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December, 11, 2006

Dr. Jane Summerson  
EIS Document Manager  
Regulatory Authority Office  
Office of Civilian Radioactive Waste Management  
U.S. Department of Energy  
1551 Hillshire Drive, M/S 010  
Las Vegas, NV 89134

**RE: Notice of Intent to Prepare a Supplement to the Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, NV. 71FR198, October 13, 2006, 60490-60494.**

Dear Dr. Summerson:

The purpose of this letter is to provide the comments of the State of Nevada Agency for Nuclear Projects on the scope of the Supplemental Yucca Mountain Environmental Impact Statement (EIS). Enclosed is an October 31, 2006 Statement of the Agency regarding both the subject Notice of Intent and the Amended Notice of Intent to prepare a Supplemental Yucca Mountain Rail Corridor and Rail Alignment EIS (DOE/EIS-0250F-S2 and DOE/EIS-0369). It is our intent that the portions of this Statement that are relevant to the subject Notice of Intent be incorporated in these comments. It is also our intent that our enclosed August 8, 2006 comments on the Draft Environmental Assessment for the Proposed Infrastructure Improvements for the Yucca Mountain Project (DOE/EA-1566, June 2006) be incorporated into these comments to the extent they are relevant pursuant to Footnote 7, P. 60492, of the subject Notice of Intent.

## The Proposed Action

Based on the fact that the subject Notice of Intent provides no reference to the availability of supporting documentation for the Department's current planning (e.g., the Department's Critical Decision 1 document), and the Proposed Action in the Notice of Intent is, at best, a minimal description of the current planning, we find no basis for the Notice of Intent statement that "the Department does not believe that any of the developments to the repository design or operational plans would have a significant impact on the environmental effects considered in the Yucca Mountain Final EIS." P. 60491. Therefore, the Supplemental EIS must include a comprehensive description of the current repository design and operational plans and a rigorous evaluation of the impacts on the environment of every aspect of the proposed design and operational plans.

## Aircraft Hazard

The limited information on design and operational plans indicates major changes from the Yucca Mountain EIS in the repository surface facility layout and function. All of the proposed surface structures are vulnerable, to a varying extent, to aircraft hazards, primarily from military aircraft that may or may not be carrying live ordinance. The October 2006 Bechtel/SAIC report "Frequency Analysis of Aircraft Hazards for License Application" (Accession Number: ENG.20061025.0001) relies on a 5.6 statute mile diameter restricted airspace up to 14,000 feet mean sea level over the Yucca Mountain area to limit the probability of an accidental impact that results in radiological consequences. For purposes of the Supplemental EIS, this constrained analysis is not sufficient. The analysis should include all credible aircraft hazards to the entire facility with both radiological and non-radiological consequences to the public and workers. Also, the analysis must not include any assumed airspace restrictions beyond those that are currently in effect. There is no basis for certainty that any new airspace restrictions will become effective over Yucca Mountain at any time in the near or more distant future; therefore, the only acceptable assumption for this analysis is that only current airspace restrictions apply.

## The No Action Alternative

The Notice of Intent indicates that the Department intends to incorporate by reference the No Action Alternative in the Final Yucca Mountain EIS because "[s]ince completion of the Yucca Mountain Final EIS, DOE has not identified any relevant changes in circumstances or information bearing on environmental concerns regarding the No Action Alternative." P. 60493. This intent is improper on two counts. First, the two scenarios analyzed as No Action Alternatives in the Final Yucca Mountain EIS were, and still are, unreasonable and inappropriate for a NEPA analysis. Nevada's comments to this effect, in its February 28, 2000 comments on the Yucca Mountain Final EIS, are hereby incorporated by reference in these comments. And second, there has been a significant relevant change in circumstances since the Final EIS was issued. Both No Action Alternative scenarios of the Final Yucca Mountain EIS rely on the 10,000-year compliance period for the Yucca Mountain Environmental Protection Agency (EPA)

Standard, 40 CFR Part 197, but that compliance period was struck down by the U.S. Circuit Court of Appeals for the District of Columbia. EPA has since proposed a compliance period of one million years that, if finally promulgated, would invalidate the Department's No Action Alternative analyses and further illustrate how unreasonable they initially were. The scenarios involve environmental effects of leaving the spent fuel at the reactor sites with either some institutional control or no control for 10,000 years - both actions the Department itself admits in the Final EIS are unrealistic. A similar one million year analysis would also be absurd. The Supplemental EIS must analyze a reasonable No Action Alternative that is appropriate to a credible and lawful NEPA analysis.

Moreover, there have been numerous important developments in industry and government that affect the credibility and impact analysis associated with DOE's evaluation of the No Action Alternative. First, the industry's Private Fuels Storage facility on the Goshute Indian Reservation in Utah received a license this year for the long-term interim storage of very substantial quantities of commercial spent nuclear fuel. The No Action Alternative did not evaluate regional consolidation of interim storage, which affects costs, transportation, and institutional impacts. Second, there is pending legislation in the U.S. Congress to spur development of on-site and/or regional interim spent fuel storage that is likely to reappear in the next Congressional session. Third, since the original FEIS was published, utilities have developed a number of additional on-site spent fuel storage facilities. And finally, utilities have settled several lawsuits with DOE concerning damages and costs associated with interim storage due to DOE's failure to adhere to the Nuclear Waste Policy Act's 1998 deadline. The dollar-figures associated with these settlements strongly suggest that DOE has greatly overestimated the costs of interim dry storage at utility sites in its FEIS. In sum, DOE's No Action Alternative needs massive re-working.

### Cumulative Impacts

The National Nuclear Security Administration (NNSA) has issued a Notice of Intent to prepare a Supplement to the Stockpile Stewardship and Management Programmatic Environmental Impact Statement - Complex 2030 (DOE/EIS-0236-S4). 71FR202, October 19, 2006, 61731-61736. According to the Notice, "[t]he SEIS will analyze the environmental impacts from the continued transformation of the United States' nuclear weapons complex by implementing NNSA's vision of the complex as it would exist in 2030, which the Department refers to as Complex 2030, as well as alternatives." The Nevada Test Site is integral to the existing complex. The Notice of Intent lists its current activities as follows:

"Maintains capability to conduct underground nuclear testing; conducts experiments involving nuclear materials and high explosives; provides capability to disposition a damaged nuclear weapon or improvised nuclear device; conducts non-nuclear experiments; and conducts research and training on nuclear safeguards, criticality safety and emergency response.

Maintains Category I/II quantities of SNM associated with the nuclear weapons program.”

As a result of the Complex 2030 SEIS, the activities at the Nevada Test Site could be expanded with the Department’s intended consolidation of its complex. The Draft SEIS is expected to be issued for public review and comment during the summer of 2007. The subject Supplemental EIS must consider cumulative impacts arising from past and current activities at the Nevada Test Site, as well as any new activities proposed for the Nevada Test Site in the Complex 2030 SEIS. Proposed Complex 2030 activities could vastly increase the scope of relevant impacts that would be initiated during the operational period of a Yucca Mountain repository.

### The “Aging (Staging)” Pads

The subject Notice of Intent speaks in general terms of the use of “aging (staging)” pads, and makes the following distinction between the two:

“The terminology refers to retaining commercial spent nuclear fuel on the surface at the repository to meet waste package thermal limits (aging), or to provide a surge capacity to maintain flexibility in waste handling operations (staging).” Footnote 4, P. 60491.

The concept of a staging area to facilitate repository operations is reasonable and has precedent in the operational restrictions applied to the DOE’s Waste Isolation Pilot Plant in New Mexico. However, an aging facility at a Yucca Mountain repository is not within the meaning of a “repository” as defined in the Nuclear Waste Policy Act, and thus is not authorized. The Act defines “repository” as follows:

“The term “repository” means any system licensed by the Commission that is intended to be used for, or may be used for, the permanent deep geologic disposal of high-level radioactive waste and spent nuclear fuel, whether or not such system is designed to permit the recovery, for a limited period during initial operation, of any materials placed in such system. Such term includes both surface and subsurface areas at which high-level radioactive waste and spent nuclear fuel handling activities are conducted.” Definitions, Section 18.

The aging facility, as its function is described in the Notice of Intent, is instead a Monitored Retrievable Storage (MRS) facility for which the MRS Commission determined, in 1989, there was no need in the national nuclear waste management system in order to meet the purposes of the Nuclear Waste Policy Act. Furthermore, the Act prohibits the siting of an MRS in any state with a site selected for site characterization or development of a repository. Section 141(g).

The Supplemental EIS should describe the need for and analyze the environmental impacts associated with construction and use of a staging facility. If an

aging facility is included in the Proposed Action, its authorization to be constructed and used at a Yucca Mountain repository must first be demonstrated by the Department.

### The Transportation, Aging, and Disposal Canister (TAD) System

The proposed implementation of the TAD system raises a wide range of logistical, legal, regulatory, repository performance, criticality, transportation, design, thermal management, and waste handling issues for which no documentary analyses have been made available by the Department. The Nuclear Regulatory Commission has written to the Department about some of the regulatory issues (enclosed letter: Kokajko to Williams, August 10, 2006). We incorporate by reference that letter in these comments. And, the Nuclear Waste Technical Review Board has written to the Department regarding a number of other TAD-related issues (enclosed letter: Garrick to Golan, June 14, 2006) and the Department has responded (enclosed letter: Sproat to Garrick, August 21, 2006). We also incorporate by reference both this letter and the response in these comments. The Supplemental EIS must include analysis and provide resolution to the matters raised in these letters.

