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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 VIA ELECTRONIC MAIL

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:

Southwest Research and Information Center (SRIC), a 40-year-old nonprofit organization with more than 35 years experience in working on nuclear waste issues, submits these comments in response to the Department of Energy (DOE) **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**)**. These comments are in addition to letters from SRIC during the comment period and oral testimony provided at the Albuquerque hearing on April 27, 2011. DOE must respond to these comments and all of the previous ones.

The GTCC Draft Environmental Impact Statement (DEIS) is fatally flawed legally, as a matter of public policy, and technically. It does not provide an adequate basis for a final EIS. Therefore, the EIS process must stop and start over.

1. <u>The GTCC DEIS is the wrong document. DOE must instead prepare a programatic EIS (PEIS) for Greater-than-Class C wastes, and issue a supplemental or new PEIS for DOE wastes ("GTTC-like").</u>

DOE has never prepared a PEIS for GTCC wastes, and it must do so as a prerequisite for preparing an EIS to choose specific disposal sites and technologies. DOE does not know what the types and amounts of GTCC waste there will be from existing commercial powerplants, from planned plants, and from other activities. A PEIS including storage and disposal alternatives has not been done and must be done before a draft EIS for disposal is issued. Such a PEIS should address issues that are not included in the DEIS, including:

- Should DOE sites be used for commercial wastes?
- Could GTCC waste be disposed in a high-level waste/spent nuclear fuel (HLW/SNF) repository?
- What are the options for GTCC waste storage at existing reactor sites for several decades or more

- What are the options for consolidating GTCC waste storage at commercial site(s)?
- What are the options for commercial sealed sources without a disposal path?
- Could commercial sealed sources be secured and/or disposed without being co-mingled with other GTCC wastes?
- Could any of the existing commercial low-level waste (LLW) disposal sites meet technical requirements for storage or disposal of some or all of the GTCC wastes?
- What are the possible disposal options; and is Nuclear Regulatory Commission (NRC) licensing required?
- What changes are needed in NRC regulations for the various disposal options?
- What changes are needed in NRC regulations regarding transportation?
- What changes in NRC regulations are required if a licensed facility (nuclear power plant or other NRC licensee) sends waste to an unlicensed facility (DOE disposal sites)?

SRIC and other commentors requested a PEIS during the scoping process. The DEIS states that those comments were considered to be outside the scope of the EIS. The cursory response in the DEIS is:

> "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 waste. If appropriate, DOE would conduct further NEPA review, tiered from this EIS, before implementing decisions." at A-12.

That response is totally inadequate and does not even describe the matters that have been raised in support of a PEIS, let alone providing a reasoned basis for not proceeding with the requested PEIS. That response also does not address the many issues that have yet to be answered that should be addressed in a PEIS. Thus, the need for a PEIS remains. Further, what kind of EIS is required also is certainly not outside the scope of an EIS.

Regarding "GTCC-like" waste, DOE issued a **Waste Management Programmatic Environmental Impact Statement** (DOE/EIS-0200-F) in May 1997. That PEIS included, or should have included as low-level or transuranic waste, much if not all of the waste that is now called "GTCC-like" waste. See, pages 1-23 to 1-31. Thus, since DOE is now considering alternative technologies and sites for such waste that were not included in the Waste Management PEIS, the required procedure is to supplement that PEIS for those "GTCC-like" wastes. Such a supplement should, among other things, discuss:

- Whether there should be such a category as "GTCC-like" waste and what are its specific characteristics or whether the waste is included in low-level waste, mixed low-level waste, transuranic waste, or environmental retoration waste;
- Inventory of such waste;
- Detailed description of and options for DOE wastes with no disposal path;
- Alternative storage technologies;
- Alternative DOE sites for storage and disposal;

- Cumulative impacts of storage and disposal, including existing and future missions of each DOE site;
- Transportation options and their impacts;
- Environmental impacts of the various technologies and alternatives;
- Licensing requirements that exist or would be needed for DOE sites to take commercial wastes.

SRIC further suggests that DOE conduct a scoping process for the WM PEIS supplement, including an analysis of whether an entire new EIS process is needed, given that the WM PEIS is 14 years old.

2. The DEIS is legally flawed because it does not consider all reasonable alternatives. Council on Environmental Quality (CEQ) regulations under the National Environmental Policy Act (NEPA) clearly state that alternatives including the proposed action are:

> "the heart of the environmental impact statement. Based on the information and analysis presented in the sections on the Affected Environment (§1502.15) and the Environmental Consequences (§1502.16), it should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public. In this section agencies shall:
> (a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
> (b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.
> (c) Include reasonable alternatives not within the jurisdiction of the lead agency.
> (d) Include the alternative of no action.
> (e) Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.
> (f) Include appropriate mitigation measures not already included in the proposed action or alternatives." 40 CFR § 1502.14 (emphasis added).

The DEIS totally fails to fulfill the requirement to "consider all reasonable alternatives."

A. The DEIS does not consider the only alternative that is consistent with existing law – GTCC waste disposal in a licensed geologic repository under the Nuclear Waste Policy Act (NWPA).

The NWPA, Public Law 97-425, as amended, (42 U.S.C. § 10101 et seq.) requires the federal government to site, construct, and operate "repositories that will provide a reasonable assurance that the public and the environment will be adequately protected from the hazards posed by high-level radioactive waste and such spent nuclear fuel as may be disposed of in a repository." 42 U.S.C. § 10131(b)(1). The NWPA does not preclude disposal in such repositories of GTCC waste.

As amended by Congress in 1987, the NWPA designates Yucca Mountain, NV as currently the only site undergoing development as a repository. However, the NWPA continues to maintain the requirement for repositories, noted above. The NWPA also places a limit of 70,000 metric tons of HLW/SNF in the first repository (42 U.S.C. § 10134(d)), thereby allowing for other future repositories. The NWPA also requires the Secretary of Energy to report to the President and Congress on the need for a second repository. § 161(b). Such a report was issued in December 2008 and, among other things, stated: "Unless Congress raises or eliminates the current statutory capacity limit of 70,000 MTHM in the NWPA, the Nation will need a second repository for SNF and HLW." *The Report to the President and the Congress by the Secretary of Energy on the Need for a Second Repository* (DOE/RW-0595) at 2. Congress has not taken any action to raise or eliminate the capacity limit.

Thus, existing law requires development of Yucca Mountain as the first repository and does not prohibit GTCC waste disposal in that repository. Thus, consideration of Yucca Mountain for GTCC disposal is a reasonable alternative.

In its Notice of Intent (NOI), DOE stated that the GTCC EIS "intends to analyze disposal at Yucca Mountain in Nevada." 72 *Federal Register* 40137, c.3. The NOI also included Yucca Mountain as Alternative 3." 72 *Federal Register* 40138, c.2.

However, the DEIS does not include Yucca Mountain as an alternative. The DEIS states that:

> "since publication of the NOI, the Administration has determined that developing a permanent repository for high-level waste and spent nuclear fuel at Yucca Mountain, Nevada, is not a workable option and that the project should be terminated….Therefore, because a repository for high-level waste and spent nuclear fuel at Yucca Mountain has been determined not to be a workable option and will not be developed, co-disposal at a Yucca Mountain repository is not a reasonable alternative." at 2-9.

SRIC has long maintained that Yucca Mountain is not a safe repository site for many reasons, including that it is not a technically suitable site and does not meet the requirements of 40 CFR 191. Thus, SRIC would oppose the use of Yucca Mountain for SNF, HLW, GTCC, or "GTCC-like" storage or disposal. However, just as SRIC opposes use of the Waste Isolation Pilot Plant (WIPP) for GTCC disposal, as will be discussed further below, WIPP can be considered a legally reasonable alternative and Yucca Mountain can also be considered a legally reasonable alternative.

