shipments from Caliente would be required to use US 93, I-15, and US 95 through Las Vegas, resulting in significant impacts to the Las Vegas/Clark County area.

If DOE believes it can legally use SR 375, US 6, and US 95, for GTCC waste shipments, the Final EIS must evaluate the unique local conditions along the “necessarily longer” route from Caliente to NNSS that could increase the frequency, severity, and consequences of transportation accidents. There are numerous locations along this route where steep grades, sharp curves, critical side slopes, and sheer drop-offs, especially near the summits of mountain passes, could subject shipments to extreme accident impact forces and make emergency response, vehicle and package recovery, and post-accident remediation extremely difficult. Such conditions occur near Oak Springs Summit on US 93 west of Caliente, Hancock Summit on SR 375, Warm Springs Summit on US 6, and numerous locations on US 95 between Tonopah and Mercury. The Final EIS should also examine the impacts of GTCC shipments along this route on the communities of Tonopah, Goldfield, and Beatty. In these communities, schools, public buildings, residences, hotels and other commercial establishments are located in close proximity to the potential GTCC shipment route, often within 25 to 250 feet of the US 95 road shoulder, and in some instances less than 20 feet from the side of the road on which loaded GTCC packages would travel south to
NNSS. There are also environmentally sensitive areas along both potential Caliente to NNSS routes, including the Key Pittman Wildlife Area, Crystal Spring, Ash Springs, and the Pahranagat National Wildlife Refuge.

2.20 Chapter 9, page 9-62: Water Resources (NNSS)

The statement that, “… the potential for mobilization of contaminants to the groundwater [underlying NNSS] from all these sources is negligible because of the arid climate, the extensive depth to groundwater … and the proven behavior of liquid and vapor fluxes in the vadose zone ….” is not supported by findings from the failed Yucca Mountain project, where the bomb pulse isotope Chlorine 36 was found hundreds of feet below the surface, indicating that the water infiltration travel time from the surface had to have been in the neighborhood of 50 years, since Chlorine 36 was deposited following bomb tests conducted in the Pacific Ocean in the 1950s. Likewise, radioactive tritium has been found at depth under the NNSS and, more recently, tritium from bomb tests at Paiute Mesa has been detected off site at the western edge of the NNSS boundary. The potential for migration of radionuclides from GTCC waste disposal activities at NNSS is a significant issue and concern, and the conclusion reached in the DEIS is contradicted by findings from other projects and groundwater monitoring efforts.

2.21 Chapter 9, pages 9-65 to 9-66: Post-Closure (NNSS)

The DEIS conclusion that radionuclides are not expected to reach the groundwater table within 100,000 years is unsupported (see comment 2.20).

2.22 Chapter 9, pages 9-68 to 9-70: Socioeconomics (NNSS)

The socioeconomic impact assessment for NNSS contained in the DEIS is seriously incomplete. No effort is made to assess the economic impacts associated with GTCC waste transportation to the site (potentially impacting Nevada’s major population areas and economic sectors). Likewise, no attempt was made to assess impacts to property values along shipping routes, impacts to tourism, impacts to economic development from negative perceptions of risk and/or accidents involving GTCC waste, etc. Assessing only the negligible employment effects and relatively minor impacts of project expenditures on area communities misses entirely the potential significant economic and other impacts inherent in a project of this type.

2.23 Chapter 9, page 9-72, lines 26-42: Collective Population Risk

The method of risk analysis used in the DEIS fails to assess the actual impacts that the shipments would have at specific locations along specific routes in Nevada. The DEIS assessment method fails to examine unique local conditions, especially the proximity of buildings to roads and railroads, and actual observed travel speeds and stop times at specific locations along the potential routes in Nevada identified in the DEIS. The aggregate impacts reported in the DEIS tables on pages 9-73 to 9-76 conceal the actual radiological exposures that would likely result from truck shipments at specific locations, such as the intersection of US 6 and US 95 in Tonopah (where truck stop times of 2-5 minutes could be expected), or on US 95 in Goldfield, where trucks may travel at speeds as low as 5 miles per hour around a curve where
residences are located less than 20 feet from the road shoulder. The Final EIS should consider collective population risk from routine transportation in specific communities along specific routes in Nevada, by considering actual building types and locations, travel speeds and stop times, and actual populations, not only residents, but also children in schools and non-residents in hotels and commercial establishments. The Final EIS should also consider the perceived risk impacts that could result from routine shipments, especially impacts on property values, business location decisions, and tourism along the potential routes in Nevada identified in the DEIS.