The Supplemental EIS must give particular attention to the transportation impacts of deploying the TAD system and compare these impacts with the transportation impacts evaluated in Chapters 3 and 6 and Appendix J of the Yucca Mountain FEIS. The Supplemental EIS must assess the potential for use of the TAD system at each of the 72 commercial reactor sites and 5 DOE sites. DOE must identify the most likely routes for direct rail and/or intermodal shipment from each of these sites and the most likely cross-country routes for rail shipment of TAD canisters and dual-purpose casks to Nevada, for both the Caliente and Mina rail line options. DOE must also identify the most likely highway routes for legal-weight truck shipments from sites that ship uncanistered fuel directly to the repository. These routes must be clearly shown on national and state maps, and the maps must identify potentially affected Indian Tribes and major population centers. The Supplemental EIS must consider a credible range of modal mix scenarios, the resulting shipment numbers, and radiological and non-radiological risks and impacts. The Supplemental EIS must consider a credible range of radiological characteristics for the commercial spent fuel shipped to the repository under the repository high thermal loading scenario and evaluate the implications for routine transportation exposures, severe transportation accidents resulting in release of radioactive materials, and successful acts of sabotage against repository shipments.

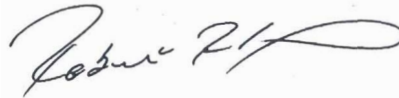
### Waste Isolation

The subject Notice of Intent lists Potential Environmental Issues and Resources to be examined. The topic Waste Isolation includes “Potential radiological and non-radiological impacts (e.g., chemically toxic materials) associated with the long-term performance of the repository.” The Supplemental EIS should include in these analyses evaluation of the risks of exposure to complex mixtures of radionuclides and hazardous metals that will result from degradation of the waste packages and dissolution of the waste forms. All degradation and dissolution products transportable from the repository

by groundwater also should be evaluated for compliance with the Resource Conservation and Recovery Act (RCRA) and the Safe Drinking Water Act throughout the compliance period of the EPA Yucca Mountain standard (40 CFR Part 197).

We appreciate the opportunity to comment on this Notice of Intent to Supplement the Yucca Mountain Environmental Impact Statement.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert R. Loux", is centered on the page. The signature is fluid and cursive.

Robert R. Loux  
Executive Director

RRL/cs

Enclosures

cc Governor Guinn  
Attorney General George Chanos  
Nevada Commission on Nuclear Projects  
Nevada Congressional Delegation  
Affected Local Governments and Tribes

## Enclosures

**The following enclosures are incorporated by reference and made part of these comments:**

Statement of the State of Nevada Agency for Nuclear Projects on The U.S. Department of Energy's Notice of Intent to Amend the Scope of the Yucca Mountain Rail Alignment Draft EIS and Prepare a Supplement to the Final Yucca Mountain EIS, October 31, 2006.

[http://www.state.nv.us/nucwaste/news2006/pdf/nv061031doe\\_noi.pdf](http://www.state.nv.us/nucwaste/news2006/pdf/nv061031doe_noi.pdf)

Letter: Loux to Summerson, August 8, 2006 - State of Nevada Comments on the U.S. Department of Energy/Office of Civilian Radioactive Waste Management Draft Environmental Assessment for the Proposed Infrastructure Improvements for the Yucca Mountain Project, Nevada (DOE/ES=1566, June 2006).

<http://www.state.nv.us/nucwaste/news2006/pdf/nv060808doe.pdf>

Letter and Enclosure: Kokajko (NRC) to Williams (DOE), August 10, 2006.

<http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?ID=062280073:&LogonId=5e815086ab83a78a9a12adf8c292bb76> ; and enclosure:

<http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?ID=062330126:&LogonId=1c14f3d7f76737421cca8f613660fd89>

Letter: Garrick (NWTRB) to Golan (DOE), June 14, 2006.

<http://www.nwtrb.gov/corr/bjg056.pdf>

Letter and Enclosure: Sproat (DOE) to Garrick (NWTRB), August 21, 2006.

<http://www.nwtrb.gov/corr/doe082106.pdf>



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**STATEMENT OF THE STATE OF NEVADA  
AGENCY FOR NUCLEAR PROJECTS  
ON THE  
U.S. DEPARTMENT OF ENERGY'S NOTICES OF INTENT  
TO AMEND THE SCOPE OF THE YUCCA MOUNTAIN  
RAIL ALIGNMENT DRAFT EIS AND PREPARE  
A SUPPLEMENT TO THE FINAL YUCCA MOUNTAIN EIS  
October 31, 2006**

The U.S. Department of Energy's (DOE) October 13, 2006 notices of intent (NOIs) to (1) expand the scope of DOE's rail alignment draft environmental impact statement (EIS) and (2) prepare a supplement to the final Yucca Mountain EIS are procedurally and legally deficient. Both notices should be withdrawn and reissued with provisions incorporated for meaningful public participation, sufficient time for reviewing and commenting on the proposed actions, and attention to both the letter and spirit of the National Environmental Policy Act (NEPA).

The two October 13<sup>th</sup> NOIs, taken together, comprise nothing less than a major restructuring of the entire Yucca Mountain high-level radioactive waste program. The changes contemplated in the notices affect the universe of repository program elements, including the actual design of repository surface facilities, the characteristics of the waste disposal packages and engineered barrier systems, the thermal characteristics of the repository subsurface, the long-term performance of the waste isolation system and how that is modeled, and the entire national and Nevada waste transportation system. Yet, instead of treating these major program changes with the weight and importance they deserve, DOE is, once again, attempting to shirk its responsibilities and limiting public and stakeholder involvement by establishing truncated and unrealistic comment deadlines, withholding key information critical for understanding the actions being proposed and restricting opportunities for comment on the critical issues that are at stake.

On October 16, 2006, the Nevada Agency for Nuclear Projects formally requested that DOE extend the comment period for both NOIs to at least 90 days. The Agency also asked that, at a minimum, six additional public meetings be scheduled in Nevada



communities located along the rail route that encompasses the newly-proposed Mina rail access corridor. DOE agreed to extend the comment period by just two weeks – to December 12<sup>th</sup> - and added a single additional meeting in Reno.

The State of Nevada finds DOE's response to be entirely inadequate and unacceptable. The proposed Mina rail spur to Yucca Mountain would impact more Nevada communities than any other route DOE has identified. Communities across the State along the I-80 corridor, from West Wendover to Lovelock would be directly affected by thousands of shipment of spent nuclear fuel and high-level radioactive waste from the eastern portion of the country.

The heavily populated Reno-Sparks area, northern Lyon County, and the city of Fernley (one of the fastest growing communities in northern Nevada) would be impacted by hundreds - and perhaps thousands – of shipments from Arizona, California, Oregon, Washington that would transit California and end up coming through the Reno-Sparks metro area. It is likely that even reactors in Texas and a number of southern states would ship through California and northern Nevada to a Mina rail spur.

None of these impacts are discernable from the NOIs released on October 13<sup>th</sup>. DOE failed to provide any maps showing the new rail access routes or main line rail roads that are proposed for nuclear waste shipments. Key information about the actual communities affected and potential impacts are intentionally obscured by the NOI in an apparent effort to suppress public involvement and meaningful participation. On October 26 and 27, DOE added some additional information about the two proposals to its OCRWM web page, but issued no notice of its availability. Furthermore, these additions are no remedy for the deficient notices and short time provided for public comment.

The states of California and Utah – two states that stand to be significantly impacted by development of a rail access route to Yucca Mountain using the proposed Mina corridor – were left totally in the dark by DOE. Despite the fact that national changes in rail routing as a result of using a Mina rail spur would mean exponentially more shipments in California and would require the use of an entirely different main line railroad segment in Utah, DOE has refused to schedule public meetings in those states or even formally seek their input.

In the NOI announcing DOE's intent to prepare a supplement to the Final Yucca Mountain EIS, DOE is proposing fundamental changes in waste packaging, waste handling, and repository performance assessment. Nevertheless, DOE failed to include even a revised conceptual design for the Yucca Mountain facility in the notice. Instead, the NOI relies on vague references to the newly-concocted Transportation, Aging and Disposal (TAD) system and a shift in focus to a "clean" repository operating system.

In reality, the shift to the TAD concept as the governing construct for repository waste acceptance, storage, transportation and disposal marks a major change in DOE's entire repository design. It impacts every aspect of the proposed waste management system, from the way in which waste is handled and managed at nuclear reactors to how

it is transported and then received and handled at a repository to how it is ultimately disposed of underground (and how the waste disposal system performs over the tens of thousands of years necessary for safe waste isolation).

There is nothing in the NOI that even hints at the wide-ranging, all-encompassing effects of the changes DOE is proposing. One can only conclude that, as with the rail alignment NOI, DOE is intentionally seeking to mask the true import of its actions and withhold crucial information from the public.

The format for the limited number of meetings DOE is proposing to hold in Nevada is likewise deficient and designed to limit public participation. The meetings provide no opportunity for a public exchange of information. People coming to the meetings intending to make comments will be shuttled from one DOE public relations display to another, with no provision for documenting comments made to DOE staff. In order to “formally” comment, individuals must huddle with a paid DOE transcriber in a corner of the meeting room in an environment that is both intimidating and not encouraging of comments.

While DOE is asserting in the media that comments on both NOIs will be accepted at all of the scheduled meetings, the NOIs themselves say something else. For example, the notices state that DOE will accept comments on the proposed supplement to the Yucca Mountain EIS at the meetings in Amargosa Valley and Las Vegas, while comments on the scope of the revised rail alignment draft EIS would be accepted at meetings in Amargosa Valley, Goldfield, Caliente, Hawthorne and Fallon. According to how the notices are structured, DOE is under no obligation to accept “out-of-scope” comments on the supplemental Yucca Mountain EIS at any meetings other than Las Vegas and Amargosa Valley. Likewise, DOE has no obligation to accept comments of rail alignment scoping at the Las Vegas meeting.

