UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	
	)	January 15, 2009
U.S. Department of Energy	)	
	)	
(License Application for Geologic Repository at Yucca Mountain)	)	Docket No. 63-001

ANSWER OF THE U.S. DEPARTMENT OF ENERGY TO CLARK COUNTY, NEVADA'S REQUEST FOR HEARING, PETITION TO INTERVENE AND FILING OF CONTENTIONS

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TABLE OF CONTENTS

Page

I. INTRODUCTION 1

II. COMPLIANCE WITH LSN REQUIREMENTS 2

III. LEGAL STANDING 10

IV. ADMISSIBILITY OF CONTENTIONS 10

A. Applicable Legal Standards and Relevant NRC Precedent 10

1. Petitioner Must Submit at Least One Admissible Contention to be Admitted as a Party 10

2. Petitioner in this Proceeding Has a Heightened Obligation to Proffer Well Pled and Adequately Supported Contentions Given the Availability of the LSN 11

3. Proffered Contentions Must Meet All of the Contention Admissibility Requirements of 10 C.F.R. § 2.309(f)(1) as Well as the Requirements of the Applicable June 20, 2008 and September 29, 2008 Case Management Orders 14

4. Environmental Contentions Addressing DOE's Final Environmental Impact Statement and its Supplements Must Also Meet the Requirements of 10 C.F.R. § 51.109 and 10 C.F.R. § 2.326 27

5. Contention Subjects That Are Outside the Scope of, or Immaterial to the NRC's Required Findings in, the Yucca Mountain Licensing Proceeding 34

B. DOE's Answer Regarding the Admissibility of Petitioner's Proposed Contentions 41

1. CLK-SAFETY-001—The DOE's Inadequate Treatment of Uncertainty 41

2. CLK-SAFETY-002—The DOE's Failure to Analyze Missile Testing 51

3. CLK-SAFETY-003—The DOE Miscalculates Basaltic Magma Melting Depth 58

4. CLK-SAFETY-004—The DOE Ignores the Time Span of Basaltic Volcanism 66

5. CLK-SAFETY-005—The DOE Improperly Focuses on Upper Crustal Extension Patterns 74

6. CLK-SAFETY-006—The DOE Improperly Excludes the Death Valley Volcanic Field and Greenwater Range from Volcanism Calculations 82

TABLE OF CONTENTS
(continued)

Page

7. CLK-SAFETY-007—The DOE Improperly Estimates Igneous Event Probability for 10,000 Years and 1,000,000 Years 88

8. CLK-SAFETY-008—The DOE Ignores 11-Million Year Volcanism Data and Instead Relies on Only 5-Million Year Volcanism Data..... 96

9. CLK-SAFETY-009—The DOE Fails to Consider Alternative Igneous Event Conceptual Models 103

10. CLK-SAFETY-010—The DOE Ignores Igneous Event Data Evaluated Since 1996 in the Total System Performance Analysis..... 113

11. CLK-SAFETY-011—The DOE Lacks Sufficient Geophysical Data to Support Its Volcanic Model 122

12. CLK-SAFETY-012—The DOE's Prior Institutional Failures Render It Unfit to be Licensee..... 129

13. CLK-NEPA-001—The DOE Ignores Impacts on Emergency Management and Public Safety 149

14. CLK-NEPA-002—The DOE Fails to Analyze Known and Feasible Rail Corridor Alternatives..... 157

15. CLK-NEPA-003—The DOE Ignores Socio-Economic Impacts..... 164

V. CONCLUSION 171

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I. INTRODUCTION

In accordance with 10 C.F.R. § 2.309 and 10 C.F.R. Part 63, and the Advisory Pre-Application Presiding Officer (PAPO) Board Order of June 17, 2008, the U.S. Department of Energy (DOE or the Department) hereby files its Answer to Clark County, Nevada's Request for Hearing, Petition to Intervene and Filing of Contentions (Petition), filed on December 22, 2008.[1] The Petition responds to the U.S. Nuclear Regulatory Commission's (NRC or Commission) Notice of Hearing and Opportunity to Petition for Leave to Intervene on an Application for Authority To Construct a Geologic Repository at a Geologic Repository Operations Area at Yucca Mountain, published in the *Federal Register* on October 22, 2008 (73 Fed. Reg. 63,029) (Hearing Notice). The Hearing Notice concerns DOE's License Application (Application or LA)

[1] DOE is filing this Answer in advance of the deadline set by the Commission in its Hearing Notice. DOE recognizes, however, that Petitioners have the full time allotted by the Hearing Notice to file their replies. DOE's early filing does not affect the deadlines set by the Commission.

for authorization to construct a geologic repository at Yucca Mountain, Nevada for the disposal of spent nuclear fuel (SNF) and high-level radioactive waste (HLW).