Even if DOE does not consider Yucca Mountain as a reasonable alternative, it ***must*** include a future repository or repositories as reasonable alternative(s). The exclusion of any consideration any SNF/HLW repository as a reasonable alternative for GTCC disposal is clearly contrary to law. Even if DOE does not take SRIC's recommendation to undertake one or more PEISs, it cannot issue an Final EIS and must instead issue a new DEIS that includes at least one SNF/HLW repository as a reasonable alternative.

B. The DEIS does not adequately consider disposal at specific commercial sites as a reasonable alternative.

The DEIS considers that DOE geologic repositories are not the only reasonable alternatives for GTCC waste disposal. The DEIS does not demonstrate that near surface disposal technologies could only occur at DOE sites. Indeed the DEIS includes two "WIPP Vicinity" sites, and four "generic regional commercial disposal sites." Yet the DEIS does not include any of the eight commercial LLW disposal sites as reasonable alternatives. Over the past 50 years, disposal of LLW has occurred at Barnwell, SC; Beatty, NV; Energy Solutions, Clive, UT; US Ecology, Richland, WA; Maxey Flats, KY; Sheffield, IL; and West Valley, NY. In addition, Waste Control Specialists, Andrews, TX may receive LLW in the future.

GTCC waste will be generated and stored at dozens of commercial nuclear power plants and other sites around the country over the next several decades. Yet none of those specific locations are considered reasonable alternatives of GTCC waste disposal in the DEIS.

The DEIS does not specifically analyze whether any of the commercial LLW disposal sites (active and closed) could be used for the technologies that do not require geologic disposal. The DEIS also does not analyze whether at least one of the dozens of commercial generation and storage sites (now and in the future) could be used for the technologies that do not require geologic disposal. That none of those sites has "volunteered" to be considered for GTCC waste disposal does not mean that each one of them is unsuitable.

The "generic" sites included in the DEIS are more appropriate for a PEIS and are certainly not identified sufficiently for the environmental analysis required for the DEIS for disposal alternatives.

C. The DEIS does not considered Hardened On Site Storage (HOSS) as a reasonable alternative. Dozens of scoping commentors advocated that HOSS be considered as an alternative. The DEIS states that those comments were considered to be outside the scope of the EIS. On page 1-43 (and very similar language on A-9):

> Comment: Hardened on-site storage (HOSS) should be added to the alternatives evaluated in the EIS. In addition, HOSS should be the preferred alternative.
> Response: HOSS and other waste storage approaches beyond the No Action Alternative are considered to be 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, DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. In addition, the No Action Alternative evaluates storage of this waste consistent with ongoing practices.

However, the DEIS analysis of the No Action Alternative is that "current practices for storing GTCC LLRW and GTCC like waste would continue." at 3-1. That is not an analysis of HOSS. It is a reasonable alternative to consider HOSS as improved on-site storage. "Principles for Safeguarding Nuclear Waste at Reactors" have been endorsed by SRIC and citizen organizations based in all 50 states. Attachment 1. Those organizations support numerous actions that are

much different practices than the DEIS "no action" alternative. Those practices are not geologic disposal, but rather would result in SNF (and GTCC waste) being stored as close as possible to existing reactors (active or decommissioned) for decades in more secure storage than has been used for the past 50 years at reactor sites.

The DEIS has not analyzed whether HOSS would provide storage of GTCC waste that is more secure and would have lesser environmental impacts than its "no action" alternative. The DEIS also has not analyzed whether HOSS would provide equivalent and improved environmental protection to GTCC waste compared with the "no action" alternative or the action alternatives.

To dismiss HOSS because it is not "disposal" is unreasonable. None of the disposal technologies other than geologic disposal has been demonstrated to meet NRC disposal requirements for GTCC waste. Given that there has never been a U.S. geologic repository for commercial waste, it is certainly reasonable and possible that there will be no disposal site for GTCC waste for decades or centuries. During such an extended period of time with no GTCC disposal, DOE and Congress should consider what the environmental impacts of long-term storage at reactors of the approximately 160,000,000 curies of GTCC waste would be.

3. The DEIS is legally flawed because it does not adequately state a purpose and need. There is no clear statement of purpose and need beyond: "There is currently no disposal capability for GTCC LLRW." at 1-2. However, there is currently no disposal capability for high-level waste. There is no current disposal capability for spent nuclear fuel. Thus, the lack of "disposal capability" is not a sufficient statement of need. NEPA requires the need to be properly defined. Here again, SRIC believes that an adequate statement of need should be developed and addressed through programmatic EISs.

The DEIS seems to indicate that the near-term issue is the protection of disused sealed sources, including storage and disposal of commercial sealed sources, which comprise less than one percent of the activity and volume of GTCC waste. The DEIS makes no showing that current storage methods and locations are inadequate. The DEIS provides no adequate information that current storage methods under the no action alternative or some enhanced no action alternative are not sufficient for the next few decades. If there is a current problem with storage and security of sealed sources, that issue should be specifically addressed. Such an analysis would include, among other things, inventory, current storage capabilities and vulnerabilities, options to improve storage, reasonable storage technologies, reasonable storage locations, need for disposal if secure storage for decades exists. Such an analysis could provide the information and clear choices that decisionmakers and the public need and that NEPA requires.

Although sealed sources appears to be an overriding concern for DOE, the DEIS does not provide any analysis of many of the existing sealed sources. The DEIS states:

> "Sources recovered by GTRI/OSRP for national security or public health and safety reasons are stored at LANL or off-site contractor facilities pending disposal….To date, all of the sources recovered by GTRI/OSRP have an identified path to disposal and are therefore not included in the GTCC EIS inventory." at. 1-17.

Thus, the DEIS does not discuss all sealed sources, nor does it describe and analyze those "off-site contractor facilities" and what role they could play regarding the sealed sources that are included in the DEIS.

The DEIS Table 1.4.1-2 indicates that 98 percent of the radioactivity in the wastes included in the DEIS are activated metals from decommissioned nuclear power plants. The DEIS, however, never includes readily available information from the Nuclear Regulatory Commission website, (http://www.nrc.gov/reactors/operating/licensing/renewal/applications.html), regarding the actual licensing status of licensed nuclear power plants. That information indicates that of the 104 operating reactors, 66 are licensed to 2030 or beyond; 18 more renewal applications under review; and at least 11 more renewal applications expected. Therefore, at least 85% of existing reactors expect to operate beyond 2030 – which means GTCC activated metals disposal is not available to even begin disposal for years after that.

The DEIS does not analyze and discuss why when 98 percent of the radioactivity of GTCC waste is not available for disposal for more than two decades into the future that there is a need to make a determination about disposal technologies and sites now for those wastes. There should be an analysis of whether it is premature to make any technology and disposal site decisions so far in advance of when waste is actually available for disposal. In fact, an adequate DEIS would state that apparently the only reasonable alternative for the next few decades is on-site storage of such activated metals.

The DEIS inappropriately conflates different purposes and needs into the DEIS, contrary to NEPA requirements. There is a perceived need to secure sealed sources as soon as possible. There is not a need to make disposal decisions about approximately 98 percent of GTCC wastes. There is no analysis of whether storage, including improved storage through HOSS would make the timeframe for decisions about activated metals from decommissioned nuclear power plants disposal technologies and sites even several more decades into the future.

Once again, a PEIS would provide the appropriate NEPA document to discuss these issues so that decisionmakers and the public are aware of the purpose and need, including timeframes for decision and action regarding the various GTCC wastes.

4. The DEIS is legally flawed because it does not adequately consider cumulative impacts. CEQ regulations under NEPA and caselaw clearly require consideration of cumulative impacts. CEQ regulations state:

> "Cumulative impact is 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." 40 CFR § 1508.7

The Supreme Court has clearly ruled that cumulative impacts must be analyzed in an EIS:

> "when several proposals for …actions that will have a cumulative or synergisic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considereed together." *Kleppe v. Sierra Club*, 427 U.S. 390, 410 (1976).

