

**CITY OF LAS VEGAS COMMENTS
ON THE
SUPPLEMENT TO THE DRAFT
ENVIRONMENTAL IMPACT STATEMENT
FOR A GEOLOGIC REPOSITORY FOR THE DISPOSAL
OF SPENT FUEL AND HIGH-LEVEL RADIOACTIVE WASTE AT YUCCA
MOUNTAIN, NYE COUNTY NEVADA**

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**City of Las Vegas Comments on the
Supplement to the Draft Environmental Impact Statement for a
Geologic Repository for the disposal of Spent Fuel and High-level Radioactive Waste
at Yucca Mountain, Nye County, Nevada
*DOE/EIS-0250D-S***

The comments presented in this summary are on behalf of the citizens of Las Vegas and are in addition to the City's comments already submitted on the Draft Environmental Impact Statement in January 2000. Affected Units of Local Government and we have requested an additional 45 days be added to the comment period for this supplement, and we urge the Department of Energy's favorable consideration to these requests.

The City of Las Vegas believes that this Supplement fails to address a multitude of issues and concerns of the public and elected officials, as well as fails to meet the requirement that the Secretary of Energy's site recommendation include a description of the proposed repository and the preliminary engineering specifications for the facility. Since this Supplement forms the basis for the Final Environmental Impact Statement, it must include an evaluation of the impacts associated with specific design alternatives. A set of evolving design scenarios, with variable design features and operational parameters, is neither sufficient for a Final EIS nor for a Site Recommendation, if one is to be made.

The Supplement describes two general design options, one, which would result in drift wall temperatures rising above the boiling temperature, and one, which would keep the waste container surface temperature below boiling at 85 degrees C. Variable operational modes and design features are discussed that, in combination could be arranged to meet either of the design options. The Supplement asserts that the range of operational modes and design features described serve to bind the potential impacts of the repository

Other areas of major concerns are the conceptual repository surface facility and the blending pool, and neither has been adequately analyzed. The proposed blending pool, which is projected to hold 5,000 metric tons of heavy metal (MTHM), or 12,000 spent fuel assemblies, is not properly addressed in the accident analysis. The accident analysis in the Supplement has the same scenario conditions outlined in the DEIS - a seismic collapse of the waste handling building with damage to all waste casks in the building. The Supplement further fails to consider that if the Waste Handling Building collapses, the large fuel blending pool, built to the same accident standards, will also fail. If the building collapses, electric power will be terminated, ending the ability to cool the spent fuel in the damaged or collapsed pool. In any case, there will be a rapid, and possibly catastrophic heating of the damaged spent fuel in the pool and the possible release of radionuclides. This accident scenario must be fully analyzed, and its consequences described in the Supplement.

The Supplement also describes a 200 acre spent fuel storage area in the vicinity of the North Portal Operations Area that would hold 40,000 MTHM of spent fuel in 4,500 dry casks for a 50-year cooling period. This facility is the equivalent of the spent fuel storage facility proposed for

Skull Valley, Utah. The Supplement does not include a seismic hazard analysis for this facility that if licensed under the same Nuclear Regulatory Commission (NRC) rules being applied to the proposed Skull Valley facility, would likely fail to receive approval because of the earthquake potential in the area. The Supplement must include a seismic risk and consequence analysis for this proposed spent fuel storage area. Furthermore, if 50 years of storage for purposes of cooling the spent fuel is being considered, why is it necessary to bring the spent fuel to Yucca Mountain?

On the subject of transportation, this Supplement focuses on the modifications to the repository design and operating modes addressed in the Draft Environmental Impact Statement (DEIS); it does not analyze aspects of the Proposed Action that has not been modified, such as transportation of spent nuclear fuel and high-level radioactive waste. Since the DEIS listed a number of potential routes, the City believes that transportation should be addressed in this supplement as well. The Yucca Mountain Project is national in scope. The potential transportation of 70,000 MTHM creates the potential for transportation impacts not only in Nevada but throughout the United States as well.

