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December 12, 2013

Washington, D.C. 20555-001
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Mr. Kokajko:

I respectfully request that the NRC add to the docket the following new important information for technical review since it may have a major Impact to the YMP License Application under review process by the NRC:

1. On August 13, 2013, the Tenth Circuit Court of Appeals in Washington, D.C. ordered the Nuclear Regulatory Commission (NRC) to resume the licensing process review for the Yucca Mountain Project. On June 3, 2008, the U.S. Department of Energy submitted the License Application to the NRC. However, the DOE informed the NRC that they had refused to prepare a supplemental environmental impact statement and instead would submit a "technical report". Why, and on what legal ground did the DOE refuse to comply with the NEPA Act and the NRC regulation? Finally, on November 18, 2013 in a Memorandum Order, the NRC again required the DOE to prepare the Final Environmental Impact Statement! The question is how can the DOE complete and submit a supplement within the time frame without an additional scientific research? Specifically certain are scientific and medical input need to be addressed, such as the cumulative effect, impact, and of the risk assessment of complex mixtures on the environment, groundwater, and human health. Recently, the EPA started to develop methodology for cumulative risk assessment including an educational program. The erionite health and safety precautions taken by DOE are not in compliance with OSHA Section 5(a)(1). Therefore, it is our conclusion and contention at this point that the DOE license application is incomplete and hearings should be suspended until all these issues are completely and fully determined credible scientific and medical evidence.
2. On August 13, 2013 the Tenth Circuit Court of Appeals in Washington, D.C. ordered the Nuclear Regulatory Commission (NRC) in the case of Aiken County, et al., to resume the licensing process review for the Yucca Mountain Project⁽¹⁾. A communication the NRC, informed them about several deficiencies in the Yucca Mountain License Application (published on the web) and asked the NRC to investigate several topics, such as⁽²⁾: 1). The DOE did not fully address the health risks posed by complex mixtures of metals and radionuclides, 2) Genomic instability and risk assessment, 3). Canister failure and the subsequent migration of radionuclides and heavy metals into the groundwater. 4). corrosion of the waste canisters will produce

products that include nickel and chromium that could make Yucca Mountain as a future Super Fund Site.

3. In a reply to my written comments sent to the NRC on March 7, 2009², the NRC replied in a written communication from the NRC dated March 30, 2009⁽³⁾ that was subsequently posted by the NRC on the internet⁽³⁾. Their response stated the following: *"With regard to your concern about DOE's EIS's, the NRC staff agrees that DOE's analysis did not provide an adequate discussion of the cumulative amounts of radiological and non-radiological contaminants that may enter groundwater over time, and how these contaminants would behave in the aquifer and related environment. We found that this failure to adequately characterize potential contaminant release to groundwater and from surface discharge renders that portion of DOE's EIS inadequate. DOE's discussion of these impacts in its EIS's is not consistent with NRC's regulations for completeness and adequacy of the discussion of environmental consequences of the proposed action."*
4. *"Given the importance of groundwater as a natural resource in the arid Yucca Mountain region, we concluded that supplementation is needed to ensure the 2002 EIS and the Repository Supplemental EIS are adequate. The NRC staff's review and findings about the adequacy of DOE's EIS are documented in a September 5, 2008 report, 'U.S. Nuclear Regulatory Commission Staff's Adoption Determination Report for the U.S. Department of Energy's Environmental Impact Statements for the Proposed Geologic Repository at Yucca Mountain. On September 8, 2008, the Director of NRC's Office of Nuclear Material Safety and Safeguards, Mr. Michael Weber, informed DOE that additional supplementation is needed to ensure the 2002 Final Environmental Impact Statement (FEIS) and the 2008 Repository Supplemental EIS are adequate. On October 3, 2008, DOE replied, stating that it will provide the needed supplement no later than fall of 2009'."*
5. On June 3, 2008, the U.S. Department of Energy submitted the License Application to the NRC⁽⁴⁾. However, the NRC in a letter dated July 30 2009, the DOE⁽⁵⁾ informed the NRC that they had refused to prepare a supplemental environmental impact statement and instead will submit a "technical report". Why, and on what legal ground did the DOE refuse to comply with the NEPA Act and the NRC regulation? Finally, on November 18, 2013⁽⁶⁾ in a Memorandum Order, the NRC again required the DOE to prepare the Final Environmental Impact Statement! Next, the Order also "acknowledges that documents used as references in the safety evaluation report and supplemental environmental impact statement will be publicly released; however, public release of all LSN documents will depend on whether adequate funds are available to do so."
6. With approximately one year how can the DOE complete the FEIS without additional cartable scientific research, specifically an input on the cumulative effect and impact of risk assessment of complex mixtures on the environment,