All of the DOE sites considered in the DEIS have other missions with their own environmental impacts. An adequate EIS must consider the impacts of those past, present, and future activities and the impacts of GTCC disposal. The DEIS makes no serious attempt to provide such an analysis, as the cumulative impact discussion does not fully describe and evaluate the existing impacts at each site, let alone the additional cumulative and synergistic impacts of GTCC waste.

Among the needed analyses is consideration of historic and current releases of radioactive and hazardous contaminants into the environment. The DEIS does not detail the current inventories of radioactive and hazardous materials at each DOE site, nor describe and analyze the current and past releases of contaminants. The DEIS does not discuss the additional impacts that GTCC wastes would have, nor does it discuss the impacts that management of existing waste at each site could have on GTCC waste disposal.

Among the needed analyses is consideration of historic and current contamination and illnesses of workers. Because of the actual (and underestimated and underreported) contamination of workers and contractors at DOE sites, Congress enacted the Energy Employees Occupational Injury Compensation Program (EEOICP) of 2000. The EEOICP covers radiation-induced cancers (Part B) and exposures to toxic substances (Part E). More than $7 billion has been paid in compensation and medical expenses for tens of thousands of DOE workers and contractors. http://www.dol.gov/owcp/energy/regs/compliance/weeklystats.htm. Each of the DOE sites being considered in the DEIS has compensated workers. An adequate DEIS would, among other things, include detailed information about the workers and contractors involved with EEOICP, including the specific illnesses, timeframes of the employment and contamination, sources of contamination, and how past and current monitoring data compares with the findings of the dose reconstruction and other claims decisions. The DEIS would analyze how the new and additional exposures to workers handling GTCC waste would contribute to future worker health effects.

While contamination and worker exposures at other DOE sites have been reported in the media, SRIC especially believes that a description and analysis of worker exposures and illnesses at WIPP are especially important, given the site's mission to "start clean and stay clean." The large amounts of additional radioactivity in GTCC waste coming to WIPP also could increase worker radiation exposure. Such exposures may already be a problem at WIPP. Under the EEOICP, four WIPP workers have been approved for compensation for work-related illnesses from radiation exposure.
http://www.dol.gov/owcp/energy/regs/compliance/statistics/WebPages/WASTE_ISO_PILOT.htm.
SRIC has made further inquiries to the Department of Labor and has been informed that all four workers also have been employed at other DOE sites. Thus, while their illnesses are definitively from radiation exposure, how much of the exposure is WIPP-related has not been determined. Nevertheless, worker radiation exposure must be addressed. In addition, there are also six decisions under Part E regarding toxic substances exposure and illness. The cumulative impacts

of additional radioactive and hazardous chemical exposures has not been discussed and analyzed in the DEIS.

5. The DEIS has insufficient policy options because it effectively considers only DOE sites for commercial waste disposal.

The burden of disposal of 160,000,000 curies of commercial wastes should not be limited to DOE sites that have an enormous inventory of waste to manage, some of which DOE estimates will be ongoing for more than 50 years. To create the burdens of additional waste transportation and disposal at DOE sites is inappropriate. An adequate PEIS and EIS must seriously consider specific non-DOE sites that can have similar environmental analysis as DOE sites. Just as communities near DOE sites have received the economic activity – and the environmental burden – of nuclear weapons activities, so too communities near power plants must receive economic activity and the environmental burden of nuclear power. Not even seriously considering sites at or near commercial nuclear power plants for GTCC disposal is not consistent with fairness and good public policy. The generic commercial locations in the DEIS do not provide for comparing the site specific impacts that NEPA and good public policy require.

6. The DEIS has insufficient policy options regarding regulatory requirements.

The DEIS makes assumptions about regulatory requirements without providing adequate basis. Moreover, such assumptions are not the only reasonable ones. Thus, decisiomakers and the public are not provided with sufficient information and policy options.

The DEIS states:

> "Available information indicates that much of this waste is characteristic hazardous waste as regulated under the Resource Conservation and Recovery Act (RCRA); therefore, this EIS assumes that for the land disposal methods, the generators will treat the waste to render it nonhazardous under federal and state laws and requirements." at 1-12.

That assumption is not the only reasonable one. It is certainly possible that some or all of the waste will not be treated to render it nonhazardous. That such treatment will not occur is clearly a reasonable and realistic option. Further, the DEIS does not discuss the costs for such treatment. The DEIS does not discuss the treatment technologies, including whether there are existing treatment technologies for all of the waste. The DEIS does not discuss why treatment will occur given that there is no legal or regulatory requirement to do so.

The DEIS 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." at 1-20.

The DEIS assumes that proposed alternative methods (boreholes, trenches, vaults) will be approved by NRC. However, the DEIS presents no information or evidence to support that assumption.

Once again, the assumption in the DEIS is not the only reasonable one. An adequate DEIS would analyze the option that some or all of the GTCC waste would not be approved for the alternative methods. An adequate DEIS would analyze whether some or all of the GTCC waste could be disposed in commercial LLW disposal sites. An adequate DEIS would analyze each of the waste types and describe what information would be needed for such waste to be licensed under each alternative method. An adequate DEIS would analyze each of the waste forms and describe what information would be needed for the existing waste form to be licensed under each alternative method. An adequate DEIS would analyze each of the waste forms and describe what information would be needed for alternative waste forms to be licensed under each alternative method. An adequate DEIS would analyze each of the existing waste containers and describe what information would be needed for alternative containers to be licensed under each alternative method.

7. The DEIS has insufficient policy options because it considers "disposal" as the only policy option.

Some of the radionuclides in GTCC waste – uranium and plutonium-239, for example – have half-lives of tens of thousands of years or more and pose dangers to public health and the environment for thousands of generations. The DEIS does not discuss the fact that those timeframes are longer than human history. Therefore, humanity has no adequate basis to determine the range of information needed by future generations that will be affected by those wastes.

An important issue not discussed in the DEIS is will disposal site(s) attract intrusion by future generations, as, for example, the pyramids of Egypt and Yucatan have attracted recent generations? What are the impacts of human intrusion on the performance of the disposal site? What is the reliability of today's assumptions and calculations about the environmental impacts of such disposal technologies and sites regarding future human intrustion? What methods would be needed to adequately inform future generations about the wastes and dangers of those sites? What are the various methods to communicate with future generations and what is the likelihood that we will communicate our desired message and that the message would be understood?

An adequate analysis of those uncertainties could inform decisionmakers and the public about whether storage options adequately protect the wastes into the future.

8. The DEIS has insufficient policy options because it does not consider entities other than DOE to management GTCC disposal.

Decisions to be made by Congress about GTCC waste could result in changes in several laws. The DEIS assumes that DOE will be responsible for disposal, based on existing law. That is not the only possible option, as another entity could take over that role, and such other options must be considered in an adequate DEIS. Just as Congress would have to enact laws to implement many of the aspects discussed in the DEIS, it could also change that law that gives the responsibility to DOE.

Indeed, there are two recent reports from government and non-governmental sources that recommend that DOE no longer manage the U.S. waste disposal programs. The DEIS should include options and analyses regarding other management entities.

The Blue Ribbon Commission on America's Nuclear Future Disposal Subcommittee issued its Draft Report on June 1, 2011:
http://www.brc.gov/sites/default/files/documents/draft_disposal_report_06-01-11.pdf.

The Subcommittee's Recommendation #2 is:

> *"A new, single-purpose organization is needed to develop and implement a focused, integrated program for the transportation, storage, and disposal of nuclear waste in the United States.*
>
> "The U.S. Department of Energy (DOE) and its predecessor agencies, subject to annual appropriations and policy direction by Congress, have had primary responsibility for implementing U.S. nuclear waste policy for the last 60 years. Having examined this experience, the Subcommittee concludes that new nstitutional leadership for the nation's nuclear waste program is needed. A new organization offers the best opportunity to establish—from the outset—the track record of consultation, transparency, accountability, and scientific and technical credibility needed to re-establish trust with the public and key stakeholders." at iv.