Specific Comments on the Supplement DOE 0250 D-S

Under the Proposed Action (Use of a Flexible Design), DOE will permanently place approximately 11,000 to 17,000 waste packages containing 70,000 metric tons of heavy metal (MTHM) of spent nuclear fuel and high-level radioactive waste at Yucca Mountain. The Science and Engineering Report (S& ER) flexible design purports to focus on controlling the temperature of the rock between the drifts of the waste package surfaces and of the drift walls to meet thermal management goals established for possible operating modes. The S&ER flexible design, which is the basis for this Supplement will include the following modifications to the Draft Environmental Impact Statement.

- Expand the capability of the Waste Handling building to blend hotter and cooler commercial spent fuel assemblies to control the heat generation
- Add flexibility to surface aging of commercial fuel
- Modify subsurface design to enable a cooler repository, including increased ventilation
- Add a solar power generating facility to reduce the need for offsite power sources
- Increase spacing between emplacement drifts to allow a moisture pathway between the drifts
- Added operational flexibility to vary the spacing between waste packages in a drift to manage heat load
- Added corrosion resistant titanium drip shields to divert moisture
- Incorporate Alloy 22 into the design of the waste packages
- Modify ground support by replacing concrete liners with steel sets in the emplacement drifts to reduce uncertainties associated with changes in water chemistry
- Modify the invert by replacing the concrete structures and materials that form a platform to support the pallet and waste packages due to the potential long-term impacts of concrete alkalinity
- Replaced waste package pedestals (supports with corrosion-resistant pallets - Alloy-22) to improve waste package handling and reduce the potential for corrosion between the waste package and the pallet.

The City feels the Supplement fails to adequately address the true impacts of the Yucca Mountain Project. We have listed some of our concerns below and ask the DOE to not only address these comments but the comments we have already submitted on the DEIS.

1. The SDEIS offers no explanation of the need for up to four times as much electrical energy and five times as much waste generation for the lower temperature alternative than the DEIS design.
2. Despite a small increase in total employment, the SDEIS projects a 42% increase in solid waste generated under the low temperature alternative. There is no explanation for this dramatic increase outlined in the SDEIS. Hazardous waste is projected to be up to 15,000 cubic meters and sanitary and industrial waste up to 190,000 cubic meters. Industrial wastewater, which is projected at 3,400 million liters, is to be disposed of in onsite systems. Construction and demolition debris is projected to be as much as 810,000 cubic meters over the life of the project and use as much as 82% of the NTS landfill where it would be disposed. The Supplement offers no clear explanation for these large increases.
3. The SDEIS predicts a 30 to 60 percent increase in material transport related to traffic fatalities under the low-temperature alternative yet it does not offer suggestions for mitigating increased transportation risk nor considers whether any mitigation measures proposed in the DEIS remain valid.

Transportation distances of other materials is projected to be between 130 to 190 million Kilometers, resulting in 4 to 6 traffic deaths and transportation of workers will increase From a previous high of 470 million kilometers to up to 680 million km resulting in up to 6.8 traffic fatalities. The transportation of titanium would result in up to 60, 000 Metric tons being moved over Nevada highways during the life of the project. Transportation of these materials was not adequately addressed in the SDEIS.

4. The SDEIS predicts a possible 50% increase in worker transport fatalities. The new flexible design would require an increase of workers from 68,000 to 98,000 worker years and up to 2.8 fatalities. This significant increase does not correlate with the estimated small increase in workers.
5. Transportation of construction materials and system components to the repository would have an impact on the environment. Also workers would be affected. The S&ER would require the transportation of drip shields, emplacement pallets, solar panels and materials for constructing a solar power generating facility to the repository site. The DEIS projected three to four traffic fatalities and four to six deaths from the low operating design modes. Transportation of workers deaths is estimated to be 6.8 fatalities for this design. One death resulting from this project is one death to many.