A fundamental principle underlying the NEPA process is the requirement for federal agencies to transparently set forth proposed actions that have the potential to affect people and the environment and to follow procedures designed to not only allow, but also to encourage, meaningful public participation in the decision-making process. The NOIs DOE published in the Federal Register on October 13, 2006 not only fail to adhere to this spirit of openness and inclusive participation, but they actually serve to obscure the real extent of the changes being proposed and the nature and extent of likely impacts.

DOE must withdraw the NOIs and reissue them in a way that not only provides adequate time and opportunities for public involvement, but also affords access to adequate information to enable affected parties to understand what is being proposed and the impacts that could result.

# ATTACHMENT I

## North South Routing from Reactors to Yucca Mt. on Mina Route

*Dedicated Rail routes from UP gateways of Memphis and Kansas City*



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August 8, 2006

Dr. Jane Summerson  
EA Document Manager  
U.S. Department of Energy  
1551 Hillshire Drive  
Las Vegas, Nevada 89134

**Re: State of Nevada Comments on the U.S. Department of Energy/Office of Civilian Radioactive Waste Management *Draft Environmental Assessment for the Proposed Infrastructure Improvements for the Yucca Mountain Project, Nevada* (DOE/EA-1566, June 2006)**

Dear Dr. Summerson:

This letter presents the State of Nevada's comments on the above-referenced draft Environmental Assessment (EA). In short, this EA does not credibly explain why DOE is pursuing this project. While the document cites the need to "ensure the health and safety of workers, regulators, and visitors" at the Yucca Mountain site as a principal reason for the proposed infrastructure improvements, it contains no supporting information demonstrating the relationship between the proposed action and improved health and safety conditions. In fact, the OCRWM Director, in remarks before the U.S. Senate Energy and Natural Resources Committee on August 3, 2006, stated flatly that DOE's plans for new infrastructure at Yucca Mountain are unrelated to health and safety issues.

Instead, the draft EA demonstrates convincingly that the no-action alternative would fulfill DOE's stated purposes with far lower financial and environmental costs than the project DOE proposes. Moreover, DOE does not have the legal authority to perform the activities described in the EA. In addition, the EA contemplates using more water than DOE has stipulated to in court proceedings related to water usage at the Yucca Mountain site.

**Summary of the Proposed Project**

In this EA, the Department of Energy's Office of Civilian Radioactive Waste Management is proposing an extensive 2-year program of infrastructure construction at and in the vicinity of the proposed Yucca Mountain nuclear waste repository site. The EA describes the project as involving only maintenance-type activities designed to facilitate ongoing site investigation, but the actual project appears to be much broader in scope. In addition to performing routine

maintenance of existing infrastructure and refurbishing or replacing some existing structures, the proposed project would involve the construction of miles of entirely new roadways and utility lines.

For the proposed action, DOE would:

- Construct up to 33 miles of new and replacement roads, with two options for access from the entrance off U.S. Highway 95 near Lathrop Wells;
- Construct up to 20.6 miles of new 138 kV power lines, with two options for main power line alignment;
- Develop a new Central Operations Area consisting of six support buildings near the ESF North Portal area, to replace temporary operations structures at the North Portal pad;
- Site, repair and construct other facilities and structures for the Yucca Mountain Project.

DOE's preferred action for road construction and replacement involves the construction of 25 miles of new and replacement asphalt road. This includes 8.5 miles of new, relocated access road, and 1.3 miles of new access to the Yucca Mountain crest road. Replacement of 2.9 miles of the existing crest road with 2-lane paved road and replacement of 12.4 miles of other access roads are also proposed. Pavement of the access roads would be 50 feet wide, and the crest road would be paved to a width of 36 feet. Upgrading the existing dirt access road to the Yucca Mountain crest road, which has been in service for at least the past 25 years, was considered by DOE and rejected because the steep grade could pose a traffic hazard and is too steep for some highway vehicles.

The preferred power line construction option includes 17.6 miles of new 138 kV service from an existing switch station at Lathrop Wells, following the preferred road alignment, to a new switch station at the proposed new Central Operations Area. It also includes a 2-mile-long line to a new substation at the ESF South Portal, as well as a 1-mile-long 12.47 kV line to the ESF North Portal, both from the new switch station.

The proposed Central Operations Area would consist of 6 buildings located on about 30 acres of land approximately one-half mile southeast (not southwest – see p.13 and Figure 2-1) of the North Portal, replacing about 100 temporary support structures, mostly now located on the North Portal pad. The location, currently used for storage and equipment laydown, would be filled with about 150,000 cubic yards of material, then graded flat for building pads and utility infrastructure. New buildings would include a 43,000 square-foot field operations center for offices and emergency facilities; a 43,000 square-foot craft shop and annex for maintenance and repair operations; a 35,000 square-foot warehouse and material storage yard; a 10,000 square-foot incident and response station for fire and medical support; and a fuel and vehicle wash facility.

Proposed construction of other facilities includes building a new Sample Management Facility to house samples and borehole cores collected during scientific work and testing at the Yucca Mountain site and refurbishing a 15-acre equipment storage pad about 1 mile west (not

northeast – see p. 14 and Fig. 2-1) of the North Portal. The new 42,000 square-foot Sample Management facility would replace the existing facility located at the Nevada Test Site (NTS) Area 25 Field Operations Center, about 10 miles southeast of the North Portal. The new facility would be located on approximately 3 acres of private land within 10 miles of the access gate off U.S. Highway 95 (probably in the vicinity of Lathrop Wells), and no less than 15 miles south of the North Portal.

The EA estimates that the proposed two-year project would require 196 new workers during construction, in addition to the support workers who currently operate the site.

### **Summary of the Project Purpose and Need**

The EA does not explain how these new infrastructure improvements will support the ostensible project purpose. That project purpose, the EA claims, is to support scientific work and testing at the site, provide routine maintenance, and refurbish and replace existing infrastructure. Such maintenance and new construction apparently have become necessary because, despite the expectation that a decision regarding the construction and operation of a repository would be made in a relatively short period of time after the site was designated, several years have elapsed since site designation, and no decision has been made. The ostensible purpose of the proposal is stated in the EA:

The Department [DOE], in order to continue ongoing scientific activities and tests, must ensure the health and safety of its workers, regulators, and visitors that access Yucca Mountain. As a result the Department needs to improve Yucca Mountain's infrastructure, not only to ensure safety for workers, regulators, and visitors, but also to comply with pertinent environmental, health and safety standards and DOE Directives."

The ongoing scientific activities and tests to be continued include, but are not limited to:

- Testing and monitoring of natural and engineered barriers, including precipitation monitoring, subsurface testing of water and rock, monitoring groundwater in the saturated zone and drift inspection.
- Testing and monitoring geotechnical features, including mapping of subsurface joints, faults and stratigraphic units, monitoring regional seismicity, and testing in a high-temperature environment.
- Designing and testing engineered features, such as borehole seals.

The EA does not identify the source of the legal authority for these activities. Nor does it explain how the construction of new roads or power lines, among other specific proposed infrastructure construction activities, will support ongoing scientific work. It thus leaves largely unstated the connection between the purpose it defines and the project it proposes.

The EA assumes these activities would continue for a time period up to ten years, until Nuclear Regulatory Commission (NRC) makes a construction authorization decision. The EA states that it does not "consider nor include any actions beyond an NRC decision on

construction authorization.” DOE’s most recent (July 19, 2006) project schedule expects a license application submittal on June 30, 2008 and a construction authorization to be granted by NRC in September 2011, approximately 5 years from present.

### **The No-Action Alternative**

While DOE characterizes the proposed project as a maintenance project, maintenance of existing facilities apparently would also occur under the “no-action” alternative. Under that alternative, ongoing operations, scientific activities, and routine maintenance would continue, using the infrastructure that exists, maintaining and replacing it as needed. The no-action alternative activities include:

- Upgrading and replacing guard station and security access gate facilities on the NTS (Gate 510) about 2 miles north of Lathrop Wells located on U.S. 95;
- Installing a new microwave communication system;
- Refurbishing and replacing existing systems of the ESF as appropriate (e.g., the ventilation system and new fire-detection and alarm systems);
- Repairing/replacing the existing water system;
- Constructing and/or relocating paths and short roads;
- Routine maintenance for buildings, trailers, structures, and equipment;
- Repairing/maintaining existing roads;
- Constructing new temporary support buildings, as needed (e.g., replacing structures destroyed by fire);
- Relocating and/or disposing of buildings unsuitable for further use.

### **The Proposed Project’s Groundwater Use**

DOE proposes to seek to “establish an agreement with the State of Nevada regarding the temporary use of groundwater for the proposed activities.” (See EA, table at p. 7). This new agreement would constitute renegotiation of the existing stipulation between the State of Nevada and DOE as part of pending litigation concerning DOE’s application for 430 acre-feet per year of water to construct and operate the proposed high-level nuclear waste repository at Yucca Mountain. See *United States of America v. State of Nevada*, CV-S-00-268-RLH-(LRL). DOE has not inquired about Nevada’s willingness to renegotiate that stipulation and has not otherwise consulted Nevada during the preparation of this EA.