The MIT Energy Initiative issued a new report on March 31, 2011:
http://web.mit.edu/mitei/research/studies/documents/nuclear-fuel-cycle/The_Nuclear_Fuel_Cycle-all.pdf

Among the report's recommendations:

> "Based on our analysis, we have concluded that the U.S. should create a new organization responsible for the management of long-lived radioactive wastes—independent of the final outcome of the Yucca Mountain Project." at 64.

An adequate analysis of those and other management options should be discussed and analyzed in the DEIS.

9. <u>The DEIS has insufficient policy options regarding commitment of resources.</u>
CEQ regulations under NEPA require consideration of "any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented." 40 CFR § 1502.16. In addition to the NEPA requirements, decisionmakers and the public must understand the commitment of resources required by GTCC waste, especially given present concerns regarding the national debt and deficit spending.

The DEIS does not adequately consider the resources required for GTCC wastes, including costs of treatment, packaging, and transportation at each of the sites. The discussion of construction and operating costs in Section 2.9.3.4 is seriously inadequate. The DEIS states: "Costs for facility permits, licenses, transportation, packaging, and post-closure activities are not included

in the estimates." at 2-64. That admission of inadequacy does not suffice to comply with NEPA or to provide sufficient total cost estimate information for decisionmakers and the public.

Those construction and operating costs are inadequate as they do not consider the DOE's historic practice of construction and operating costs of its facilities being substantially higher than predicted and construction taking much longer than projected. The DEIS includes no discussion of numerous Government Accountability Office (GAO) reports on those matters. For example, *Department of* Energy *Actions Needed to Develop High-Quality Cost Estimates for Construction and Environmental Cleanup Projects*, (GAO-10-199), January 2010. http://www.gao.gov/new.items/d10199.pdf.

The brief discussion in Section 5.1.4.4 of the estimated construction and operating costs of the Borehole, Trench, and Vault facilities also is seriously deficient. While Appendix D contains more detail about the basis of the costs, it also does not include total costs of the alternatives, including treatment, packaging, and transportation. Nor does it include discussion and analysis of historic DOE practices and cost overruns and schedule delays.

10. The DEIS is technically flawed because there are major aspects of all the proposed sites that are not accurately described and analyzed.

All of the DOE alternative sites in the DEIS have substantial technical issues. The full range of information available about the sites, including environmental impacts of past, present, and future activities is not included in the DEIS and its references. The DEIS does not adequately describe the current missions of each of those sites. The DEIS does not adequately describe and analyze the long-term future use of sites and how GTCC operations for decades would affect such future use. The DEIS does not adequately analyze the cumulative impacts of bringing 160,000,000 million curies of commercial wastes to those sites along with the past, present, and future activities at each site. The DEIS does not adequately analyze the cumulative impacts of transportation shipments to or from those DOE sites during the timeframe of operation of GTCC disposal operations.

A. The discussion of WIPP seriously deficient.

Section 4 contains the analysis of WIPP. A few of the many inadequacies include:

1. The facility's operational history.

The DEIS states:

> "On the basis of current mining experience in the area, it is assumed that the existing mine shafts, shaft stations, and underground haul routes and tunnels would be functional during the period projected for the disposal of GTCC LLRW and GTCC-like waste." at 4-1.

There is no technical documentation provided for that assertion. Indeed, the actual operational experience of WIPP is not discussed, and does not support such an assertion. The existing operations have shown that the mine environment is not so stable and that DOE and its contractors have not been able to fully use the existing shafts, haul routes, and disposal rooms. That history includes that much of the facility's capacity has not been used. Panel 1 contains 10,496.65 cubic meters of waste, less than 59 percent of permitted capacity, because of the

danger of collapsing ceilings injuring workers and releasing waste into the environment. While Panel 2 has 17,997.67 cubic meters of waste (100 percent of its permitted capacity), subsequent panels also are not filled. Panel 3 was filled with 17,902.06 cubic meters of CH waste (91 percent of permitted capacity), Panel 4 was filled with 14,257.54 cubic meters of CH waste (76 percent of permitted capacity), and while Panel 5 is still receiving CH waste, it will not be completely filled to the 18,750 cubic meter permitted capacity. Thus, cumulatively for panels 1-5, WIPP will empace less than 78,000 cubic meters of contact-handled (CH) transuranic (TRU) waste, or about 85 percent of permitted capacity. For remote-handled (RH) TRU waste, Panels 1-5 contain 462 canisters, or less than 51 percent of the permitted capacity. Disposal statistics are on the WIPP website (http://www.wipp.energy.gov/general/GenerateWippStatusReport.pdf). Permitted capacities are in the WIPP Hazardous Waste Permit, Table 4.1.1 (http://www.nmenv.state.nm.us/wipp/documents/Part4.pdf).

The main WIPP underground haul route (E-140) must be re-mined and stabilized, requiring use of an alternative haul route (W-30) that was not previously planned and permitted. Deterioration of existing underground facilities less than 25 years after they were mined does not support the assertion that they could be used for the next 60+ years, as would be required for GTCC waste. The DEIS does not analyze the reasonable possibility that the existing underground haulage routes could not be used, as an adequate DEIS must do.

2. The Waste Shaft.

The possibility of not being able to use the waste shaft for GTCC wastes is not considered in the DEIS, but must be considered in an adequate document. In addition to stability issues, there has been no documentation that the existing shaft can be safely used for another 60 years in order to accommodate GTCC (or other) wastes.

3. The Waste Handling Building.

The 160,000,000 curies of GTCC waste is more than 20 times more radioactivity than all the waste coming to WIPP, and its volume is much less than the amount of CH and RH waste designated for WIPP. That the existing Waste Handling Building could handle that much more highly radioactive waste has not been demonstrated in the DEIS and its references.

4. Safety performance.

The DEIS states:

> "Even though some of the GTCC LLRW and GTCC-like wastes may have radiation dose rates above those for the TRU wastes currently being disposed of at WIPP, the safety envelope established for CH and RH wastes in the documented safety analysis reports (DOE 2006c,d) should be adequate for disposal of this waste at WIPP." at 4-55.

There is no further basis for that totally unsupported assertion. The safety analysis reports mentioned do not include GTCC wastes.

Moreover, the assertion itself is not credible. The 160,000,000 curies of GTCC waste is more than 20 times more radioactivity than all the waste coming to WIPP, and its volume is much less

than the amount of CH and RH waste designated for WIPP. Thus, a more accurate statement would be that "much of the GTCC waste will have radiation dose rates many times those of the TRU wastes currently being disposed at WIPP."

5. RH waste containers.
The DEIS states:

> "Consistent with this planned change request, this EIS assumes that all activated metal waste and Other Waste - RH would be packaged in shielded containers that would be emplaced on the floor of the mined panel rooms in a manner similar to that used for the emplacement of CH waste.' at 2-4.

In fact, shielded containers have not yet been approved by either the Environmental Protection Agency or NMED, both of which have to separately approve in different regulatory processes. Thus, it is as best premature to conclude that they will be used. Even if shielded containers are approved, some RH will continue to be placed in the walls, not on the floor. An adequate DEIS must include analysis of the option that some or all of the activated metals would not be in shielded containers.

6. Surrounding oil and gas resources and pressurized brine reservoirs.
The WIPP Land Withdrawal Area is surrounded by oil and gas resources and hundreds of wells. Active drilling would be underway through much of the WIPP site, except for the provision preventing such leasing and mining in the WIPP Land Withdrawal Act (LWA – Public Law 102-579), Section 3(a)(1). The DEIS must analyze the impacts of mining on the safety performance of the proposed 26 rooms for GTCC waste. Such an analysis is not included in the DEIS.