2.24 Chapter 9, page 9-77, lines 3-14: Highest Exposed Individuals

The method of risk analysis used in the DEIS fails to assess the actual individual exposures that could result from shipments at specific locations along specific routes in Nevada. The DEIS assessment method uses the RISKIND model default values for individual exposures provided in Table C-6. Actual conditions along potential Nevada shipment routes identified in the DEIS are considerably different and would result in significantly different exposure events and exposures. For example, a location near a pedestrian crosswalk in a school zone, along US 95 in Goldfield, could receive a 30-second exposure at a distance less than 4 meters, from each passing truck. The Final EIS should reexamine the maximum individual exposures from routine transportation, using individual exposure scenarios based on actual conditions at specific locations along specific routes in Nevada.

2.25 Chapter 9, page 9-77, lines 19-25: Accident Consequence Assessment

The DEIS does not provide sufficient information about how the accident consequence assessments were conducted, to allow reviewers to determine the validity of the accident dose risk values presented in the tables on pages 9-73 to 9-76. The discussion in Appendix C, pages C-29 to C-47, does not provide sufficient information about how the accident consequence assessments were conducted, to allow reviewers to determine the validity of the potential accident radiological consequences to populations reported in Table 5.3.9-3, nor to determine the validity of the potential accident radiological consequences to the highest-exposed individuals reported in Table 5.3.9-4. The Final EIS must explain in detail how the analyses were conducted for each type of waste (sealed sources – CH, activated metals – RH, other waste – CH, and other waste – RH) and each mode (rail and truck).

2.26 Chapter 9, page 9-77, lines 19-25: Failure to Evaluate Accident Economic Impacts

The DEIS did not evaluate cleanup costs and other economic impacts, as part of the accident consequence assessments conducted to develop the accident dose risk values presented in the tables on pages 9-73 to 9-76, and the potential accident radiological consequences reported in Tables 5.3.9-3 and 5.3.9-4. Accidents during transport of sealed sources, severe enough to result in a population dose of 4,400 – 15,000 person-rem in an urban area as reported on page 5-86, would release significant amounts of radioactive material, requiring extensive cleanup, remediation, and compensation. Based on analyses of radioactive materials transportation accidents involving similar population doses in urban areas, Nevada believes that severe accidents involving sealed sources could result in adverse economic impacts totaling hundreds of millions of dollars or more. Accidents involving certain other GTCC waste types could also
release significant amounts of radioactive materials, according to Table 5.3.9.5, and result in adverse economic impacts. The Final EIS must explain in detail the specific source terms released, the extent of contaminated areas requiring cleanup, and the total economic impacts, for each of the severe accident scenarios listed in Table 5.3.9-3 (sealed sources – CH, activated metals – RH, other waste – CH, and other waste – RH, for rail and truck). The Final EIS should also consider the perceived risk impacts that could result from severe accidents involving GTCC shipments, especially impacts on property values, business location decisions, and tourism, along the potential routes in Nevada identified in the DEIS. The Final EIS should also evaluate adverse economic impacts in Nevada resulting from accidents in which no radioactive materials are released.

