UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Atomic Safety and Licensing Board

Before Administrative Judges:

ASLBP BOARD
09-892-HLW-CAB04
Thomas S. Moore, Chairman
Paul S. Ryerson
Richard E. Wardwell

In the Matter of	**)**	
	)	
U.S. DEPARTMENT OF ENERGY	**)**	**Docket No. 63-001-HLW**
	)	
(High Level Waste Repository)	**)**	**April 18, 2011**

STATE OF NEVADA ANSWER OPPOSING
THE DEPARTMENT OF ENERGY'S MOTION TO DISMISS
NEVADA SAFETY CONTENTIONS 149, 161, 162, AND 130

On April 8, 2011, the U.S. Department of Energy (DOE) moved to dismiss NEV-SAFETY-149, 161, 162, and 130. DOE did so in accordance with this Board's March 24, 2011 Order, which provided that motions to dismiss contentions based on the Board's rulings on legal issues (LBP-10-22) should be filed on a timely basis, but without regard for the ten-day period prescribed in 10 C.F.R. § 2.323(a). For the reasons set forth below, Nevada opposes DOE's Motion. If NRC Staff files a motion to dismiss contentions in accordance with the Board's March 24, 2011 Order, Nevada will file a separate answer.

A. NEV-SAFETY-149.

This contention (paragraph 1, Nevada's Petition to Intervene at 783) states as follows:

> Legal issue: In SAR Subsection 2.2.1.2 at 2.2-17, DOE excludes deviations from repository design or errors in HLW emplacement from events considered in the TSPA (FEP 1.1.03.01.0A) on purely legal grounds that are unexplained and erroneous.

NEV-SAFETY-149 also included a factual component ("This proposition [that deviations from design and errors in waste emplacement may be screened out] is belied by decades of nuclear experience"). (Petition to Intervene at 784.) However, the contention was designated as a legal issue contention because Nevada believed DOE had screened these events out on purely legal grounds.

When, in its Answer to Nevada's Petition to Intervene, DOE claimed that these FEPs were not screened out for a legal reason, but instead for "low consequences," Nevada doubted that this could be true because DOE's screening analysis consisted of an entirely qualitative discussion of how DOE's quality assurance program would categorically eliminate all consequential deviations from design and errors in waste emplacement.[1] *See* DOE's Answer to Nevada's Petition to Intervene at 1381. Nevertheless, in its Reply to DOE's Answer to Nevada's Petition (at 654) Nevada elaborated upon the factual component in NEV-SAFETY-149, arguing that:

> Nothing in [DOE's] entirely qualitative discussion about how great DOE's QA program will be implemented even remotely supports the proposition that errors in repository design and errors in waste emplacement will occur as a frequency of less than one chance in 10,000 in 10,000 years, or one in one-hundred million per year…. Indeed, the Commission may take official notice that no human reliability program will reduce human errors to less than one in one hundred million per year.

DOE now agrees that it cannot rely on its QA program categorically to exclude from consideration in the TSPA all potential deviations in repository design or errors in waste emplacement. This does not moot the factual allegations in NEV-SAFETY-149, as originally

[1] DOE added to the confusion regarding its actual ground for rejecting this FEP when, in its opening brief on this legal issue (at pg. 4, 6), it argued *not only* that it could take its QA program "into consideration" in screening out this FEP, but *also* that it "may rely on the expected effectiveness of the QA program and procedures to exclude from consideration in the TSPA potential deviations from repository design or in waste emplacement." To Nevada, this second argument meant that DOE was still pursuing the proposition that led Nevada to label NEV-SAFETY-149 as a legal issue contention, namely that DOE's QA program categorically excluded this FEP, without the need for any quantitative evaluation of probability or consequences.

pled and as Nevada elaborated upon in its Reply.[2] In particular, Nevada's factual contentions that DOE's screening analysis "is belied by decades of nuclear experience" (Petition to Intervene at 784), that "nothing in [DOE's] entirely qualitative discussion about how great DOE's QA program will be implemented even remotely supports the proposition that errors in repository design and errors in waste emplacement will occur at a frequency of less than one chance in 10,000 in 10,000 years, or one in one-hundred million per year" (Nevada Reply to DOE's Answer at 654), and that "the Commission may take official notice that no human reliability program will reduce human errors to less than one in one hundred million per year " (*Id.*), taken together, constitute an admissible factual contention challenging the technical sufficiency of DOE's screening analysis of this FEP.