A pressurized brine reservoir was found when borehole WIPP-12 was deepened in 1980. The DEIS must analyze the impacts of drilling into a pressurized brine reservoir on GTCC waste disposal.

7. The impacts of mixed radioactive and hazardous waste.
The DEIS states the much of GTCC waste contains hazardous chemical contaminants. Of course, much of the waste coming to WIPP is mixed and all of the waste is handled under the WIPP Hazardous Waste Permit as if it is mixed.

WIPP's operational history shows that volatile organic compounds (VOCs) are a significant problem that was not adequately analyzed in other WIPP-related NEPA documents. Regarding VOCs, WIPP has not accomplished that part of its mission to "start clean, stay clean." The DEIS is seriously deficient because it contains no discussion or analysis of the issue. Since late 2008, carbon tetrachloride has been released in higher than expected levels in the WIPP underground. That situation first became publicly known on July 24, 2009, when, pursuant to the Hazardous Waste Permit, DOE informed the New Mexico Environment Department (NMED) that carbon tetrachloride of 281 parts per billion volume (ppbv) was detected in July 1, 2009 sampling. Since it was issued in 1999, the Permit required notification if levels exceed 165 ppbv. Sampling errors were discovered on October 23, 2009 that resulted in recalculation of the levels so that the July 1 sample was changed to 393.65 ppbv. The recalculation also disclosed that there were "21 additional exceedances for carbon tetrachloride between December 22, 2008 and September 30,

2009."[1] Thus, there were exceedances of carbon tetrachloride for more than six months before DOE and its contractors were even aware that they had occurred.

DOE and its contractors also originally mis-identified the specific wastes that were causing the rising levels. On November 17, 2009, they informed NMED that "[t]he main contribution of carbon tetrachloride appears to be from waste in filled panels (Panels 3 and 4)."[2] By January 14, 2010, DOE had decided that the primary cause of the emissions was waste in Panel 4 and continuing emplacement of some waste streams in Panel 5.[3] Yet, despite repeated requests from SRIC that shipments of such high carbon tetrachloride waste streams be suspended, DOE continued shipments of such wastes. Consequently, the running annual average (RAA) of carbon tetrachloride continued to rise. By late March 2010, DOE and its contractors expressed great concern about the problem because if the RAA exceeded 165 ppbv, the permit required that the then open room be closed, even if it were not filled. On March 29, 2010, they asked NMED to immediately grant a temporary authorization to raise the RAA limit by almost four times to 630 ppbv, which NMED granted on April 1. With the issuance of a renewed Hazardous Waste Permit in December 2010, the allowed RRA for carbon tetrachloride is now 960 ppbv. Nonetheless, additional exceedances of carbon tetrachloride continue being released in closed disposal rooms in Panel 5. Thousands of drums with significant amounts of carbon tetrachloride are still to be shipped to WIPP.

But there are at least three important lessons from the carbon tetrachloride situation. First, the fact that VOC monitoring in the underground mine that had been in place for a decade provided erroneous results for months demonstrates a significant operational problem. Second, the fact that a known contaminant (carbon tetrachloride) in a significant amount of waste was not addressed before it became an issue that altered WIPP's operations shows management and operational failures as well as inadequate data in the waste inventory. Third, the necessity of independent regulation was demonstrated, since without the requirements of the Hazardous Waste Permit the problem would not have been detected and without state and public involvement the remedial measures might not have been implemented.

The DEIS must discuss the WIPP experience with hazardous chemicals. The DEIS also must discuss the specific hazardous chemicals, their amounts and concentrations in GTCC waste. The measures needed to prohibit substantial releases of those chemicals at WIPP must be described and analyzed. The monitoring of VOCs in GTCC disposal facilities must be described.

8. The legal requirements are not adequately described and analyzed.
The DEIS states:

> "Most of the GTCC-like waste consists of TRU waste that may not have been generated from atomic energy defense activities. Disposing of these wastes and GTCC LLRW in WIPP may require a modification of the WIPP LWA to allow

[1] December 4, 2009 Letter from James P. Bearzi (NMED) to David Moody and Farok Sharif, p. 1. http://sric.org/nuclear/docs/NMED12042009.pdf
[2] November 17, 2009 Letter from David Moody and M.F. Sharif to James Bearzi, p. 2. http://sric.org/nuclear/docs/DOE11172009.pdf
[3] January 14, 2010 Letter from David Moody to Don Hancock (SRIC). http://www.sric.org/nuclear/docs/VOC%20CBFO%20response10-0903-1.pdf

> receipt of non-defense wastes and non-transuranic (non-TRU) waste. The total estimated inventory of GTCC LLRW and GTCC like waste, added to the DOE defense TRU waste disposed of or scheduled to be disposed of at WIPP, could exceed the WIPP LWA and the Consultation and Cooperative Agreement RH volume and curie limits for WIPP, as discussed above. The LWA and the regulations at 40 CFR Parts 191 and 194 may also require modification, depending on the specific characteristics of the GTCC LLRW and GTCC-like wastes (see Chapter 13)." at 2-5.

Essentially nothing in that statement is accurate or even consistent with other information in the DEIS. The inventory information is that GTCC waste is not from atomic energy defense activities. Such waste is clearly prohibited by the WIPP LWA. The amount of GTCC waste would exceed the WIPP capacity set by the LWA. The amount, types, and sources of GTCC waste are clearly contrary to the requirements of the Consultation and Cooperation Agreement, which is not only incorporated into the LWA but is also part of a court decision. The EPA regulations and its WIPP certification clearly allow only defense waste in the quantities provided in the LWA.

In addition to those and other changes in the LWA, significant provisions of the WIPP Hazardous Waste Permit (HWP) do not allow GTCC wastes.

The discussion of legal requirements on page 4-77 is less inaccurate and mentions the HWP and the fact that WIPP is not licensed by the NRC. That provision is in another law – PL 96-164, Section 213(a). Moreover, the DEIS does not analyze whether WIPP that was designed and operated without an NRC license could be licensed for GTCC waste, and what the requirements would be and what regulations would have to change.

Thus, the DEIS description and analysis is too inaccurate to adequately inform decisionsmakers and the public.

An adequate DEIS must also describe and analyze two other significant matters. First, WIPP's mission would be dramatically changed by GTCC. WIPP has a specific mission to demonstrate whether the federal government and its contractors, at the cost of billions of dollars: (1) can safely operate WIPP to meet the "start clean, stay clean" standard for up to 175,564 cubic meters (m^3) of transuranic (TRU) waste; (2) can safely transport TRU waste through more than 20 states without serious accidents or release of radioactive or hazardous contaminants; (3) can meet commitments to clean up TRU waste at about 20 Department of Energy (DOE) nuclear weapons sites; and (4) can safely close, decontaminate, and decommission the WIPP site, beginning in about 2030 or earlier. Adding GTCC waste to that mission means that some or all aspects of the mission will not be met.

Second, New Mexicans were promised that WIPP would not be a commercial repository and that it would not be the nation's only repository. Absent that promise, public opposition would have been even greater and government officials might not have supported WIPP. Breaking the promises also would make it more likely that there would be an intensive opposition campaign to GTCC waste at WIPP as occurred with the opposition in Nevada to Yucca Mountain.

Therefore, while it is appropriate under NEPA to consider WIPP as an alternative, it should not adopted as a disposal option for GTCC wastes.

B. The discussion of "WIPP Vicinity" sites is seriously deficient.

1. The specific proposed locations are not identified.
The DEIS states:

> "Both the reference locations are located within T22S, R31E. These reference locations were selected primarily for evaluation purposes for this EIS. The actual location or locations would be identified on the basis of follow-on evaluations if and when it is decided to locate a land disposal facility at the WIPP Vicinity." at 11-1.

In southeastern New Mexico, as with other locations, site-specific analysis is necessary for an adequate NEPA analysis and because conditions can be significantly different from place to place. The WIPP site has been moved twice in its history because the actual conditions were not what was expected.