2.27 Chapter 9, page 9-77, lines 19-25: Failure to Evaluate Acts of Sabotage

The DEIS fails to evaluate the impacts of potential acts of sabotage against shipments of GTCC materials. This failure is particularly serious regarding shipments of sealed sources. Throughout the DEIS, the secure storage and disposal of sealed sources are recognized as a matter of national security concern. Based on analyses of other radioactive materials sabotage events, Nevada believes a successful attack on a sealed source shipment could result in a release of radioactive materials hundreds of times greater that the release resulting from the maximum foreseeable transportation accident. Such an attack in an urban area could result in significant adverse health effects and economic impacts. Certain other shipments, such as contact handled GTCC wastes (“Other Waste – CH”), which contain substantial quantities of dispersible alpha-emitting radionuclides, might also be equally vulnerable to acts of sabotage that could result in significant adverse impacts, especially in urban areas. The Final EIS should evaluate the consequences of successful acts of sabotage against GTCC waste shipments.

2.28 Chapter 9, page 9-81: Summary of Potential Environmental Consequences and Human Health Impacts – Transportation (NNSS)

The summary concludes that “[t]ransporting all waste [to NNSS] by rail would require 5,010 railcar shipments involving 21 million km (13 million mi) of travel.” Since there is no rail access to NNSS and no plans to construct such access, it is uncertain how such a conclusion can be supported or on what information such an analysis is based. If the DEIS assumes shipping waste by rail to some intermodal facility, the calculation as to the number of shipments would have to include the truck shipments required to move the waste from the intermodal facility to NNSS. There is no indication that this is factored into the assessment and is a major reason why NNSS is a less-than-ideal site for a GTCC waste disposal facility.

2.29 Chapter 9, page 9-87: Cumulative Impacts (NNSS)

The DEIS concludes that “…the incremental potential impacts from the GTCC proposed action are not expected to contribute substantially to cumulative impacts on the various resource areas evaluated for NNSS.” Such a conclusion does not consider the potentially significant cumulative impacts from the simultaneous operations of a large scale LLW and MLLW disposal program at NNSS with the operations of the proposed GTCC waste disposal project. Thousands of LLW and MLLW shipments would be made annually into the NNSS at the same time.

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thousands of GTCC waste shipment would be occurring. Nowhere are impacts to NNSS operations from these activities evaluated. Nor are impacts to communities along LLW, MLLW and GTCC waste shipping routes – many of which would be affected by all these shipments simultaneously – evaluated.

2.30 Chapter 9, page 9-88: Settlement Agreement and Consent Orders for NNSS

The DEIS concludes that no settlement agreement or consent orders would be affected by proposed GTCC waste disposal alternatives for NNSS. This is not entirely accurate. There continue to be unresolved land use issues associated with NNSS that are not adequately addressed in the draft EIS. As Nevada has noted in numerous comments and communications over the years, the original 1952 administrative land withdrawal for the Nevada Test Site (Public Land Order 805) specified its use as a “weapons testing site.” In 1994, the State of Nevada filed a complaint in the U.S. District Court in Las Vegas, alleging that the land withdrawals for NTS do not include waste disposal from offsite sources as an intended use of the land. A settlement agreement signed in April 1997 committed DOE to initiate “consultation with the United States Department of the Interior concerning the status of existing land withdrawals for the NTS with regard to low-level waste storage/disposal activities.” Although DOE has indicated that consultations with the Department of Interior have concluded, the State has continuing concerns about off-site waste disposition, particularly with respect to GTCC and other waste streams, which are subject to NRC regulation. These matters are not addressed in the DEIS.

2.31 Chapter 13, page 13-18, lines 14-21: DOE Self-regulation of Transportation

More than 75 percent of the GTCC shipments evaluated in this DEIS would originate at NRC-licensed facilities, or originate from NRC-licensed activities, yet it is not clear to what extent these shipments would comply with NRC regulations, nor the extent (if any) to which the shipments would be subject to NRC inspections and/or NRC enforcement actions. The Final EIS must clarify how DOE self-regulation of shipments under the Atomic Energy Act would actually operate on a day-to-day basis. The Final EIS should explain how DOE compliance with NRC and DOT regulations would be enforced. Stakeholders are concerned that DOE may exempt itself from DOT and/or NRC requirements and standards “where there is a determination that national security or another critical interest requires different action.” A particular concern is that Federal budget restrictions might influence the degree to which DOE actually achieves “a level of protection that meets or exceeds the level of protection associated with comparable commercial shipments.”