At present, pursuant to the operative stipulation, DOE utilizes less than 9 acre-feet of water annually to maintain the status quo at the site. The quantity of groundwater needed for the

proposed action would range from 230 to 297 acre-feet per year over a two-year period. (See EA at 43). Without independent authorization from the Nevada Division of Water Resources (NDWR) and agreement with all the parties to the litigation, DOE lacks authority to utilize sufficient groundwater to support its proposed construction activities.

## **Discussion and Comment**

### **1. DOE Has Not Explained the Need for this Project**

While DOE's EA asserts that this project is needed to provide maintenance for ongoing activities at Yucca Mountain, the EA does not actually explain how the activities it proposes fulfill that purpose. The EA provides only a vague explanation of the purported risks to the safety of workers, regulators, and visitors that supposedly justify the actions proposed in this EA. As a result, the need for and benefits of the proposed action cannot be meaningfully evaluated. The EA also does not describe any adverse impacts to the ongoing scientific activities and tests that could be avoided by implementation of the proposed action. Moreover, DOE has not explained what activities are legally permitted under the Nuclear Waste Policy Act (the Act).

For many of the proposed project activities, no such explanation is readily apparent. Much of the activity proposed in the EA, such as building new roads and new power lines, clearly is not maintenance of existing facilities and, instead, is entirely new construction. DOE's characterization of the project as a "maintenance" project is belied by the description of the no-action alternative, which appears to provide the routine ongoing maintenance the site needs. Indeed, under the current DOE schedule for construction authorization, and the vague and limited benefits of the proposed action described in the EA, it is clear that the proposed infrastructure improvements can only be justified to support the construction and operation of a Yucca Mountain repository.

DOE's stated project purpose, therefore, appears to be misleading. While the real purpose is unstated, Nevada suggests that DOE's intent is to initiate repository surface facility construction prior to a construction authorization from the NRC, something that is not supported under the Act.

DOE's EA, therefore, should clarify the project's purpose. Portions of the proposed project that are not consistent with that purpose, or that do not fall within the limited set of on-site activities authorized by the Act, should be dropped from the project description.

### **2. The Project is Unnecessary**

DOE's proposed project appears to be unnecessary for two reasons. First, if DOE does not receive a license or DOE's application is further delayed, this project will spend millions of dollars for only a tiny return. Second, the no-action alternative appears capable of fulfilling all of the stated project purposes.

The Yucca Mountain site designation was effective in July 2002. Had the schedule mandated in the Nuclear Waste Policy Act (as amended) been followed by DOE, the decision regarding construction authorization for a repository could have been made by now, and this



maintenance project would not have been needed. Instead of submitting the license application to NRC 90 days following site designation, as the Act requires (Section 114(b))<sup>1</sup>, DOE now plans to submit it in June 2008, nearly six years later than expected. The Act provides 3 years, with a possible extension of one year, for NRC license application review and hearing (Section 114(d)), and DOE expects a construction authorization decision by September 2011, about five years from now.

This EA states that it covers a ten-year period, up to the NRC decision on a construction authorization and does not "consider nor include any actions beyond an NRC decision on construction authorization." DOE's schedule now indicates a five-year period until a construction authorization decision. Given that the EA proposes a 2-year infrastructure construction and replacement period, which could not begin sooner than about January 2007, the useful life of the new work would be less than three years, unless DOE receives a license. The many millions of dollars of work proposed and the impacts described in the EA cannot be justified for just a three-year period of operation, especially since unexplained assumptions of improved operational efficiency during the pre-construction authorization period appear to be the only justification for the replacement and construction work proposed. For example, the EA suggests that current limitations on road and underground rail vehicle speed and power usage, as well as increasing power line maintenance needs are inefficiencies. But, this assertion can hardly justify the potentially short period of time during which any benefit could be realized.

The EA demonstrates that the no-action alternative would fulfill DOE's stated purposes with far lower financial and environmental costs than the project DOE proposes (see the summary of the no-action alternative above).

### 3. DOE Lacks Legal Authority to Undertake this Project

Under the Act, DOE has limited authority to engage in on-site activities at Yucca Mountain, and that authorization does not include many of the activities described in the proposed project.

First, only if DOE's receipt of a license is assumed can the project be justified; otherwise, this multi-million dollar project will create infrastructure that will be abandoned after only three years of limited use. The proposed infrastructure improvements, therefore, are apparently intended to primarily support the construction and operation of a Yucca Mountain repository. However, it cannot be presumed that the construction and operation of a repository at Yucca Mountain will ever occur.

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<sup>1</sup> The U.S. General Accountability Office (GAO), in a December 2001 report, "Nuclear Waste: Technical, Schedule, and Cost Uncertainties of the Yucca Mountain Repository Project," (GAO-02-191, December 21, 2001), counseled DOE against making a premature Site Recommendation (SR) - something DOE did anyway just two months later. GAO noted repeatedly that DOE could not possibly meet the legal 90-day requirement for submitting a License Application following the SR. GAO cited a Bechtel analysis which said it would take until 2006 to get the necessary work done to submit a LA. GAO further reported: "DOE has not accepted this estimate because, according to program officials, it would extend the license application date too far into the future".

Second, DOE has only limited authority to engage in other activities after its site designation decision, and these substantial infrastructure improvements, scheduled to be undertaken many years after completion of site characterization, are well beyond the scope of on-site DOE activities contemplated in the Act. The Act clearly did not contemplate a hiatus of six or more years (rather than 90 days) between the congressional Site Designation and DOE's filing of a repository license application. The expectation was that DOE's focus during that time would be on making its final preparations for submitting the license application for construction authorization, since the Secretary of Energy's Site Recommendation should have come as a result of the completion of site characterization. (See NWPA section 114(a)). Consequently, the Act did not specifically authorize activities to be carried out during such an extended hiatus.

The proposed infrastructure improvements are not a part of site characterization, since that phase of the project ended with DOE's recommendation of the site. But the Act did not contemplate that any significant on-site DOE activities would need to be undertaken after completion of site characterization but before submission and approval of the license application. The Act addressed in some detail how site characterization was to be conducted (see NWPA, Sec. 113(d)) and limited activities to those needed to determine whether to recommend the site (section 113 (c) (1)), to minimize the environmental impacts (section 113 (a)), and to limit the use of radioactive material (section 113 (c)(2)). Clearly, had the Act intended that significant on-site activities might be undertaken after site characterization, it would have provided for them or, at the least, applied the cited restrictions more broadly to all on-site activities undertaken before issuance of the construction authorization. This view that no significant on-site activities were contemplated between completion of site characterization and issuance of the construction authorization is reinforced by the Act's imposition of a 90-day deadline (after an effective site recommendation) for submission of the license application. Such a deadline clearly implies that the period from completion of site characterization to construction authorization was intended as a time for drafting of recommendation and application documents and maintenance of the status quo on the site, not substantial and unnecessary site infrastructure improvements.

Moreover, the Act's limits on DOE's site characterization process clearly indicate that DOE was supposed to complete that process *before* issuing a site recommendation, and did not provide authority for ongoing post-recommendation investigations. The Act restricted site characterization activities "at the Yucca Mountain site [to] only such site characterization activities as the Secretary considers necessary to provide the data required for evaluation of the suitability of such site for an application to be submitted to the [Nuclear Regulatory] Commission for a construction authorization for a repository at such site, and for compliance with the National Environmental Policy Act of 1969 [42 U.S.C. 4321 et seq]." (See NWPA section 113(c)(1)). The site designation decision supposedly was the point at which the Secretary determined the "suitability of the site for an application," and thus marked the time at which the Act's authority for site characterization activities elapsed. The Act does not authorize post-designation, pre-construction authorization activities. However, given the delays, the no-action alternative is fully consistent with the concept of maintaining the status quo and assuring safety and environmental protection, until such time that a decision on a construction authorization is made.

#### 4. DOE Lacks Rights to the Water the Project Will Require

DOE's current water usage is subject to a stipulation agreed to by the parties to water rights litigation filed by DOE challenging the Nevada State Engineer's denial of water rights to be used to construct and operate the proposed high-level nuclear waste repository at Yucca Mountain. See *United States of America v. State of Nevada*, CV-S-00-268-RLH-(LRL). That stipulation authorizes pumping from wells identified as J-12 and J-13 for minimal site maintenance and potable and non-potable needs (less than 10 acre-feet per year), and does not allow the hundreds of acre-feet of annual water use necessary to support the new construction activities proposed in this EA. Moreover, permission to appropriate groundwater requires permit authorization from the NDWR, and DOE may not use more water than the stipulation allows without either revising the stipulation or receiving a permit from NDWR to appropriate water for its proposed use. DOE, therefore, cannot assume authorization for the water necessary to support this project and, instead, must plan to work within the limits of its own stipulated agreement or take appropriate and lawful steps to obtain permission to use additional water. The proposed action should not be initiated until DOE either revises its plans to work within the stipulation or obtains the legally required additional authorization.

#### 5. The Proposed Action has the Potential to Negatively Impact Historic Properties and Cultural Resources

The actions described in this EA have the potential to affect historic properties. Under the provisions of Section 106 of the National Historic Preservation Act, DOE, as a federal agency, must consider the effects of its undertakings on historic properties.

Since 1988, DOE has utilized a programmatic agreement (PA) with the Advisory Council on Historic Preservation as a substitute for the 36 CFR 800 regulations for considering effects to resources during the site characterization phases of the Yucca Mountain Project. The development of the repository and other facilities were not within the scope of this PA and, as such, in 2004, DOE and the Advisory Council on Historic Preservation determined to develop a new PA for the license application phase of the Yucca Mountain Project. In addition, the PA is also not current with recent changes in 36 CFR 800. For example, data collection of archaeological sites in advance of a project is considered an adverse effect requiring additional consultation with tribes and the State Historic Preservation Office, and the preparation of a treatment plan meeting the Secretary of Interior's standards. Currently, DOE has prepared a draft PA, but it has not yet been finalized.