The original WIPP site was moved in 1975 when borehole drilling

> "produced unexpected results: rock strata were much higher than expected; beds showed severe distortion, with dips of up to 75 degrees; sections of the upper Castile Formation (the formation below the Salado Formation) were missing, and fractured Castile anhydrite encountered at a depth of 2710 feet contained a pocket of pressurized brine." *WIPP Final Environmental Impact Statement* (DOE/EIS-0026), October 1980, at 2-10.

The waste rooms were relocated in the early 1980s because another pressurized brine reservoir was encountered at WIPP-12, about a mile north of the center of the site. Thus, absent substantial geophysical information that has not been provided, the characteristics of the two reference locations cannot be presumed. Thus, the DEIS does not provide adequate information about either site.

2. Oil and gas resources exist at the two reference locations.
What is known is that oil and natural gas resources exist (in varying amounts) throughout this region of the Delaware Basin. The DEIS does not document that no oil and gas resources are in Section 27. The DEIS states: "There is an oil well on Section 35." at 11-5. What the DEIS does not explain is why that well and the likelihood of others does not disqualify those sites. The DEIS does not analyze the impacts of active drilling throughout the reference locations on the performance of the sites for GTCC waste.

3. The legal requirements are not adequately described.
The DEIS states:

> "Siting a vault, trench, or borehole facility for GTCC waste inside the WIPP LWA boundary (i.e., Section 27) would be subject to the limits of the WIPP LWA (as discussed for WIPP in Section 4.7); therefore, federal legislation to develop such facilities would be required." at 11-35.

The DEIS should discuss the more than a decade of litigation and proposed land withdrawal legislation as the most relevant example of what is required for such federal legislation. In the case of Section 27, such new legislation could be especially complicated, since it would break the fundamental promises to the State of New Mexico and the public that the LWA strictly limits the use of the site for defense TRU waste.

The DEIS also states:

> "Siting a vault, trench, or borehole facility on BLM-administered land outside the WIPP LWB (i.e., Section 35) would require a land withdrawal in accordance with DOI regulations at 40 CFR Part 2300, 'Land Withdrawals'." at 11-36.

Once again, the DEIS should discuss the more than a decade of litigation and proposed land withdrawal legislation as the most relevant example of what is required for such federal legislation. In the case of Section 35, GTCC disposal would require permanent withdrawal by an act of Congress, not by DOI withdrawal authority.

C. The discussion of Los Alamos National Laboratory (LANL) is seriously deficient.

1. The specific location is not identified.

The DEIS states:

> "The reference location was selected primarily for evaluation purposes for this EIS. The actual location would be identified on the basis of follow-on evaluations if and when it is decided to locate a land disposal facility at LANL" at 8-1.

The geological setting at LANL is highly complex and variable. The DEIS does not provide adequate site-specific information.

2. The location of LANL in a seismic fault zone between a rift valley and a dormant volcano is not the place for radioactive waste that is dangerous for tens of thousands of years.

The seismic issues at LANL have affected existing operations at LANL for more than a decade, including reducing activities at facilities such as the Chemistry and Metallurgical Research building. While the DEIS has some discussion of seismic issues at LANL, it does not discuss those actual effects on existing operations. Given that some existing facilities have limited activities because of seismic issues and the proposed Chemistry and Metallurgical Research Replacement-Nuclear Facility is undergoing major design changes as a result of seismic issues, LANL is clearly not a suitable site for GTCC waste disposal. That the DEIS does not discuss that actual history is a serious inadequacy.

3. LANL's mission has never included GTCC disposal, does not include that mission now, and should not have that future mission.

The only apparent reason to consider LANL for GTCC waste disposal is its current involvement with defense TRU was sealed sources that are supposed to be disposed at WIPP. That wastes is not even included in the DEIS inventory, so that waste provides no basis to include LANL as an alternative site.

Otherwise, LANL's environmental missions relate to cleanup of existing contamination by 2015 under the Consent Order with the State of New Mexico. There is no mission to dispose of wastes subject to independent regulation or NRC licensing.

4. LANL as a GTCC disposal facility is totally contrary to the American Indian Text.

That the DEIS contains the American Indian Text is an appropriate recognition of the importance of the LANL site to the Native peoples who have used the site for generations before LANL was created in 1943. But including the text without acting on its substance and meaning would be another example of environmental racism.

The tribes are committed to cleanup of the contamination and their use of their sacred lands. The tribes believe that natural processes – both from plant life and geologic forces – would result in major releases from GTCC disposal. The tribes believe that air pollution is an existing problem, which the current fire problems further validate. The tribes believe that contamination of their water supplies is an existing problem and that additional waste storage or disposal will increase those environmental impacts. Therefore GTCC disposal is totally inappropriate and unacceptable.

D. SRIC is not discussing the technical flaws of sites outside of New Mexico, but expects that DOE will fully consider the comments of those who do point out such flaws.

11. The DEIS is technically flawed because it does not discuss the DOE's history of using trenches, vaults, and boreholes for waste storage and disposal.

While the DEIS discusses conceptual designs for trenches, vaults, and boreholes, it does not discuss at all the long DOE history of using such technologies for storage and disposal at various DOE sites.

The DOE sites included in the DEIS have decades of experience of dumping wastes into shallow trenches, boreholes, and vaults. Those practices have resulted in contamination of ground water and soils at all of those locations.

Some of the problems with such practices at INL were discussed in http://www.ieer.org/reports/poison/pvz.pdf and in http://www.ananuclear.org/Portals/0/documents/Water%20Report/waterreportidaho.pdf.

Some of the problems with such practices at SRS were discussed in http://www.ieer.org/reports/srs/fullrpt.pdf and in http://www.ananuclear.org/Portals/0/documents/Water%20Report/waterreportsavannahriver.pdf.

Some of the problems with such practices at LANL were discussed in http://www.ieer.org/reports/lanl/weaponspureport.pdf and in http://www.ananuclear.org/Portals/0/documents/Water%20Report/waterreportlosalamos.pdf.

Some of the problems with such practices at Hanford were discusssed in http://www.ananuclear.org/Portals/0/documents/Water%20Report/waterreporthanford.pdf.

Some of the problems with such practices at Nevada Test Site were discussed in http://www.ananuclear.org/Portals/0/documents/Water%20Report/waterreporttestsite.pdf and in http://ndep.nv.gov/boff/steward.htm.

DOE also should have consulted some of its own reports, such as *A Report to Congress on Long-Term Stewardship* (DOE/EM-0563), January 2001. 2 volumes. Volume 2 contains Site Summaries, including on each of the sites considered in the DEIS and dozens of others. This DOE report and others are not mentioned or referenced in the DEIS.

These practices and technologies are relevant to the DEIS in several ways. The DEIS should compare and contrast the performance of the past practices with those expected from the conceptual designs. The DEIS should discuss and analyze the past, current, and future efforts necessary to remediate contamination and how those efforts affect and would be effected by GTCC waste. The DEIS should discuss and analyze the regulatory requirements and actions (including litigation, fines, and penalties) for such past practices and how GTCC disposal would be subjected to similar regulation. The DEIS should analyze the level of expertise that DOE has in handling nuclear and hazardous wastes using such technologies at its sites (including those not being considered for GTCC, such as Fernald). The DEIS should discuss and analyze the credibility that its technologies and practices have with other governmental entities, scientific bodies, and the public, based on its long history.

12. The DEIS is technically flawed because it does include analysis of decommissioning of the disposal facilities.

The DEIS states: "The impact analysis for the decommissioning phase has not been included in this EIS but would be conducted at a later time, as appropriate." at 2-2.

The admitted lack of analysis is another aspect of the DEIS that does not adequately describe the resources required for GTCC disposal, which is an important matter for decisionmakers and the public. The required analysis also would discuss how decommissioning impacts other future use requirements of the sites.