Finally, Nevada has never conceded that NEV-SAFETY-149 involved no factual issues. When, in its Reply Brief on Phase I Legal Issues (at 26-27), Nevada identified the pertinent question as whether, as a legal matter, DOE is entitled to ignore this FEP, Nevada was referring to Legal Issue VII, not NEV-SAFETY-149.

B. NEVADA SAFETY 161.

This contention (paragraph 1, Nevada's Petition to Intervene at 857) states as follows:

> The LA violates the requirements that there be "multiple barriers," because its safety depends dispositively on a single element of the engineered system – the drip shield.

In LBP-10-22 (at 23), the CAB held that, although there was no legal requirement to perform a drip shield neutralization analysis, there remained the "related factual question of whether DOE has adequately demonstrated that the multi-barrier protection system is not

[2] Material in a petitioner's reply that "legitimately amplifie[s]" the contention set forth in the petition to intervene may be considered in defining the scope of the contention. *PPL Susquehanna LLC (Susquehanna Steam Electric Station, Units 1 and 2)*, LBP-07-04, 65 NRC 281 at 301 (2007); Pa'ina Hawaii (Material License Application), LBP-06- 12, 63 NRC 403 at 416 (2006); *Louisiana Energy Services, LP (National Enrichment Facility)*, LBP-04-14, 60 NRC 40 at 58 (2004).

'wholly dependent on a single barrier'" (quoting from 74 Fed. Reg. at 10,826 and 66 Fed. Reg. 55,758). This CAB statement is an accurate paraphrase of NEV-SAFETY-161, and this contention is therefore admissible.

There is no need to recast NEV-SAFETY-161 as a factual contention. NEV-SAFETY-161 is now, and has always been, a factual contention, and NEV-SAFETY-161 is not now, nor has it ever been, a purely legal issue contention. The legal issue Nevada raised merely affected how the contention might be litigated (i.e., did the NRC's rules require that the degree of dependence on a single barrier be measured by a neutralization analysis). The only effect of LBP-10-22 is that NEV-SAFETY-161 must now be litigated without the benefit of any legal requirement that a neutralization analysis be performed.

C. NEVADA-SAFETY 162.

NEV-SAFETY-162 (paragraph 1, Nevada's Petition to Intervene at pg. 861) states as follows:

> From SAR Subsections 1.1.3.1 and 1.1.3.2, and related subsections, it is clear that DOE plans to install the drip shields about one-hundred years from now, after all of the wastes are emplaced in the tunnels and just prior to repository closure, but this cannot be justified as safe because if installation of the drip shields proves to be defective or impossible it will be too late to assure safety by alternative means.

The summary in paragraph 2 (*Id.*) elaborated that it would be too late to assure safety by alternative means short of retrieval.

NEV-SAFETY-162 was not designated as a "legal issue" contention. Legal Issue 10 arose not because it was equivalent to NEV-SAFETY-162 but because, in its Answer to Nevada's Petition to Intervene, DOE questioned Nevada's citation to 10 C.F.R. § 63.31(a)(2) in the discussion of materiality in paragraph 4 of NEV-SAFETY-162. *See* DOE's Answer to Nevada's Petition to Intervene at pg. 1493. In its Reply, Nevada argued that 10 C.F.R. § 63.31(a)(2) supported the materiality of NEV-SAFETY-162 because the regulation required a

finding of reasonable assurance of disposal safety before a construction authorization could be issued, and disposal safety incorporated the finding of construction completion in 10 C.F.R. § 63.41(a)(2). *See* Nevada's Reply to DOE's Answer at 694-695.

While the CAB held that the construction completion finding in 10 C.F.R. § 63.41(a)(2) cannot be imported into the construction authorization finding in 10 C.F.R. § 63.31(a)(2) (LBP-10-22 at pg. 28), NEV-SAFETY-162 raises a material issue for another independent reason. NEV-SAFETY-162 is material for the simple reason that it alleges that DOE's disposal plan is unsafe as a factual matter, and if this is true the broad construction authorization finding in 10 C.F.R. § 63.31(a)(2) cannot be made, putting the construction completion finding in 10 C.F.R. § 63.41(a)(2) completely aside, as the CAB's decision requires.