groundwater, and human health? As an example, interactions between Cr and Ni; and ²³⁹Pu and ²³⁷Np is not discussed in the EIS's and the License Application (LA) submitted by the DOE. The NRC clearly stated that: "DOE's analysis did not provide an adequate discussion of the cumulative amounts of radiological and non-radiological contaminants that may enter groundwater over time, and how these contaminants would behave in the aquifer and related environment." We believe that these issues must be addressed by scientific research due to a lack of very limited relevant scientific data. The DOE has refused to conduct such research "on the that there is no requirement to do so"⁽⁷⁾.

7. The DOE also did not pay attention to the amendment to the Clean Water Act of 1996 § 1458 (b)(3) mandating the US Environmental Protection Agency (EPA) EPA Administrator to execute biomedical research specifically "to develop new approaches to the study of complex mixtures, such as mixtures found in drinking water, especially to determine the prospects for synergistic or antagonistic interactions that may affect the shape of the dose-response relationship of the individual chemicals and microbes, and to examine non-cancer endpoints and infectious diseases, and susceptible individuals and subpopulations"⁽⁸⁾.
8. In response, recently, the EPA has taken steps in the right direction to address the issues of mixtures: 1). The former EPA Administrator Jackson moved from single chemical to multi-chemical regulations in 2010. 2). In May of 2013 the EPA issued request in the U.S. Code of Federal Regulations published a request for the development of research methods for cumulative risk assessment⁽⁹⁾. 3). The EPA has been conducting Cumulative risk assessment Webinar Series on line.
9. The lack of federal regulations concerning exposure and disposal of erionite is a central environmental, safety, and medical issues at Yucca Mountain Tunnel. Erionite fiber found at YMP and tunnel is classified Class I by the International Agency for Cancer Research⁽¹⁰⁾. Erionite occupational exposure leads to the development of malignant mesothelioma (MM). Epidemiological studies in three villages in central Turkey observed high mortality rate of MM 6.25% to about 51.2%⁽¹¹⁾. The health and safety precautions taken at YMP by DOE were inadequate and have probably put YMP employees at very high risk of development of MM in the next 20 to 60 years. Allegations by employees include: Lack of proper respiratory protections, personal protection equipment, and tampering with test results. In addition, the proposed protection protocol for erionite did not include the changing of clothing or showering. In addition, employees have raised questions about tempering with erionite test results in U.S. Senate Hearing in 2004⁽¹²⁾. Currently, erionite is regulated neither by the U.S. EPA, nor by OSHA in the same manner as asbestos.
10. Finally, the DOE did not fully conform with OSHA Act § 5(a)(1)⁽¹³⁾ known as "the general duty clause, Section 5(a)(1) of the Occupational Safety and Health Act

1970 which requires “that each employer furnish to each of its employees a workplace that is free from recognized hazards that are causing or likely to cause death or serious physical harm” for preventing occupational erionite exposure. Therefore, the NRC safety evaluation did not include erionite health and Safety precautions. The NRC must take a “hard look” and evaluate DOE erionite protocol⁽¹⁴⁾ and related documents. As well as the quality control/quality assurance for erionite testing results. Additional medical screening of former YMP tunnel workers including low levels of CT scan is a must to improve early erionite detection and improved life quality of exposed employee.