13. The DEIS is technically flawed because there are major inadequacies in the transportation analysis.

The DEIS transportation analysis essentially shows that there are no significant differences among the sites considered. Such an analysis is not credible, and it is not adequate under NEPA.

The large majority of the radioactivity is in activated metals at decommissioned nuclear power plants, which are in large majority located east of the Mississippi River. Thus, the transportation impacts for sites closer to those power plants would be less than for sites in the West.

Some sites have railroad access, some sites do not. There is no analysis of the costs and right-of-way and other requirements for constructing railroad access into sites. Thus, the transportation analysis must be different for sites that do not have railroad access.

Some sites are in close proximity to interstate highways, some are not. Again, the transportation impacts are different for sites with interstate highway access. In addition, all truck transportation of GTCC waste should be treated as "highway route controlled quantity" (HRCQ) shipments, as defined in 49 CFR 173.403. The DEIS makes no such commitment and does not provide any analysis of the requirements for such a practice. The DEIS states: "[m]any potential shipments evaluated for this EIS, such as shipments of activated metal from commercial reactors, fall under this category." at C-33. Thus, the DEIS seems to imply that DOE would not treat all GTCC shipments as HRCQ.

Since 98 percent of the radioactivity is in activated metals from decommissioned nuclear power plants, there can be no accurate assessment of the population impacts of transportation, since it is not knowable with the populations will be along transportation routes several decades into the future.

The basis for the accident consequence analysis in the DEIS is not fully and adequately presented. Thus, it is not a credible or adequate analysis.

There is no adequate analysis of the economic impacts of transportation accidents. There is no adequate analysis of the costs of cleanup of releases from any transportation accident. There is no adequate analysis of the short-and long-term costs of a transportation accident in a highly populated area. There is not adequate analysis of the short- and long-term costs of a transportation accident in an area with a significant tourism-based economy.

While the DEIS considers sealed sources a security risk, there is no analysis of the impacts of sabotage of the transportation of sealed sources. There is no analysis of the transportation security requirements for sealed sources. For example, would armed escorts be necessary? It is not a credible or adequate analysis to state that sealed sources are a security risk when they are not being transported, but that they are not a security risk when they are transported.

Virtually all of the GTCC waste shipments would originate from NRC-licensed facilities. None of the disposal sites included in the DEIS are currently NRC licensed. The DEIS does not describe what the regulatory requirements would be for such shipments, nor how they would be met. Based on experience of WIPP, DOE "self-regulation" is not acceptable. There will be prolonged conflicts with states and tribes along possible transportation routes and demands for additional transportation measures will be made. In the case of WIPP, several years of congressional consideration of the Land Withdrawal Act (Public Law 102-579) was necessary and WIPP-specific transportation requirements were legislated. It then requires years of implementation of those measures before shipments begin. Similar processes should be assumed for GTCC wastes, but the DEIS includes no assessment of such a process.

Planning for transportation routes, inspections, emergency response training, satellite tracking of each shipment, and other aspects started more than a decade before shipments began to WIPP in 1999. The DEIS does not state that similar transportation planning and implementation requirements would occur for GTCC waste shipments. Based on the WIPP experience, the host state and some or all of the states along transportation routes will advocate for such advanced planning and perhaps require additional funding to implement those requirements.

Conclusion

SRIC's comments and those of all other persons must be fully considered. If DOE adequately considers those comments, it will withdraw the DEIS and instead proceed with developing a GTCC PEIS. DOE also will supplement or issue at new Waste Management PEIS that covers wastes for which DOE is responsible in a comprehensive way. Developing and implementing an adequate program for GTCC will be a decades long, technically and politically challenging task. That task must be supported by adequate NEPA documents to assist decisionmakers and the public.

Sincerely,

Don Hancock

ATTACHMENT 1

March 24, 2010

Principles for Safeguarding Nuclear Waste at Reactors

The following principles are based on the urgent need to protect the public from the threats posed by the current vulnerable storage of commercial irradiated fuel. The United States does not currently have a national policy for the permanent storage of high-level nuclear waste. The Obama administration has determined that the Yucca Mountain site, which has been mired in bad science and mismanagement, is not an option for geologic storage of nuclear waste. Unfortunately, reprocessing proponents have used this opportunity to promote reprocessing as the solution for managing our nuclear waste. Contrary to their claims, however, reprocessing is extremely expensive, highly polluting, and a proliferation threat, and will actually complicate the management of irradiated fuel. Nor will reprocessing obviate the need for, or "save space" in, a geologic repository.

The United States has a unique opportunity to re-evaluate our nuclear waste management plan. We can make wise decisions about safeguarding radioactive waste or go down the risky, costly, and proliferation prone path towards reprocessing.

The undersigned organizations' support for improving the protection of radioactive waste stored at reactor sites is a matter of security and is in no way an indication that we support nuclear power and the generation of more nuclear waste.

- **Require a low-density, open-frame layout for fuel pools:** Fuel pools were originally designed for temporary storage of a limited number of irradiated fuel assemblies in a low density, open frame configuration. As the amount of waste generated has increased beyond the designed capacity, the pools have been reorganized so that the concentration of fuel in the pools is nearly the same as that in operating reactor cores. If water is lost from a densely packed pool as the result of an attack or an accident, cooling by ambient air would likely be insufficient to prevent a fire, resulting in the release of large quantities of radioactivity to the environment. A low density, open-frame arrangement within fuel pools could allow enough air circulation to keep the fuel from catching fire. In order to achieve and maintain this arrangement within the pools, irradiated fuel must be transferred from the pools to dry storage within five years of being discharged from the reactor.

- **Establish hardened on-site storage (HOSS):** Irradiated fuel must be stored as safely as possible as close to the site of generation as possible. Waste moved from fuel pools must be safeguarded in hardened, on-site storage (HOSS) facilities. Transporting waste to interim away-from-reactor storage should not be done unless the reactor site is unsuitable for a HOSS facility and the move increases the safety and security of the waste. HOSS facilities must not be regarded as a permanent waste solution, and thus should not be constructed deep underground. The waste must be retrievable, and real-time radiation and heat monitoring at the HOSS facility must be implemented for early detection of radiation releases and overheating. The overall objective of HOSS should be that the amount of releases projected in even severe attacks should be low enough that the storage system would be unattractive as a terrorist target. Design criteria that would correspond to the overall objective must include: Resistance to severe attacks, such as a direct hit by high-explosive or deeply penetrating weapons and munitions or a direct hit by a large aircraft loaded with fuel or a small

aircraft loaded with fuel and/or explosives, without major releases. Placement of individual canisters that makes detection difficult from outside the site boundary.

- **Protect fuel pools:** Irradiated fuel must be kept in pools for several years before it can be stored in a dry facility. The pools must be protected to withstand an attack by air, land, or water from a force at least equal in size and coordination to the 9/11 attacks. The security improvements must be approved by a panel of experts independent of the nuclear industry and the Nuclear Regulatory Commission.

- **Require periodic review of HOSS facilities and fuel pools:** An annual report consisting of the review of each HOSS facility and fuel pool should be prepared with meaningful participation from public stakeholders, regulators, and utility managers at each site. The report must be made publicly available and may include recommendations for actions to be taken.

- **Dedicate funding to local and state governments to independently monitor the sites:** Funding for monitoring the HOSS facilities at each site must be provided to affected local and state governments. The affected public must have the right to fully participate.

- **Prohibit reprocessing:** The reprocessing of irradiated fuel has not solved the nuclear waste problem in any country, and actually exacerbates it by creating numerous additional waste streams that must be managed. In addition to being expensive and polluting, reprocessing also increases nuclear weapons proliferation threats.