The CAB's ruling on Legal Issue 8 does not affect NEV-SAFETY-162. NEV-SAFETY-162 does not invoke the requirement that there be multiple barriers or argue the need for a drip shield neutralization analysis. Rather, NEV-SAFETY-162 addresses DOE's proposed timing of the installation of the drip shields, and it would be mooted if DOE simply agreed to install the drip shields before or during waste emplacement. While the safety significance of NEV-SAFETY-162 is related to the question of the likelihood that DOE will be able to install the drip shields as proposed, it does not ask one to postulate that the drip shields will not be installed as proposed, but instead relies on NEV-SAFETY-130 and other related Nevada contentions for the proposition that installation of the drip shields may prove to be impossible. Disposal safety would then depend on retrieving the wastes. However, as pointed out, retrieval cannot be counted upon to assure disposal safety because, even if retrieval is technically possible, the decision to retrieve would entail an analysis and balancing of the short-term safety risks to

retrieval workers and the long-term risks to safety and the environment of leaving the wastes in the repository without drip shields, and the outcome of such an analysis cannot be predicted.

D. NEV-SAFETY-130.

This contention (paragraph 1, Nevada's Petition to Intervene at pg. 701) provides as follows:

> SAR Subsection 1.3.4 at 1.3.4-1 identifies two engineered components within the repository drift that are important to waste isolation – the waste package and the drip shield –and the license application relies on installation of drip shields to prevent exceeding the allowable dose to the RMEI. The drip shields are a new technology that has never been designed in detail, prototyped, fabricated, or installed in any actual application in order to develop a basis for predicted performance or to demonstrate that drip shields can be installed and perform as assumed in the TSPA; therefore, the contribution of the drip shields in the predicted performance of the repository should be ignored in the TSPA or, at a minimum, the no drip shield scenario should be considered as an alternative conceptual model and propagated through the assessment.

This contention was supported by over six pages of detailed technical analyses addressing (among other things) uncertainties and failures in drip shield design and fabrication, uncertainties and failures in the design of the drip shield emplacement equipment, problems with drip shield installation procedures, availability of material resources, and the effects of drift deterioration and collapse on DOE's ability to install the drip shields (Paragraph 5 of NEV-SAFETY-130, Nevada Petition to Intervene at 703-709). As explained below, NEV-SAFETY-130 is admissible as pled and is unaffected by the CAB's resolution of Legal Issue 8.

NEV-SAFETY-130, 161 and 162 all address drip shields. However, unlike NEV-SAFETY-161, NEV SAFETY-130 does not invoke the requirement that there be multiple barriers, or demand an analysis that simply postulates the absence of drip shields in order to assess whether DOE's multi-barrier protection system is wholly dependent on a single barrier. And, unlike NEV-SAFETY-162, NEV SAFETY-130 does not address the safety problems

associated with the plan to install the drip shields only after all of the wastes have been emplaced.

Instead, NEV-SAFETY-130 offers strong factual support for the proposition that DOE has not shown reasonable assurance that it will, in fact, be able to design and install the drip shields as planned and, for this reason and this reason only, the contribution of the drip shields to the predicted performance of the repository should be ignored, or at a minimum, the no drip shield scenario should be considered as an alternative conceptual model and propagated through the assessment.

This contention has absolutely nothing to do with the CAB's resolution of Legal Issue 8, which only addressed the need for a neutralization analysis in relation to the requirement that there be multiple barriers. The CAB's holding that DOE need not postulate the absence of drip shields in order to assess their contribution to multi-barrier safety does not also constitute a holding that the drip shields must be assumed to exist in the repository drifts, just as DOE proposes, notwithstanding any factual evidence to the contrary. By analogy, if DOE had proposed an anti-gravity machine as an engineered barrier, the CAB's holding on Issue 8 would eliminate the need to postulate the absence of the machine in order to determine compliance with the multi-barrier requirement, but it would not eliminate from contention legitimate issues regarding whether such a machine could ever exist.

CONCLUSION

Wherefore, based on all of the foregoing, Nevada respectfully requests this Licensing Board to deny DOE's Motion to Dismiss NEV-SAFETY-149, 161, 162, and 130.

Respectfully submitted,

(*signed electronically*)
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Atomic Safety and Licensing Board

In the Matter of	)	
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U.S. DEPARTMENT OF ENERGY	)	**Docket No. 63-001-HLW**
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CERTIFICATE OF SERVICE

I hereby certify that the foregoing *State of Nevada Answer Opposing The Department of Energy's Motion to Dismiss Nevada Safety Contentions 149, 161, 162, and 130* has been served upon the following persons by the Electronic Information Exchange:

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