6. The SDEIS does not consider the fact that the extended fuel-aging process would also extend the transportation campaign of high-level radioactive waste and spent fuel for up to 50 years. Further there is no mention of millirem dosage to vehicular passengers, as these trucks would traverse Nevada highways. DOE RADTRAN software projects 11-88 cancer deaths resulting from the 24-year, incident-free transportation campaign alone.
7. Increased use of fossil fuel by 620 million liters over life of project will only add to our transportation concerns.
8. Acceptance of radioactive waste would occur over a 24-year period, however the aging process would extend the emplacement period to the year 2060 at a rate of 3,000 MTHM per year. The acceptance of this waste would create the largest transportation campaign in history lasting for 50 years under the low-heat alternative. The DEIS does not address the transportation impacts of this alternative regarding fatality risks, millirem dosage and latent cancer fatalities of vehicular passengers resulting from this shipping campaign.
9. The SDEIS does not consider the potential for the Yucca Mountain geologic formation to accommodate spent fuel in amounts beyond that considered within the DEIS due to the closer spacing to be achieved through flexible design. The SDEIS should provide a new estimate of the total potential spent fuel and other high level radioactive waste that could be emplaced at Yucca Mountain.
10. The SDEIS should consider the extent to which increased ventilation results in an enhanced exposure pathway.
11. The SDEIS should consider what, if any, effect closer spacing of waste packages has upon the probability and consequence of a volcanic dike encountering one or more waste packages.
12. The socioeconomic impacts associated with extending the emplacement period to allow the aging of the waste are not addressed in the SDEIS.
13. The SDEIS indicates that DOE will continue performance confirmation activities following site approval and designation. DOE should propose to continue state and local government oversight functions to mitigate a longer site characterization like process.
14. The installation of drip shields at the time of repository closure may result in transportation of said shields to the site over a relatively short period of time rather than over the period of emplacement. The SDEIS does not consider the transportation accident and fatality risk associated with a short-duration campaign to ship drip shields.
15. The SDEIS does not address the fact that the Drip Shields will not be employed until repository closure leaving the waste packages unprotected for up to 300 years under the lower temperature repository scenario.

16. Figure 2-4 of the SDEIS refers only to direct rail access and heavy-haul access to the site. The text on page 2-12 refers to legal weight trucks. It is not clear if DOE anticipates legal-weight trucks being used to transport waste directly to the Yucca Mountain site.
17. Nuclear Regulatory staff indicated at a March 29, 2001, workshop in Caliente that utilities are looking into using multi-purpose dry-cask storage/transportation systems (and the NRC anticipates licensing the same) that would require spent fuel to be handled once prior to shipment to a repository. The SDEIS does not consider the possible use of these shipping/dry cask storage systems, which could be placed above ground at Yucca Mountain to achieve fuel aging/cool objectives. The SDEIS should consider the transportation implications of such multi-purpose dry cask storage/transportation system.
18. The Viability Assessment proposed that DOE would continue to improve the repository design to provide extra margins of safety and would conduct additional research and testing to reduce remaining uncertainties. The SDEIS and evolving design does not mitigate this statement.
19. The S&ER will evaluate drip shields and emplacement pallets and the impact of transporting them to Yucca Mountain. The SDEIS does not address the costs associated with the purchase of the drip shields, which is projected to be as much as \$12 billion dollars for the projected 100 miles of titanium needed; nor does it address transportation of the shields.
20. DOE purports that the purpose of the design modifications is to improve the long-term performance, operational safety, and efficiency of the proposed repository, and to reduce the uncertainties related to high, above-boiling repository host rock temperatures. DOE indicated that the design of the repository will continue to evolve which would alter the parameters of the design discussed in the DEIS, as well as the design discussed in the SDEIS. The Final EIS must specify how the construction of the repository will be accomplished, including a final design.
21. DOE projects there would be zero individual radionuclide doses in the first 10,000 years and a 120-millirem release at 20 km after that period and peak dose at 550,000 years after closure. DOE provides no substantiated proof that the waste packages will not fail before 10,000 years as projected in the Supplement, which would again alter DOE's projections.
22. The range of operating modes would result in post closure repository temperatures that could vary from the above boiling point of water to an average waste package surface temperature below 85degrees C. The heat could affect the geochemistry, hydrology, and mechanical stability of the emplacement drifts, which in turn would influence the flow of ground water and the transport of radionuclides for the engineered and natural barrier systems. The Supplement does not mitigate the consequences of temperatures above the boiling point of water and the ability of the engineered and natural barrier systems to isolate the emplaced waste from the human environment.