To be admitted as a party to this proceeding, under 10 C.F.R. § 2.309, Clark must: (1) be in substantial and timely compliance with the Licensing Support Network (LSN) requirements imposed by 10 C.F.R. § 2.1003 at the time of its request for participation in the proceeding as provided in 10 C.F.R. § 2.1012(b)(1), and be in compliance with all orders of the Pre-License Application Presiding Officer (PAPO) regarding electronic availability of documents; (2) have legal standing to intervene in the proceeding pursuant to 10 C.F.R. § 2.309; and (3) submit at least one admissible contention in accordance with 10 C.F.R. § 2.309(f)(1). In addition to the NRC's contention admissibility requirements in 10 C.F.R. § 2.309(f), environmental contentions must also meet the requirements of 10 C.F.R. § 51.109 and 10 C.F.R. § 2.326.

As discussed below, Clark County has failed to meet its LSN obligations. DOE does not object to Clark County's legal standing as an Affected Unit of Local Government under the Nuclear Waste Policy Act. However, Clark County has submitted no admissible contentions. Accordingly, its Petition should be denied.[2]

II. COMPLIANCE WITH LSN REQUIREMENTS

As a threshold matter, a petitioner seeking to participate in the licensing proceeding must demonstrate that it is in compliance with the NRC's LSN requirements.[3] Specifically, 10 C.F.R. § 2.1012(b) states that:

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[2] DOE's Answer to Nevada's Petition contains a "Background" section summarizing the Yucca Mountain site, proposed repository operation, the applicable NRC regulatory framework, and the NRC Staff's technical review and the hearing process. DOE has omitted that section from this Answer in the interest of brevity.

[3] 10 C.F.R. § 2.1003 (a) requires that "each other potential party, interested governmental participant or party shall make available [on the LSN] no later than ninety days after the DOE certification of compliance under 2.1009(b) – an electronic file including bibliographic header for all documentary material . . . generated by, or at the direction of, or acquired by, a potential party, interested governmental participant or party."

> A person, including a potential party given access to the [LSN] under this subpart, may not be granted party status under [10 C.F.R.] § 2.309 or status as an interested governmental participant under [10 C.F.R.] § 2.315, if it cannot *demonstrate substantial and timely compliance* with the requirements of [10 C.F.R.] § 2.1003 at the time it requests participation in the HLW licensing proceeding under § 2.309 or § 2.315.

Emphasis added.

Section 2.1012(c) additionally provides that the "Presiding Officer *shall not* make a finding of substantial and timely compliance pursuant to paragraph (b) of this section for any person who is not in compliance with all applicable orders of the [PAPO Board]." 10 C.F.R. § 2.1012(c) (emphasis added).[4]

Each potential party, interested governmental participant or party is required thereafter to "continue to supplement its documentary material made available to the other participants via the LSN with any additional material created after the time of initial certification in accordance with [§ 2.1003(a)] until the discovery period in the proceeding has concluded." 10 C.F.R. § 2.1003(e).

10 C.F.R. § 2.1009 prescribes the following additional LSN requirements:

> (a) Each potential party, interested government participant, or party shall –
>
> (1) Designate an official who will be responsible for the administration of its responsibility to provide electronic files of documentary material;
>
> (2) Establish procedures to implement the requirements of § 2.1003;
>
> (3) Provide training to its staff on the procedures for implementation of the responsibility to provide electronic files of documentary material;
>
> (4) Ensure that all documents carry the submitter's unique identification number;
>
> (5) Cooperate with the advisory review process established by the NRC under § 2.1011(d).
>
> (b) The responsible official designated under paragraph (a)(1) of this section shall certify to the [PAPO] that the procedures [specified above] have been implemented and that ….the documentary material specified in 2.1003 has been identified and made electronically available. The initial certification must be made [within 90 days of the DOE certification of compliance].

Each potential party also is "responsible for obtaining the computer system necessary to comply with the requirements for electronic document production and service." 10 C.F.R. § 2.1011(a).

[4] The PAPO Board has issued a series of Case Management Orders that impose certain requirements regarding privilege claims for documentary material on the LSN. One of those orders also requires each participant to supplement its LSN production each month with newly created or discovered documentary material, and to file a certification with the PAPO Board when the monthly supplement is made. Revised Second Case Management Order § VI(A) (July 6, 2007).