11. There is legal question is dose the use of the best available science in the Endangered Species Act (ESA)¹⁵ of 2000 is also apply for mandatory testing of potential interactions between chemicals and radiation? Because, it repeatedly calls for consideration of the best available scientific data and has been at the center of a number of fierce disputes, provides a useful case study of the role of science in environmental policy. Up to date there has been little explicit analysis of either the reasons for the Act’s strong and repeated best available science mandate or the effects of the mandate on the Act’s implementation. The mandate could have been intended to increase the substantive accuracy of decisions, to promote political credibility, to alter the terms upon which courts review agency decisions, or to change the decision-making process!

Therefore, it is our conclusion and contention at this point the DOE license application is incomplete and hearings should be suspended until these issues are completely and fully addressed by credible medical and scientific evidences, as is specified in 10 CFR § 63.10(a)⁽¹⁶⁾, **which stated the following: “Information provided to the Commission by an applicant for a license or by a licensee, or information required by statute, or required by the Commission’s regulations, orders, or license conditions to be maintained by the applicant or the licensee must be complete and accurate in all material respect (emphasis added).”**

REFERENCES

1. U.S.D.C. Court of Appeals: In re: Aiken County, N11-127, D.C. Aug 13, 2013.
2. Letter from Dr. Jacob Paz to L. Kokajko regarding YMP to the NRC, pbadupws.nrc.gov/docs/ML0909/ML090900150.pdf, dated March 7, 2009.
3. Letter from J. P. Kotra, NRC to Dr. Jacob Paz, pbadupws.nrc.gov/docs/ML0913/ML091330840.pdf, dated March 30, 2009.
4. Letter from W. Boyle, to Director, Division of High Level Waste Repository Safety, Notification of Change of Commitment for Supplementing the Final Environmental Impact Statement (July 30, 2009) (ML092150301).
5. U.S. Nuclear Regulatory Commission, Memorandum, CLPI-13-08, November, 18, 2013.
6. U.S. Department of Energy; Notice of Acceptance for Docketing of a License Application for Authority to Construct a Geologic Repository at a Geologic

- Repository Operations Area at Yucca Mountain, Nevada. - NRC
pbadupws.nrc.gov/docs/ML0824/ML082490757.pdf
7. Keith Rogers, EPA challenged over health risks at nuclear dump, Las Vegas Review Journal, August 10, 2004.
 8. The Safe *Drinking Water Act Amendments* of 1996 (PL 104-182) § 1458(b)(3).
 9. U.S. Code of Federal Regulations, Vol. 78, No. 84 / Wednesday, Environmental Protection Agency, May 1, 2013. Request for Information and Citations on Methods for Cumulative Risk Assessment, 25440-25442.
 10. International Agency for Research Cancer Erionite CAS No. 66733-219 Substance profiles, (2004). "IARC Monographs - Classifications - Group1" (in English). *Overall Evaluations of Carcinogenicity to Humans*. IARC of the WHO. Last updated, 16 January 2009. <http://monographs.iarc.fr/ENG/Classification/crthgr01.php>.
 11. Carbone, M., S. Emri, U. Dogan, I. Steele, M. Tuncer, I.P. Harvey, and Y.I. Baris: A mesothelioma epidemic in Cappadocia: scientific developments and unexpected social outcomes. *Nat. Rev. Can.* 7(2):147-154(2011).
 12. An Investigation into Silica Exposure for Yucca Mountain Project Workers. Hearing Subcommittee of the Appropriation United State Senate One Hundred eight Congress Second Session. Las Vegas, March 15, 2004.
 13. Erionite Protocol Civilian Radioactive Waste Management System Management & Operating Contractor Yucca Mountain Project. WBS: 1.2.3.5.2.2, 1995.
 14. The Occupational health and Safety Law Public Law 91-596 84 STAT § 5(a)(1).
 15. Endangered Species Act of 1973, 16 U.S.C. § 1531–1544 (2000).
 16. U.S. Code of Federal Regulation 10 CFR 63 § 10 (a), *Completeness and accuracy of information*.

Yours,



Jacob D Paz

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