The State Historic Preservation Office (SHPO) requests that projects undertaken under an approved EA be made subject either to 36 CFR 800 dated August 5, 2004, or that the proposed actions are subject to the new PA that has not yet been executed. Within the EA, DOE should specify the steps it will take to identify, evaluate and treat historic properties. These efforts must include Native American consultation on specific improvements, as well as archaeological and historic surveys to identify historic properties. All of this must be done in consultation with SHPO. Regardless, it is not acceptable to simply "collect artifacts" from sites that will be affected by the proposed actions.

One remaining question regards the meaning of a sentence on page 31 under American

9. The Need for New Road Construction is Not Adequately Addressed  
Proposed Road Construction are Not Adequately Addressed

*Proposed Action – Road Construction*

The EA fails to justify the need for a new road to the crest of Yucca Mountain. The only purpose of such a road is the transport of tour groups to the top of the mountain as part of DOE's ongoing public relations activities. There does not appear to be any scientific need for access to the Yucca crest via a new, two-lane, paved roadway. It would appear that maintenance of the existing road under the no-action alternative would be more than sufficient to support any of the very limited scientific, technical or environmental activities that may occur along the roadway. A multi-million dollar expenditure for a road to nowhere for the sole purpose of facilitating public relations objectives is entirely unjustified.

The Draft EA description of the proposed road construction options is wholly inadequate for impact assessment purposes. At a minimum, the EA should have presented, for Options 1 and 2, (1) detailed engineering drawings of the entire route, including a vertical profile; (2) cut and fill requirements; (3) construction materials requirements; (4) detailed drawings of the culverts to be constructed where the new road would cross Fortymile Wash; (5) construction schedule; and (6) estimated construction costs.

Based on differences in physical geography and likely differences in traffic usage patterns, both DOE options for road construction should be divided into two segments: (1) the road from Gate 510 to the Central Operations Area; and (2) the road from the Central Operations Area to Yucca Crest road. This would reflect differences in physical geography and usage patterns on the existing route segments, such as extremely steep grades and visitor traffic (as opposed to worker traffic) on the existing road to the crest of Yucca Mountain.

Given that the proposed infrastructure improvements are purportedly needed to "maintain safety and the protection of workers, regulators, and visitors ...", and completion of the proposed improvements would allegedly result in "an enhanced margin of safety..." [p. iii], traffic and accident data should have been included in the EA. At a minimum, the EA should have provided the following historical and projected data for the existing and proposed route segments: (1) average daily and maximum daily trips by cars, trucks, vans and busses; (2) monthly trips by cars, trucks, vans and busses; (3) vehicle occupancy data (DOE personnel and contractors, regulators, general public, etc.); (4) vehicle speed data; and (5) traffic incidents and accidents.

*Relationship between Proposed Road Construction and Rail Access*

The EA completely ignores the relationship between the proposed road construction project and the proposed Caliente rail corridor, including the potential for cumulative impacts. This omission is apparently based solely on the assumption that construction of rail access to

Yucca Mountain "would occur after the construction projects described for the proposed action have been completed." [p.55] The EA fails to explain how or why the sequencing of construction would eliminate the need to consider cumulative impacts. The EA gives no precise schedule for road construction, but assumes it could take two years. [p.15] DOE recently announced that it would complete the rail access EIS in 2008 and begin rail access construction in 2009.

The EA ignores the proximity of the preferred road construction option to the Caliente rail corridor identified in the DOE Record of Decision and Bureau of Land Management land withdrawal request. Portions of Proposed New Road Option 1 could be constructed less than one mile east of the Caliente rail corridor in the vicinity of Fortymile Wash. Construction of both the railroad and the new road in that area would likely be complicated by floodplain considerations and cultural resources.

The EA should have evaluated the cumulative impacts of construction and operation of the proposed road and the proposed railroad. The EA should also have considered the co-location of the proposed road and the proposed railroad.

#### *Relationship Between Road Construction and Water Infiltration*

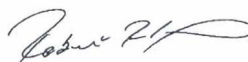
The EA contains no assessment of potential effects of proposed road construction to and along the Yucca Mountain crest on future water infiltration into the subsurface, including implications for repository total system performance assessment (TSPA) and long-term repository performance.

#### **Conclusion**

The proposed action contained in the EA is unnecessary, unjustified, and lacks legal authority. The proposed facilities and infrastructure can only be justified to support the construction and operation of a Yucca Mountain repository, something that is not permitted under law until DOE has received a construction authorization from the NRC.

The only appropriate avenue for DOE is the selection of the no-action alternative, since this alternative clearly fulfills DOE's stated purposes with far lower financial and environmental costs and without violating the letter and intent of the Nuclear Waste Policy Act.

Sincerely,



Robert R. Loux  
Executive Director

RRL/cs

cc Governor Guinn  
Nevada Congressional Delegation  
State Clearinghouse  
Local Governments and Tribes



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

QA: N/A

August 10, 2006

RECEIVED BY BSC CCU

DATE: 08/11/2006

Mr. Mark H. Williams, Director  
Regulatory Authority Office  
Office of Civilian Radioactive Waste Management  
U.S. Department of Energy  
1551 Hillshire Drive  
North Las Vegas, NV 89134-6321

SUBJECT: TRANSPORT, AGING AND DISPOSAL CANISTER FOR SPENT NUCLEAR  
FUEL MANAGEMENT

Dear Mr. Williams:

The U.S. Department of Energy (DOE) has proposed using a Transport, Aging, and Disposal (TAD) canister as its primary container for commercial spent nuclear fuel (CSNF) at the proposed high-level waste repository at Yucca Mountain, Nevada. As has been discussed at several public meetings, DOE is currently developing performance specifications and, ultimately, designs for the proposed TAD canister and revisions to proposed surface facilities. DOE has indicated that its TAD performance specifications will be provided to commercial vendors in the near future. This letter provides comments from the U. S. Nuclear Regulatory Commission (NRC) staff on regulatory criteria and other possible areas of consideration for the development of TAD canister designs and performance specifications.

The first area concerns how the TAD canister might meet the NRC safety requirements for all its proposed functions in transportation, possible interim storage at a reactor or other NRC - licensed site, and aging and disposal in a geologic repository. As you are aware, the proposed TAD system will involve separate reviews under 10 CFR Part 71 for the approval of a transportation cask, under 10 CFR Part 72 for approval of a storage cask, and under 10 CFR Part 63 for approval of an aging cask and as part of the engineered barrier system for geologic disposal. Additionally, it may involve review of reactor licensing activities under 10 CFR Part 50, for potential loading and handling of TAD canisters at reactor facilities.

The enclosure provides a high-level summary of some of the regulations that may be relevant to the TAD canister concept. Because multiple regulatory approvals are involved, it is important to identify crosscutting issues early in the regulatory process. This is important given the projected timing of applications for approval of TAD-based storage and transportation casks relative to DOE's proposed submittal date of June 2008, for a proposed Yucca Mountain License Application.

Our current understanding is that DOE's planning is based on the assumption that a TAD canister will be certified for storage and transportation prior to completion of the NRC staff's review of the performance assessment under 10 CFR Part 63. DOE should recognize the fundamental difference in the risk-informed, performance-based criteria of Part 63 from the

M. Williams

-2-

technical and safety requirements of 10 CFR Parts 71 and 72, which have been used many times to approve shipping and storage casks. Early identification and resolution of crosscutting issues is key to reducing possible regulatory risk to the applicant.

The second area of consideration concerns the treatment of specific technical aspects of a TAD canister within the performance assessment under 10 CFR Part 63. These aspects could be addressed in the TAD canister performance specifications currently being developed by DOE.

1. The materials used in the canister and its internals may affect the in-package chemistry, which, in turn, could affect the CSNF dissolution rate and the solubility limits of radionuclides to be considered in the performance assessment for the postclosure period. For example, corrosion of materials could affect the in-package pH, possibly increasing the CSNF dissolution rate and the solubility limits. As another example, corrosion of carbon steel could promote colloid formation, facilitating radionuclide release and transport.
2. Assessment of the continued integrity of cladding on CSNF may be less straightforward in a TAD canister than in the previous fuel-handling approach that DOE was considering. For example, in the performance assessment in DOE's "Environmental Impact Statement," the CSNF cladding plays an important role in the postclosure performance. If DOE continues with this approach, a means to determine the state of the cladding may be necessary, especially for high-burnup CSNF. Possible performance credit for cladding could also bear on the compatibility of thermal limits for Parts 71, 72, and 63, with respect to the potential for cladding embrittlement.
3. As currently understood, DOE's approach for criticality control during the postclosure period of the repository is to screen out a criticality event based on burnup credit for actinides and fission products, fixed neutron absorbers, geometry control, and limiting moderation. These may also drive the TAD canister design. For example, the proposed neutron-absorber materials (e.g., Ni-Cr-Mo-Gd alloy) may degrade by thermal aging or corrosion during the long postclosure period. Cladding degradation by embrittlement and basket degradation may alter other bases for the criticality control used in the previous fuel-handling approach.
4. DOE has acknowledged that the use of a TAD canister will significantly impact preclosure operations. The intended safety function of the TAD canister, its place in preclosure event sequences, and its possible classification as an important-to-safety system based on the potential preclosure event sequences are examples of how a TAD would be considered within the preclosure safety analysis (PCSA). As discussed recently at our PCSA Technical Exchange on May 16-17, 2006, reference reliability information for relevant structures, systems, and components is needed to categorize event sequences and to perform the PCSA.