3.0 Specific Comments – Appendices

3.1 Appendix C: Transportation Analysis (and Volume 2, Chapter 9.1.9, Lines 10-20)

The DEIS contains a less rigorous assessment of transportation impacts than it does for other impacts. This is consistent with other DOE EISs, which do not devote adequate attention to important transportation issues.
There are three transportation alternatives to move GTCC waste. The first is to use exclusively legal-weight truck. The DEIS does not specify, but it is possible to assume that it refers to legal-weight truck, i.e., trucks with a weight below 80,000 pounds. Most of these materials are separable into packages that would enable shipments to fall below the 80,000 pound limit. However, there may also be shipments that could exceed the 80,000 pound limit or may not be divisible in a way that makes it possible to use a legal-weight truck. Examples of these types of materials are: unusual and large reactor parts such as the reactor core shroud, unique defense materials, or prepackaged accumulations of sealed sources where the removal of the sealed sources from the waste package would create a greater burden than shipping via legal-weight truck. Since much of the GTCC waste would be HRCQ shipments, all legal weight and overweight shipments would, of necessity, be routed through Metro Las Vegas and the Spaghetti Bowl (the default route under U.S. DOT regulations).

The second alternative is intermodal shipments. The draft GTCC DEIS does not describe an intermodal shipping scenario in detail. It mentions that two intermodal sites have been studied and identifies them as Barstow, California and Caliente, Nevada (not New Mexico). The DEIS then fails to perform an assessment of intermodal shipping and handling. It indicates that intermodal transportation from either Barstow, California or Caliente, Nevada is possible. However, the DEIS does not indicate which intermodal transportation site was considered. The risks of intermodal shipping and handling are substantially different from direct shipments. The risks at the specific sites and the risks along the routes should be evaluated.

This is particularly true for the extremely rural routes that will be traversed by these shipments. For example, intermodal shipments arriving in Barstow, California will almost certainly travel along California Highway 127 to reach the NNSS. This route is interrupted by seasonal flooding, used by recreational travelers and would require careful study in order to be used for a major shipping campaign. This has a substantial bearing on the risks associated with the shipments. These risks should be considered in the DEIS. The Latent Cancer Fatality numbers and deaths related to accidents contained in the DEIS cannot be properly understood without reference to intermodal handling risks, if indeed that is an option being considered.

The DEIS does not specify which routes the Department of Energy would consider shipping these materials on (i.e., from whatever intermodal facility is postulated to NNSS). The DEIS provides RADTRAN and RISKIND assessments of the routes, but it does not provide maps of the specific routes. There is no detailed description of the selected routes or the risk characteristics along the routes. As with direct truck shipments, the DEIS does not consider that highway routes within Nevada for intermodal shipments of much of the GTCC waste will be severely limited because they would be considered HRCQ shipments. Nor does the DEIS consider the implications of having such HRCQ shipments routed through Metro Las Vegas and the Spaghetti Bowl (which is the default route that must be used under US DOT routing regulations).

The third shipping option is rail. It is not clear what the DEIS means by rail transportation as it relates to the NNSS. There is currently no rail access to the NNSS. Based on work done for the now-defunct Yucca Mountain project, it will require construction of a 319 mile long rail spur. Such construction would last more than 10 years and cost in excess of $3
billion. Since there is no rail access to NNSS, it is unclear what the DEIS is referring to in the assessment of rail shipments to NNSS. The DEIS should specify how the rail transportation scenario was developed. A rail shipping campaign to a location that has no rail access is unrealistic and should not be used in a bounding assessment.