23. DOE proposes to construct, operate and monitor, and eventually close a geologic repository at Yucca Mountain for the disposal of spent nuclear fuel and high-level radioactive waste. About 600 square kilometers (230 square miles or 150,000 acres) will be used for the repository but DOE has yet to clarify ownership of Yucca Mountain as it relates to the Ruby Valley Treaty?
24. DOE would use the inherent, natural geologic features of the mountain and engineered (manmade) barriers to help ensure the long-term isolation of the spent nuclear fuel and high-level radioactive from the human environment. The Supplement did not address the possibility of human intrusion through the ventilation shafts as a possible scenario.
25. Aging would require an extended placement period and in effect create an aboveground interim storage facility. The S&ER design would enable simultaneous construction and emplacement. The surface aging facility appears to be nothing more than a disguised monitored retrievable storage (MRS) or interim storage facility. The Nuclear Waste Policy Act prohibits the co-location of a repository and an MRS.
26. DOE claims that it can reduce the maximum temperature in the host rock by extending the drift ventilation period with either active or passive ventilation. This process alone could require ventilation periods as long as 300 years after emplacement to ensure post closure temperatures. The Supplement provided no substantiated proof that such a system would last 300 years.
27. The fuel would arrive in a variety of transportation casks due to size and types. Commercial spent nuclear fuel would arrive as individual assemblies and placed into transportation casks or in dual-purpose canisters that would have to be opened. The Supplement fails to address the consequences of extra handling and the creation of an interim storage facility.
28. The repository would have two evaporation ponds for wastewater, one at each portal. In both ponds it is suggested that heavy plastic liners would prevent water migration into the soil. The North Portal Area would also include a 32- acre storm water retention pond. Increases of roughly 10% for the S&ER design is projected due to additional blow down and water for the 5,000 MTHM cooling pool. The supplement provide no proof that the plastic liners would survive during the 300 years it would take to close the lower-temperature repository design, which could possibly cause the release of radionuclides.
29. Under the DEIS and S&ER designs, the performance confirmation program which would continue through construction and license phases and until the closure phase would include elements of the site testing, repository testing, repository subsurface support facilities and waste package testing. The DOE should confirm performance of the repository prior to the siting of radioactive waste at Yucca Mountain.
30. The surface aging facility would require an additional 1,600 acres of habitat disturbed. The increase in land disturbance under the S&ER flexible design would cause additional

loss of desert tortoise habitat. Microclimate in the immediate vicinity could be affected. Human activities could result in harmful effects, both intentionally and unintentionally, to those fragile resources in the area. How can DOE be so sure disturbing 150,000 acres for the entire repository will not cripple the biodiversity and ecosystem?

In summary, the Supplement indicated that the DOE is considering a number of operating modes which they propose are defined by key parameters that include the number of waste packages, spacing between waste packages, surface aging, average linear thermal load, maximum waste package temperatures, emplacement period, emplacement area, length of emplacement and access to drifts, drift spacing and ventilation (force and natural air). Drift spacing vs. waste package spacing is purported to be a design trade-off to achieve lower heat output per volume for a repository. The fact is, DOE has yet to perform a quantitative evaluation of the environmental impacts of variable drift spacing and the Supplement does not identify specific design alternatives or evaluate and compare their potential impacts.

Uncertainties in future funding profiles and the order of spent nuclear fuel and high-level waste shipments could result in a facility being constructed in portions or models. Your claim that this approach would facilitate lessons learned into subsequent modules, reduce initial constructions costs and investment risk, and increase confidence in meeting your schedule only support our belief that an evolving repository design cannot possibly form the basis for the Secretary of Energy's recommendation to the President.

Conclusions. The City of Las Vegas believes that this Supplement fails to address the true impacts of the Yucca Mountain Project, particularly in the area of transportation since transportation implications for the State of Nevada and the Nation are not addressed. Further the Supplement proposes the continued evolution of a repository design, the expansion of above ground storage, and recommends the aging and blending of the waste packages at Yucca Mountain. It also proposes a longer post emplacement and ventilation period prior to closure (300 years), and provides for the expansion of ground support and waste package support facilities, and would allow the Utilities (waste generators) to dictate the sources of waste. This Supplement is vague, misleading and deficient and as a result the City of Las Vegas recommends that it along with the DEIS be reevaluated and rewritten to address and support an informed decision for a final repository design and any possible site recommendation.

I look forward to the Department of Energy's responses to these comments, as well as the comments provided on the Draft Environmental Impact Statement.

Sincerely,

Oscar B. Goodman
Mayor

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