The third area of consideration concerns Quality Assurance (QA), which is an important part of 10 CFR Parts 50, 63, 71, and 72. For TAD canister use at a geologic repository, under the provisions of the NRC-approved DOE Part 63, Subpart G, QA program, DOE needs to implement QA requirements consistent with the safety significance of the TAD canisters and their internal materials and components (e.g., CSNF cladding). The need and methods for assurance or verification of TAD canister components and material compliance with the DOE specifications and CSNF Waste Acceptance Criteria are also important. These include the QA

M. Williams

-3-

program processes and methods for requiring and implementing technical and QA program requirements for the entities that provide and load the TAD canisters, and the DOE QA program oversight, verification, and receipt inspection.

In summary, NRC will evaluate DOE's proposed TAD system under the applicable regulations for each function of the TAD. The staff plans to discuss these and other topics related to the TAD canister approach, in the interest of early consideration of crosscutting regulatory issues, at our upcoming Technical Exchange.

If you have any question regarding this matter, please contact Dr. Mahendra Shah at (301) 415-8537, or by e-mail, at [mjs3@nrc.gov](mailto:mjs3@nrc.gov) or Marissa Bailey at (301) 415-7198, or by e-mail at [mgb@nrc.gov](mailto:mgb@nrc.gov).

Sincerely,



Lawrence E. Kokajko, Deputy Director  
Division of High-Level Waste Repository Safety  
Office of Nuclear Material Safety  
and Safeguards

Enclosure: NRC Regulatory Criteria  
Applicable to a Transportation,  
Aging and Disposal Canister

cc: See attached list.



Letter to M. Williams from L. Kokajko dated: August 10, 2006

cc:

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D. Curran, Harmon, Curran, Spielberg & Eisenberg, L.L.P.

## NRC Regulatory Criteria Applicable to a Transportation, Aging and Disposal Canister<sup>1</sup>

Regulatory Framework	Transportation 10 CFR Part 71	Interim Storage 10 CFR Part 72	Disposal 10 CFR Part 63 <sup>1</sup>
What may be approved or reviewed	Transportation package design - usually consisting of transportation overpack and contents (e.g., canistered fuel, bare fuel)	Independent spent fuel storage installation (ISFSI) under site specific or general license (dry cask storage systems typically comprised of storage overpack, transfer cask and canister)	High-level waste geologic repository at Yucca Mountain <sup>2</sup>
Applicability	Use of NRC-certified packages on public highways, rail, and waterways	At power reactors or at away from reactor ISFSIs	High-level waste geologic repository at Yucca Mountain
Regulatory Process	Technical certification of transportation package design; use of certified package design authorized under NRC general license or DOT regulations	Technical certification of dry cask storage system design via rulemaking; use of cask storage system design at reactor sites authorized by general license  Specific license to construct/operate ISFSI at reactor or away from reactor site granted/denied through public licensing process	Licensing (including construction authorization) of DOE to receive and possess source, special nuclear, and byproduct material at a geologic repository operations area at Yucca Mountain in accordance with NWPA, AEA and Energy Reorganization Act.
Main Objectives	Limit dose (shielding) Limit releases (containment) Prevent criticality	Limit dose (shielding) Limit releases (confinement) Prevent criticality Maintain spent fuel in a retrievable state for further processing or disposal	Limit dose and release Protect groundwater resource Provide multiple barriers

<sup>1</sup> Proposed legislation for 10 CFR Part 63 may impact portions of this listing of regulatory criteria.

<sup>2</sup> Aging at proposed Yucca Mountain Repository will be governed by 10 CFR Part 63.

Regulatory Framework	Transportation 10 CFR Part 71	Interim Storage 10 CFR Part 72	Disposal 10 CFR Part 63 <sup>1</sup>
Importance of canister or canister internals	Criticality control, heat transfer	Confinement, criticality control, heat transfer	Determined by DOE based on pre-closure safety analysis and total system performance assessment
Design parameters; conditions or hazards for which package or SSCs are designed or evaluated	Test conditions for normal transport and hypothetical accident conditions prescribed in rule	Design basis events consistent with site and operations, some prescribed in rule	DOE determines based on credible hazards or events
	Normal Conditions of Transport - includes 0.3m free drop, 0.3m corner drop, compression, penetration	Site characteristics and environmental conditions associated with normal operations	Preclosure - Category 1 events sequences, expected to occur 1 or more times before permanent closure
	Hypothetical Accident Conditions - 9m drop, 1m puncture, 30-min 800°C fire, 0.9m immersion damaged package, 15m immersion undamaged package	Design basis events reflecting characteristics of site and surrounding area (e.g., earthquake, tornado, lightning, flood, man-made hazards)	Preclosure - Category 2 event sequences, have at least 1 chance in 10,000 or occurring before permanent closure
			Postclosure - events that have at least 1 chance in 10,000 of occurring over 10,000 years

Regulatory Framework	Transportation 10 CFR Part 71	Interim Storage 10 CFR Part 72	Disposal 10 CFR Part 63 <sup>1</sup>
Dose and Release Criteria	<p><b>Normal Conditions of Transport</b></p> <p>Direct radiation limit</p> <ul style="list-style-type: none"> <li>• Non-exclusive use:               <ul style="list-style-type: none"> <li>≤ 200 mrem/hr at cask surface</li> <li>≤ 10 mrem/hr at 1 m from cask surface</li> </ul> </li> <li>• Exclusive use:               <ul style="list-style-type: none"> <li>≤ 1000 mrem/hr at cask surface</li> <li>≤ 200 mrem/hr at outer surface of vehicle</li> <li>≤ 10 mrem/hr at 2 meters from outer surface of vehicle</li> <li>≤ 2 mrem/hr in occupied space of vehicle</li> </ul> </li> </ul> <p>Release limit:            ≤ 10<sup>6</sup> A<sub>2</sub>/hr; release based on 200 mrem/yr effective dose</p>	<p><b>Normal Operations</b></p> <p>Annual dose to individual beyond controlled area due to planned discharges, direct radiation from ISFSI and radiation from uranium fuel cycle operations within the region:</p> <ul style="list-style-type: none"> <li>≤ 25 mrem to whole body,</li> <li>≤ 75 mrem to thyroid, and</li> <li>≤ 25 mrem other critical organ</li> </ul>	<p><b>Normal Operations and Category 1 Event Sequences</b></p> <ul style="list-style-type: none"> <li>≤ 15 mrem TEDE per year to member of the public beyond site boundary</li> <li>≤ 5 rem/year to worker</li> </ul>
	<p><b>Hypothetical Accident Conditions</b></p> <p>Direct radiation limit            ≤ 1000 mrem/hr, at 1 meter from package surface</p> <p>Release limit:            ≤ A<sub>2</sub>/week; release based on limiting dose from damaged package to:            ≤ 5 rem CEDE to whole body            ≤ 50 rem CEDE to individual organs            ≤ 15 rem CEDE to lens of the eye.</p>	<p><b>Design Basis Accidents</b></p> <p>Dose to individual on or beyond nearest site boundary:</p> <ul style="list-style-type: none"> <li>≤ 5 rem to whole body</li> <li>≤ 15 mrem lens dose equivalent</li> <li>≤ 50 rem shallow dose equivalent to skin or any extremity</li> </ul>	<p><b>Category 2 Event Sequences</b></p> <p>Dose to individual on or beyond site boundary due to single Category 2 event sequence</p> <ul style="list-style-type: none"> <li>≤ 5 rem TEDE</li> <li>≤ 15 mrem lens dose equivalent</li> <li>≤ 50 rem shallow dose equivalent to skin</li> </ul>

Regulatory Framework	Transportation 10 CFR Part 71	Interim Storage 10 CFR Part 72	Disposal 10 CFR Part 63 <sup>1</sup>
			Post-closure Performance Standards for 10,000 years <sup>3</sup>  $\leq 15$ mrem/yr to RMEI for 10,000 yrs  $\leq 4$ mrem/yr groundwater dose and radionuclide concentration limits of 5 pCi/L combined Ra-226 and Ra-228, 15 pCi/L gross alpha excluding Ra and U
Subcriticality Criteria	Subcritical if water were to leak into containment system   $k_{eff} \leq 0.95^{4,5}$ Burnup credit for actinides only <sup>4</sup>	At least 2 unlikely, independent and concurrent or sequential events before criticality is possible   $k_{eff} \leq 0.95^{4,5}$ Burnup credit for actinides only <sup>4</sup>	Preclosure safety analysis includes consideration of means to prevent and control criticality  Postclosure performance assessment identifies features, events and processes (FEPs) that could affect disposal system and estimates dose incurred from included FEPs (criticality is an excluded FEP in DOE's current approach)  DOE provides criteria and basis for $k_{eff}$ and modeling assumptions
Minimum spent fuel cool time	Applicant provides limit and basis	1 year for power reactor fuel	DOE provides criteria and basis based on maintaining barrier capability of the cladding as represented in its performance assessment (DOE's current approach)

<sup>3</sup> Changes to Standards and Regulations for period after 10,000 years have not been finalized.

<sup>4</sup> Based on current NRC practice.

<sup>5</sup> Different values of  $k_{eff}$  may be used if justified on a case-by-case basis.