National

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John Issacs, Council for a Liveable World

Kevin Kamps, Beyond Nuclear

Lynn Thorp, Clean Water Action

Erich Pica, Friends of the Earth

Michele Boyd, Physicians for Social Responsibility

Jim Riccio, Greenpeace

Diane Kreiger, Nuclear Peace Age Foundation

Kevin Martin, Peace Action

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Anna Aurilio, Environment America

Winona La Duke, Honor the Earth

Dan Becker, Safe Climate Campaign

Dave Hamilton, Sierra Club

Geoffrey Fettus, Natural Resources Defense Council

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Susan Shaer, Women's Action for New Directions (WAND)

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Russell Lowes, SafeEnergyAnalyst.org

Barbara Warren, Arizona Physicians for Social Responsibility

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Sharyn Cunningham, Colorado Citizens Against Toxic Waste, Inc.

Judith Mohling, Rocky Mountain Peace and Justice Center

Connecticut

Nancy Burton, Connecticut Coalition Against Millstone

Judi Friedman, People's Action for Clean Energy

Sal Mangiagli, Connecticut Citizens Action Network, Haddam Chapter

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Delaware

Alan Muller, Green Delaware

Florida

Bob Krasowski, Florida Alliance for A Clean Environment, The Zero Waste Collier County Group

Georgia

Tom Ferguson, Foundation for A Global Community

Bobbie Paul, Georgia WAND

Glenn Carroll, Nuclear Watch South

Bob Darby, Food Not Bombs, Atlanta

Hawaii

Henry Curtis, Life of the Land

Iowa

Maureen McCue, PSR Iowa

Idaho

Beatrice Brailsford, Snake River Alliance

Chuck Broscious, Environmental Defense Institute

Illinois

Dave Kraft, Nuclear Energy Information Service

Carolyn Treadway, No New Nukes

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Grant Smith, Citizens Action Coalition of Indiana

John Blair, ValleyWatch, Inc.

Kansas

Dave Pack, Kansas City Peaceworks

Anne Suellentrop, Kansas City PSR

Kentucky

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Louisiana

Nathalie Walker, Advocates for Environmental Human Rights

Massachusetts

Debbie Grinell, C-10 Research and Education Foundation

Deb Katz, Citizens Awareness Network

Mary Lampert, Pilgrim Watch

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Lucy Duff, Peace and Justice Coalition-Prince George's County

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Bruce Gagnon, Global Network Against Weapons & Nuclear Power in Space

Michigan

Keith Gunter, Citizens Resistance at Fermi Two

Michael Keegan, Coalition for a Nuclear Free Great Lakes

Georgia Donovan, Izaak Walton League-Dwight Lydell Chapter

Terry Miller, Lone Tree Council

Patricia Gillis, Voices for Earth Justice

Alice Hirt, Don't Waste Michigan

Nancy Seubert, IHM Justice, Peace, and Sustainability Office

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Kay Cumbow, Citizens for Alternatives to Chemical Contamination

Ronald and Joyce Mason, Swords Into Plowshares Peace Center and Gallery

David Gard, Michigan Environmental Council

Steve Senesi, Kalamazoo Non-Violent Opponents of War

Minnesota

Danene Provencher, West Metro Global Warming Action Group, Inc.

Glady Schmitz, Mankato Area Environmentalists

George Crocker, North American Water Office

Bruce Drew, Prairie Island Coalition

Missouri

Mark Haim, Missourians for Safe Energy

Kat Logan Smith, Missouri Coalition on the Environment

Mississippi

Louie Miller, Mississippi Sierra Club

Montana

Florence Chessin, Missoula Women for Peace, a branch of Women's International League for Peace and Freedom

North Carolina

Lewis Patrie, Western North Carolina Physicians for Social Responsibility

E.M.T O'Nan, Protect All Children's Environment

Avram Friedman, The Canary Coalition

Jim Warren, North Carolina Waste Awareness and Reduction Network

Janet Marsh, Blue Ridge Environmental Defense League

North Dakota
Kandi L. Mossett, Indigenous Environmental Network

Jodie L. White, The Environmental Awareness Committee, Save Our Sacred Earth Campaign

Nebraska

Buffalo Bruce, Western Nebraska Resources Council

Tim Rinne, Nebraskans for Peace

New Hampshire

Will Hopkins, New Hampshire Peace Action

New Jersey

Paula Gotsch, Grandmothers, Mother and More for Energy Safety

Norm Cohen, Coalition for Peace and Justice-UNPLUG Salem Campaign

New Mexico

Mervyn Tilden, Sovereign Dine' Foundation

Janet Greenwald, Citizens for Alternatives to Radioactive Dumping

Joni Arends, Concerned Citizens for Nuclear Safety

Scott Kovac, Nuclear Watch of New Mexico

Greg Mello, Los Alamos Study Group

Don Hancock, Southwest Research and Information Center

Nevada

Judy Treichel, Nevada Nuclear Waste Taskforce

Jim Haber, Nevada Desert Experience

New York

Joanne Hameister, Coalition on West Valley Nuclear Wastes

Anne Rabe, Center for Health, Environment, and Justice

James Rauch, For a Clean Tonawanda Site (FACTS)

Barbara Warren, Citizen's Environmental Coalition

Phillip Musegaas, Riverkeeper NY

Tim Judson, Central New York Citizens Awareness Network

Ohio

Chris Trepal, Earth Day Coalition

Terry Lodge, Toledo Coalition for Safe Energy

Sharon Cowdrey, Miamisburg Environmental Safety and Health Network

Oklahoma

Marilyn McCulloch, The Carrie Dickerson Foundation

Oregon

Dona Hippert, Oregon Toxics Alliance

Charles K. Johnson, Center for Energy Research

Nina Bell, Northwest Environmental Advocates

Kelly Campbell, Oregon Physicians for Social Responsibility

Gerry Pollet, Heart of America Northwest

Pennsylvania

David Hughes, Citizen Power

Katherine Dodge, Northwest Pennsylvania, Audobon Society

Gene Stilp, Taxpayers and Ratepayers United

Ernest Fuller, Concerned Citizens for SNEC Safety

Patricia Harner, Philadelphia Physicians for Social Responsibility

Dr. Lewis Cuthbert, Alliance for a Clean Environment

Rhode Island

Sheila Dormandy, Clean Water Action Rhode Island

South Carolina

Susan Corbett, South Carolina Sierra Club

Dr. Finian Taylor, Hilton Head for Peace

South Dakota

Deb McIntyre, South Dakota Peace and Justice Center

Charmaine White Face, Defenders of the Black Hills

Tennessee

Donald B. Clark, Network for Economic and Environmental Responsibility, United Church of Christ

Rev. Charles Lord, Caney Fork Headwaters Association

Rev. Douglas B. Hunt, Interfaith Power & Light

Ralph Hutchinson, Oak Ridge Environmental Peace Alliance

Rev. Walter Stark, Cumberland Countians for Peace and Justice

Ann Harris, We the People, Inc.

Texas

Eliza Brown, SEED Coalition

Mavis Belisle, JustPeace

Gary Stuard, Interfaith Environmental Alliance

Craig Tounet, Austin Physicians for Social Responsibility

Jill Johnston, Southwest Workers Union

Utah

Margene Bullcreek, Ohngo Guadedah Devia Awareness

Vanessa Pierce, HEAL Utah

Virginia

Scott Sklar, The Stella Group, Inc.

Elena Day, People's Alliance for Clean Energy

Vermont

Arnie Gundersen, Fairewinds Associates, Inc.

Clay Turnbull, New England Coalition on Nuclear Pollution

Chris Williams, Vermont Citizens Awareness Network

Margaret Harrington Tamulonis, Women's International League for Peace

Washington

Tom Carpenter, Hanford Challenge

Wisconsin

Charlie Higley, Citizens Utility Board

Bonnie Urfer and John LaForge, Nukewatch Wisconsin

Al Gedicks, Wisconsin Resources Protection Council

Judy Miner, Wisconsin Network for Peace and Justice

West Virginia

Gary Zuckett, West Virginia Citizens Action Group

Wyoming

Mary Woolen, Keep Yellowstone Nuclear Free