3.2 Appendix C, pages C-25 to C-26: Transportation Risk Analysis

The methods used to evaluate collective population risk, maximum individual exposures, and accident consequences in the DEIS are too generalized to be of any value in comparative impact assessment of the disposal options and the disposal sites under consideration. The Final EIS should reexamine collective population risk from routine transportation in specific communities along specific routes, by considering actual building types and locations, travel speeds and stop times, and actual populations

The Final EIS should reexamine the maximum individual exposures from routine transportation, using individual exposure scenarios based on actual conditions at specific locations along specific routes. Appendix C, pages C-29 to C-47, does not provide sufficient information about how the accident consequence assessments were conducted, to allow reviewers to determine the validity of the potential accident radiological consequences to populations reported in Table 5.3.9-3, nor to determine the validity of the potential accident radiological consequences to the highest-exposed individuals reported in Table 5.3.9-4. The Final EIS must explain in detail how the analyses were conducted for each type of waste (sealed sources – CH, activated metals – RH, other waste – CH, and other waste – RH) and each mode (rail and truck).

The DEIS fails to evaluate cleanup costs and other economic impacts as part of the accident consequence assessments. The Final EIS must explain in detail the specific source terms released, the extent of contaminated areas requiring cleanup, and the total economic impacts, for each of the severe accident scenarios listed in Table 5.3.9-3.

The DEIS fails to evaluate the impacts of potential acts of sabotage against shipments of GTCC materials. The Final EIS should evaluate the consequences of successful acts of sabotage against GTCC waste shipments.

3.3 Appendix C, page C-33, Lines 5-18: Route Selection for Truck Shipments of GTCC

All truck shipments of GTCC should be treated as “highway route controlled quantity” (HRCQ) of radioactive materials shipments, as defined in 49 CFR 173.403, for purposes of highway route selection. The DEIS is unclear in this regard. The DEIS states, “[m]any potential shipments…, such as shipments of activated metal from commercial reactors, fall under this category.” The DEIS seems to imply that DOE would not treat all GTCC shipments as HRCQ. Treating some, but not all, GTCC shipments as HRCQ, could result in use of multiple highway routes to each disposal location. This would complicate the process of comparative evaluation of impacts, required under NEPA, and invite unnecessary confusion and controversy. Failure to treat all GTCC shipments as HRCQ for purposes of highway route selection would likely undermine public acceptance on safety and security grounds, especially for shipments through
highly populated areas. However, for NNSS, the use of the HRCQ default route would violate a long-standing agreement between the State of Nevada and DOE requiring shipments of LLW to avoid Metro Las Vegas and the I-15/US 95 interchange.

3.4 Appendix C, page C-33, Lines 30-32: Route Selection for Rail Shipments of GTCC

DOE should reexamine the statement that “DOT has no railroad routing regulations specific to the transportation of radioactive materials. Routes are generally fixed by the location of rail lines, and urban areas cannot be readily bypassed.” Rail shipments of activated metals, sealed sources, remote handled wastes, and perhaps all of the GTCC materials evaluated in the DEIS, may be subject to the routing regulations recently adopted by the Department of Transportation’s Pipeline and Hazardous Materials Safety Administration (PHMSA) and the Department of Homeland Security’s Transportation Security Administration (TSA).

In 2008, regulations [49 CFR Parts 172 &1580] were jointly promulgated by TSA and PHMSA that would restrict rail shipments of certain hazardous materials, including radioactive materials, through highly populated areas. The new regulations were intended to prevent “catastrophic release or explosion in proximity to densely populated areas, including urban areas and events or venues with large numbers of people in attendance. Also of major concern is the release or explosion of rail cars in close proximity to iconic buildings, landmarks, or environmentally significant areas.” Of particular concern, “if terrorists perpetrated an attack against a rail car transporting certain radioactive materials, they could endanger a significant number of people as well as disrupt the supply chain as a result of contamination.”

While these rules clearly apply to rail shipments of spent nuclear fuel and high-level radioactive waste, they would likely also apply to rail shipments of activated metals, sealed sources, and other types of GTCC evaluated in the DEIS, especially if such shipments were deemed to be HRCQ shipments. DOE should specifically evaluate the routing implications of the TSA rule, which designates 46 high threat urban areas (HTUAs) in 28 states and the District of Columbia. These regulations [49 CFR Part 1580, Appendix A] subject shipments through these HTUAs to new chain of custody and control and other procedures, such as designation of rail security coordinators and monitoring plans [49 CFR Part 1580, Appendix B]. DOE should also specifically evaluate the implications of the PHMSA regulations for shipments through areas not designated HTUAs, but which exhibit conditions of concern identified in the PHMSA routing regulations, which are designed to protect highly populated areas and iconic locations, through the application of 27 routing risk analysis factors [49 CFR Part 172, Appendix D].