Regulatory Framework	Transportation 10 CFR Part 71	Interim Storage 10 CFR Part 72	Disposal 10 CFR Part 63 <sup>1</sup>
Clad temperature	<p>For Zircalloy: 380°C (5 yr old), 340°C (10 yr old), 570°C for short-term accidents or fuel transfer<sup>4</sup></p> <p>Temperature limits may be lower for high burnup fuels<sup>4</sup></p> <p>Temperature limits established on case-by-case basis for advanced cladding materials<sup>4</sup></p> <p>(Currently based on ability to retrieve fuel intact)</p>	<p>For Zircalloy: 380°C (5 yr old), 340°C (10 yr old), 570°C for short-term accidents or fuel transfer<sup>4</sup></p> <p>Temperature limits may be lower for high burnup fuels<sup>4</sup></p> <p>Temperature limits established on case-by-case basis for advanced cladding materials<sup>4</sup></p> <p>(Currently based on ability to retrieve fuel intact)</p>	DOE provides criteria and basis for barrier capability of the cladding as represented in its performance assessment (DOE's current approach)
Cask internal pressure	Applicant provides limit and basis; pressure limit not to be exceeded during 800°C, 30-min fire	Current practice: maintain pressure within design limit for normal, off-normal, and accident conditions assuming 1%, 10%, and 100% ruptured fuel rods, respectively <sup>4</sup>	
Cask surface temperature	185°F, still air, 100°F ambient temperature, shade, exclusive use shipment	Applicant provides limit and basis	DOE provides criteria and basis
Material specification, fabrication, and welding	Numerous, mostly qualitative, criteria in SFPO Interim Staff Guidance 15 <sup>4</sup>	Numerous, mostly qualitative, criteria in SFPO Interim Staff Guidance 15 <sup>4</sup>	DOE determines importance of structures, system, and components (SSCs) or engineered barriers (i.e., if important-to-safety or important-to-waste-isolation), and provides criteria and basis accordingly
Lifting attachments	Safety factor of three against yielding	Lifting trunnion testing at 150% or 300% of service load	DOE determines if important-to-safety SSC, provides criteria and basis accordingly
Tie-down devices	Must be capable of withstanding forces of 2X, 5X, or 10X the weight of the package with its contents	Storage system specific based on seismic considerations	
Quality Assurance	Design/fabrication/use 10 CFR Part 71, Subpart H	Design/fabrication/use 10 CFR Part 72, Subpart G	Design/construction/operation 10 CFR Part 63, Subpart G
Review Plans	NUREG-1617, multiple SFPO ISGs	NUREG-1567, NUREG-1536, multiple SFPO ISGs	NUREG-1804



UNITED STATES  
NUCLEAR WASTE TECHNICAL REVIEW BOARD  
2300 Clarendon Boulevard, Suite 1300  
Arlington, VA 22201

June 14, 2006

Mr. Paul M. Golan  
Acting Director  
Office of Civilian Radioactive Waste Management  
U.S. Department of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585

Dear Mr. Golan:

On behalf of the Nuclear Waste Technical Review Board, I thank you and the other Department of Energy (DOE) staff who participated in the Board's meeting on May 9, 2006, in Washington, D.C. The Board welcomed the opportunity to review technical and scientific issues important to the Yucca Mountain program.

The major topic of the meeting was DOE's proposal to use a transportation, aging, and disposal (TAD) canister system for most commercial spent nuclear fuel. Without the TAD canister, planned operations at the surface facilities of a repository at Yucca Mountain would likely involve removing individual spent-fuel assemblies from transportation casks and placing them in waste packages for disposal or in storage casks or site-specific canisters for aging, which could result in handling an individual assembly as many as four times. The TAD canister system could reduce the number of times individual assemblies are handled because the canister and its contents would be handled in a single action. This could improve facility throughput at Yucca Mountain and reduce the potential for accidents during handling operations. The TAD canister system also has the potential to simplify the design and reduce the cost of repository surface facilities. For these reasons, the Board considers the TAD concept promising.

It became apparent at the meeting that hurdles must be overcome for the potential advantages of a canister-based system to be realized. Particularly important is the timing of the availability of TADs for storage at utility sites. At present, at-reactor spent-fuel storage pools are becoming filled and utilities are purchasing casks for on-site dry storage. Some of these are dual-purpose casks (or use dual-purpose canisters), which can be used for both storage and transport. If TADs are not available for use at utilities for at least 5-6 years, the quantity of spent fuel in dry storage at reactor sites will be significant. How DOE deals with these storage casks and the spent fuel remaining in the spent-fuel pools for blending to DOE requirements will determine whether the TAD concept can accomplish its objective, i.e., avoiding handling of individual fuel assemblies for reblending at Yucca Mountain.



Also of importance is that the TAD canister concept would be part of a license application for a repository at Yucca Mountain. While performance specifications are being developed for the TAD canister, a final determination on the acceptability of the TAD for disposing of spent fuel will not be known until the conclusion of the licensing proceeding for Yucca Mountain. Therefore, there is considerable risk to DOE, utilities, and cask vendors in moving forward with design and fabrication of TAD canisters without knowing whether they will be approved by the Nuclear Regulatory Commission (NRC) for disposal in a repository at Yucca Mountain.

Complicating this question is DOE's insistence that it can accept only bare fuel ("uncanisterized" fuel) according to its interpretation of contracts it has with utilities. Consequently, using DOE's own bases for acceptance, it appears that DOE will not accept canister-based fuels, which is contrary to the essence of the TAD concept. The Board also was told that, by law, DOE is not permitted to provide TADs to utilities for dry-cask storage. Thus, while the Total System Model (TSM) assumes that it will be possible to place 90 percent of spent fuel at utility reactors in TADs, this assumption may not be realistic because of blending limitations at reactor sites and the amount of fuel in non-TAD storage containers. The Board believes that these fundamental issues need to be understood better and resolved to allow a proper technical assessment of the TAD approach to managing spent fuel for the Yucca Mountain repository.

The Board is interested in the performance specification for the TAD canister and its relationship to the postclosure thermal-management strategy. The Board has a continuing interest in consistency in the multiscale model analysis and the identification of limiting conditions for the thermal loading of the repository. The Board believes that these analyses are keys to understanding postclosure conditions and that such understanding is needed for properly assessing repository performance as it relates to water ingress and temperature limits on materials, drifts, and possible failure modes.

The Board notes that the success of the TAD concept appears to rely on construction and use of a rail line through Nevada for moving transportation casks from existing rail lines to the Yucca Mountain site. The Board has commented previously on the need for contingency planning in the event that construction of the rail line is delayed. To the extent that adoption of the TAD concept also causes changes in the design of the Yucca Mountain surface facilities, DOE's ability to process legal-weight truck casks could be reduced. If so, contingency planning for a rail line delay would be even more important.

Finally, as an overarching concern, the Board believes that the existing litigation between DOE and the nuclear utilities is a significant impediment to the technical resolution of key issues regarding TAD canisters and the overall spent-fuel management system leading to disposal. The Board strongly urges DOE and the utilities to resolve their contractual differences with a sense of the urgent need for finding a waste-management solution.

DOE's TSM analyzed various scenarios involving use of TAD canisters, and the results of some of those analyses were presented at the meeting. The Board applauds DOE's development and use of TSM and encourages additional enhancements of its capabilities. TSM is an excellent tool for evaluating the performance of the waste management system from acceptance to emplacement and under alternative designs, operating assumptions, and constraints. Greater use of TSM is particularly important at this time, because the tool is demonstrating its value in identifying potential disconnects between various components of the waste management system. The Board would like to see a base (reference) case analysis that reflects current system realities and the design of the planned surface facilities at Yucca Mountain. TSM should be used to focus designers on credible scenarios for judging the viability of the waste management system, the design of the surface facilities (including aging pads), and the ability of the utilities to blend fuel so that the size of the aging pads can be minimized.

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In addition, the Board recommends adding to TSM the capability to evaluate "upset" conditions, such as equipment breakdowns or closure of transportation routes, but only after the reference case is established. Moreover, implementation of TAD will have implications for the thermal management strategy that do not appear to have been considered fully. Consequently, the Board encourages adding to TSM the functionality to model DOE's thermal-management strategy. That could be accomplished by developing a constraint on waste package emplacement that ensures compliance with DOE's line-load thermal limit for the underground facility. For existing capabilities, as well as those that might be added in the future, realism will be important, if the results of TSM analyses are to be credible. The Board encourages DOE to scrutinize the TSM input assumptions and parameter values to ensure that they realistically represent the system being modeled.

The presentation on surface-facility design did not provide sufficient information for the Board to make any assessment of its feasibility or safety. The Board is interested in the details of the surface-facility design. For example, the Board would be interested in the number of receiving bays under consideration, their function, size of spent-fuel storage pool, dry cask handling facilities, provisions for handling failed fuel, anticipated processing rates, processing uncertainties, and key assumptions. The expectation is that TSM will be used to validate this design. The Board looks forward to receiving and reviewing the documents that support the upcoming CD-1 decision on the design of the surface facilities. The Board hopes to see these documents before the CD-1 submittal.

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Despite recent efforts by DOE to reorganize the OCRWM program with the intent of improving Yucca Mountain Project management, the Board remains concerned about whether the appropriate level of Project integration is being achieved. In particular, no definable office exists whose duty and authority is to ensure technical interaction and problem resolution among and between functional elements of preclosure and postclosure activities. We also note that many of the key positions in the new organization chart are either unfilled or filled with people in "acting" positions. For the success of the new organizational approach, we strongly recommend that these positions be filled as soon as possible.

Finally, the Board is concerned that the newly announced Global Nuclear Energy Partnership (GNEP) may negatively affect the technical and scientific focus on Yucca Mountain.

We encourage the Project to monitor the developments in GNEP to be sure that any effects that might occur can be accommodated: for example, a change in the waste form for disposal in the future. The Board would like to have a briefing on the status of this program and possible effects on the Yucca Mountain project.

We look forward to future meetings with DOE during which we can address issues raised in this letter as well as other technical and scientific issues that the Board identifies that pertain to a repository for high-level radioactive waste and spent nuclear fuel repository at Yucca Mountain.

Sincerely,

{Signed by}

B. John Garrick  
Chairman



**Department of Energy**  
Washington, DC 20585

QA: N/A

August 21, 2006

AUG 25 2006

B. John Garrick, Ph.D.  
Chairman  
Nuclear Waste Technical Review Board  
2300 Clarendon Boulevard, Suite 1300  
Arlington, VA 22201-3367

Dear Dr. Garrick: *John*

Thank you for your June 14, 2006, letter providing the Nuclear Waste Technical Review Board's (Board) comments on the information presented by the U.S. Department of Energy at the Board's meeting on May 9, 2006. Our response to the Board's letter is enclosed.

We appreciate the opportunity to inform the Board of the progress of the Civilian Radioactive Waste Management Program. The Department continues to benefit from the constructive views of the Board, and we look forward to further dialog on the repository and related issues.

Sincerely,

A handwritten signature in blue ink that reads "Edward".

Edward F. Sproat, III, Director  
Office of Civilian Radioactive  
Waste Management

Enclosure



**U.S. DEPARTMENT OF ENERGY RESPONSES TO THE  
JUNE 14, 2006, LETTER FROM THE  
NUCLEAR WASTE TECHNICAL REVIEW BOARD**

*Development and Deployment of Transport, Aging, and Disposal Canister Systems*

The Department agrees with the Board's view that the early availability and implementation of transport, aging and disposal canister (TAD)-based systems for additional at-reactor storage of spent nuclear fuel are important to ensure that the benefits of the TAD system are realized at the Yucca Mountain facilities. The Department is considering incentives to ensure that the cask vendor community develops TAD-based systems in a timely fashion, as well as incentives to encourage early deployment of these systems at utility sites.

In developing these concepts to encourage the early development and deployment of TAD-based systems, the Department recognizes that, until the conclusion of the Nuclear Regulatory Commission licensing proceedings for Yucca Mountain, there will be some risk that TAD systems developed in accordance with the Department's performance specifications may not ultimately prove disposable, but no more than any other existing canistered waste form. We believe that by developing robust performance requirements, this risk can be managed. It is the Department's intent to ensure that any risk with respect to the ultimate disposability of the TAD canister be appropriately considered and managed as we refine our acceptance process and criteria.

*Compatibility of Transport, Aging, and Disposal Canister with Standard Disposal Contract*

The Department understands that the utilization of TAD-based systems for the acceptance of spent nuclear fuel may require modifications to the disposal contracts that the Department has with the utilities. The Department believes that it will be able to address these issues with the majority of utilities, and that the goal of receiving 90 percent of the first 63,000 metric tons of spent nuclear fuel at Yucca Mountain in TADs is reasonable. We will design the surface facilities with enough flexibility and redundancy such that a variance from the 90 percent target can be accommodated.

*Transport, Aging, and Disposal Canister Performance Specification Relationship to Postclosure Thermal Management Strategy*

The Department understands that the Board is interested in how the TAD canister performance specification relates to the Department's postclosure thermal management strategy. The performance specification is being developed taking into account all the system requirements from waste acceptance to final disposal. Accordingly, it has been our intent to incorporate requirements that, while ensuring that the thermal performance of the TAD canister system would be consistent with the Department's current postclosure thermal-management approach, would provide sufficient flexibility to

accommodate alternative postclosure thermal management strategies. If, as a result of further analyses, the current postclosure thermal management approach is altered, we believe that such changes can be accommodated by altering the manner in which the TAD canister system is operated (i.e., by decreased surface aging), rather than by requiring changes to the TAD canister design.

### *Rail Line Contingency Planning*

In a Record of Decision published in April 2004, the Department selected “mostly rail” as the mode of transport both nationally, and in the State of Nevada. The “mostly rail” option includes an expectation that some truck shipments will be made. In a Supplement Analysis to the *Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada* (DOE/EIS-0250F), the Department considered the potential environmental impacts of shipping legal-weight truck casks on railcars. This scenario involved shipments from generator sites to an intermodal transfer station that would be constructed and operated in Nevada and the subsequent transportation of those casks to a repository at the Yucca Mountain site by legal-weight trucks. In the event that the rail line is not completed when the repository begins operations, these truck transportation options would still be available for initial shipments to Yucca Mountain and will have been fully planned and ready for completion by that time. A full range of transportation contingencies are also being considered for shipment of TAD canisters in the event that the Nevada rail line is not available when the repository begins operations. However, we are planning the project to ensure that the rail line will be available at least one year before the repository begins operation.

### *Impact of Spent Fuel Litigation on Transport, Aging, and Disposal Canister Development*

The Department disagrees with the Board’s representation that the existing litigation between the Government and the nuclear utilities over the delay in beginning the acceptance of spent nuclear fuel in 1998 is a significant impediment to the technical resolution of key issues regarding TAD canisters and the overall spent fuel management system leading to disposal. While the Department continues to encourage and support the resolution of the existing lawsuits through negotiated settlements, only the utilities can determine how they choose to resolve these disputes. Nonetheless, the Department believes that, although they may be complicated by the ongoing litigation, meaningful technical discussions can and do take place. This was demonstrated by recent technical interactions with the industry on the development of the TAD system performance requirements. We will continue to pursue a collaborative design approach with the private sector.

### *Total System Model Analyses*

The Department appreciates the Board’s support for the Total System Model (TSM) as a tool to understand waste management system performance. The Department plans to continue the integrated systems engineering and analyses approach to gain a greater

understanding of the interrelationships between the subsystem components: waste acceptance, transportation, and repository operations. These continuing analyses are expected to provide additional insights as design details are further refined and operational scenarios are more fully defined, but will be sequenced to occur as details and scenarios are deemed ripe for consideration to ensure that realistic representations of the waste management system are analyzed.

As the Board is aware, the Department directed Bechtel SAIC Company, LLC, in October 2005 to update the repository surface facility design and operating concepts for the Yucca Mountain Project to adopt a primarily canister-based approach utilizing the TAD system. In compliance with the Departmental directives for this undertaking, a revised critical decision-1 (CD-1) package was prepared for submittal to the Department's Energy Systems Acquisition Advisory Board (ESAAB) to document and obtain approval for the revised approach. The thorough internal Departmental review and the approval process have been completed.

The CD-1 package contains a suite of documents describing the revised Project technical approach, cost, and schedule, along with documents for impact analysis. Now that approval of the CD-1 package by the ESAAB has been obtained, the baseline or "base (reference) case" analyses, including Total System Model results, will be updated to further analyze design scenarios, and specific details such as fuel blending and aging pad sizing.

The Department plans to continue a stepwise approach using the TSM tool to evaluate interrelationships and system responses with the transportation program. Throughout the TSM design evolution, the Department has briefed the Board on the inherent TSM capabilities to study upset conditions. The TSM design objectives are to ensure this flexibility is available by using an object oriented design approach and commercial off-the-shelf software to build the TSM. As the transportation program further refines its planning bases, logistics, and operational scenario, the Department will use TSM analyses with the same systems analysis approach to gain an understanding of the TAD-based system. Those future TSM studies of transportation scenarios will abstract data from transportation subsystem models when those model results are mature enough to establish realistic scenarios that merit evaluation.

### *Surface Facility Design*

The Department appreciates the Board's interest in the surface facility design. Now that we have formal approval from the Department to implement the canister-based approach, we will commence preliminary design, and develop the design and safety analysis needed to support a License Application. We will also provide presentations to the Board describing in detail the design concept for the canister-based approach, including facility functions, layouts, and other items discussed in the Board's letter, as well as the results of the preliminary safety analyses.

The Board's expectation that the TSM is being used to validate the conceptual design is part of our ongoing work in this area. While not complete, the validation of the design concepts using the TSM is occurring at this time. As the design moves through the preliminary design process, the TSM will continue to be used to ensure that the design will meet the Department's requirements.

#### *New Organization*

The Department understands the Board's concerns with the Office of Civilian Radioactive Waste Management's (OCRWM) new organization and, in particular, the lack of a specific office with the responsibility for Project integration. As was discussed at the Board meeting, while the individual office directors are responsible for coordinating between offices, the Director, OCRWM, retains the ultimate responsibility to ensure overall Project integration. Upon my confirmation as Director, I began an assessment of the OCRWM structure, processes and competencies. The Board will be informed of the results of my assessment at a future meeting.

#### *Relationship of Global Nuclear Energy Partnership and Yucca Mountain*

The Department's Global Nuclear Energy Partnership (GNEP) is a closely coordinated long-term effort between multiple Program offices and national laboratories. One element of GNEP seeks to realize technologies that could enhance various aspects of the waste management system. There is no near-term impact of GNEP on Yucca Mountain. This is because there is no definition of the ultimate waste form and waste package that will result from the GNEP process. This information will not be developed until some time in the future. When it eventually becomes available, the resultant waste package will be qualified for disposal in Yucca Mountain; and an application for a license amendment will be submitted to allow disposal in the repository. The Department remains fully focused and will continue forward with the technical and scientific efforts to license and operate a geological repository at Yucca Mountain to address the spent fuel management of the current generation of nuclear reactors.