3.5 Appendix C, page C-33, Lines 38-40: Timing of Route Selection for Shipments

DOE must reconsider its position on the timing of route selection and the role of affected states and tribes. The DEIS states: “At the time of shipment, the route would be selected on the bases [sic] of current road or railroad track conditions, including repairs and traffic conditions.” Based on experience with the WIPP transuranic waste shipments, DOE should plan to identify preferred and alternative route options at least 5-7 years in advance of shipments, in consultation with the affected states and tribes.
3.6 Appendix C, page C-33, Lines 42-45: TRAGIS highway route updates

It is our understanding that the highway data network in TRAGIS has not been recently updated and does not, for example, include the Tillman Bridge over the Colorado River on US Highway 93, which could significantly affect routes in Arizona, California, and Nevada.

3.7 Appendix C, page C-34, Lines 6-7: Use of HRCQ option for modeling highway routes

Use of the HRCQ option to select routes for modeling is inappropriate unless DOE has committed to actually use HRCQ routes for all truck shipments. Otherwise, use of HRCQ routes in risk analysis may systematically underestimate the actual transportation risks, especially regarding routes through highly populated areas.

3.8 Appendix C, page C-34, Lines 18-23: Use of “shortest-route” algorithm for rail shipments

Using the standard assumptions in the model for selection of rail routes, i.e., the “shortest-route” algorithm, does not reflect the impact of the 2008 TSA and PHMSA rail routing regulations cited previously for shipments of certain radioactive materials, which likely apply to some or all of the GTCC materials evaluated in the DEIS.

3.9 Appendix D, page D-2, Lines 8 to 47: General Planning Issues

The DEIS does not include a comprehensive transportation plan. However, the DEIS can recognize the critical importance of a comprehensive transportation plan to stakeholders. DOE has neglected transportation planning in the past. DOE should, however, make a commitment to a process that will result in a systematic approach to transportation planning that will: (1) incorporate stakeholder concerns; (2) effectively manage safety and security issues; and (3) deliver a safe and comprehensive transportation system. The GTCC DEIS fails to acknowledge the size and possible complexity of the transportation program that will be required and the transportation Appendix is only a boilerplate discussion of transportation risk assessment.

3.10 Appendix D, page D-2, Lines 8 to 47: Containers

The DEIS does not make it clear what container would be adopted for sealed sources. Appendix D describes assumptions about the containers, their size and description. It indicates which waste will be placed in which container, but it does not make it clear which container will be used for sealed sources. This is important because these sources are irregularly shaped, in various states of decay, and will require very special kinds of packages. The DEIS also does not address the issue of NRC certification for containers for sealed sources and other types of GTCC waste.
ATTACHMENT

NELLIS AIR FORCE BASE COMMENT
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Mesdames, Gentlemen,

Thank you for including Nellis Air Force Base (AFB) in the Draft Environmental Impact Statement process for a Facility for Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste at the Nevada National Security Site (formerly known as the Nevada Test Site). Nellis AFB has reviewed the Department of Energy (DOE) Draft Environmental Impact Statement (DEIS), Nevada SAI #E2011-109, and offers the following comment:

The disposal area is near R-4806W and there are ground parties that use that area for training. How will they be affected? Will overflight of aircraft be allowed for the disposal site?

Nellis AFB appreciates the DOE’s efforts to address these issues. Should the DOE have any questions or require further assistance, my Action officer for this issue is Mr. Tod Oppenborn, (702) 652-9366.

Sincerely,

[Signature]

DEBORAH STOCKDALE  
Chief, Asset Management Flight

Honor the Warfighter