Further, Section 2.309(a) states that in ruling on a petition to intervene in this proceeding, the presiding officer shall consider "any failure of the petitioner to participate as a potential party in the pre-license application phase" governed by 10 C.F.R. Part 2, Subpart J.[5]

The Board should deny Clark County's Petition because Clark County has not demonstrated that it is in substantial and timely compliance with the foregoing requirements. Although a "potential party" in the pre-licensing proceeding phase was required only to "certify" its good-faith compliance with LSN requirements, a "petitioner" like Clark County bears the burden to demonstrate LSN compliance. As the PAPO Board held, 10 C.F.R. § 2.1012(b)(1) "operates to deny a person party status *unless it shows* substantial and timely compliance with the requirements of § 2.1003." *U.S. Dep't of Energy* (High-Level Waste Repository: Pre-Application Matters), LBP-04-20, 60 NRC 300, 315 n.28 (2004) (emphasis added). Clark County's Petition is entirely silent about its LSN obligations. It has thus failed altogether to address this threshold requirement for intervention, and the Board therefore cannot find that Clark County is in substantial and timely compliance.

Moreover, the nature of Clark County's non-compliance does not require identification of specific documentary material that has been omitted in order to deny its Petition. There is ample evidence that Clark County has failed to conduct a proper review and that alone constitutes non-

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[5] Compliance with LSN requirements is crucial to the efficient conduct of this proceeding, insofar as the LSN is designed to enable "the comprehensive and early review of the millions of pages of relevant licensing material by the potential parties to the proceeding, so as to permit the earlier submission of better focused contentions resulting in a substantial saving of time during the proceeding." Final Rule, Submission and Management of Records and Documents Related to the Licensing of a Geologic Repository for the Disposal of High-Level Radioactive Waste, 54 Fed. Reg. 14,925, 14,926 (Apr. 14, 1989) (amending hearing rules for adjudication on application for a license to receive and possess HLW and establishing basic LSN procedures) (Final Rule, Documents Related to the Licensing of Geologic Repository). It also is intended to facilitate the sharing of information between DOE, the NRC Staff, and the admitted parties throughout the licensing process. *See* Final Rule, Licensing Proceeding for a High-Level Radioactive Waste Geologic Repository: Licensing Support Network, Submissions to the Electronic Docket, 69 Fed. Reg. 32,836, 32,840 (June 14, 2004) ("[A]n LSN participant does have an obligation to maintain its existing LSN collection intact and available for the balance of the construction authorization proceeding.") (Final Rule, LSN, Submissions to the Electronic Docket).

compliance. A petitioner cannot demonstrate that it is in substantial and timely compliance if it has not properly looked for all its documentary material.

That principle was made clear when Nevada successfully struck DOE's LSN certification in 2004. Nevada argued, and the PAPO Board agreed, that DOE was not compliant at that time because it had not completed its review of emails and other documents. The PAPO Board did not require Nevada to identify specific emails and other documents that DOE should have made available but did not. Rather, the PAPO Board held that DOE's production effort could not be considered reasonable if it had not performed a proper collection and review effort. *U.S. Dep't of Energy*, LBP-04-20, 60 NRC at 321-26.

That is the situation here. Clark County has made available only 69 documents on the LSN. This minimal production raises a genuine concern, particularly in light of the reported millions of dollars the County has spent on Yucca Mountain-related work product, about whether it has made a good-faith effort to identify and make available all documentary material in its possession, including in the possession of its experts and consultants.

A clear example of Clark County's failure to identify and make available documentary material appears from the *curriculum vitae* (CV) of the County's expert Dr. Alvin Mushkatel, which was included as part of Attachment 1 to its Petition. According to his CV, since 1999 Dr. Mushkatel has received from Clark County grants totaling a minimum of $2,143,000 to investigate "the impact resulting from the shipment of high-level nuclear waste through Clark County" and to conduct a "review and assessment of potential impacts from high-level nuclear waste shipments." Mushkatel CV at 4-5. The work associated with these grants has resulted, Dr. Mushkatel acknowledges, in "*fifteen* monographs in the last four years published by Clark County Nevada's Nuclear Waste Division on various aspects of project impacts from the

shipment of high-level nuclear waste through the County (available on request)." *Id.* at 8 (emphasis added). Dr. Mushkatel's monographs may be available from Dr. Mushkatel by request, but they are not available on the LSN. In Clark County's entire LSN collection, there is only one document authored by Dr. Mushkatel, *Impacts to Clark County and Local Governmental Public Safety Agencies Resulting From the Yucca Mountain Project*, (Oct. 2001) (LSN# CLK000000006), and it is not one of the monographs described by Dr. Mushkatel in his CV.[6]

Clark County's LSN collection is similarly lacking with respect to the County's expert Dr. Sheila Conway. Clark County's LSN collection contains only two documents on which the expert is identified as an author. LSN# CLK000000006 (co-authored with Mushkatel); *Impact Assessment And Public Outreach Strategies For Local Governments* (June 2001) (LSN# CLK000000052). This despite the fact that Dr. Conway's CV claims:

- that she is "responsible for conducting socio-economic impact analysis, including property value diminution; public safety impacts; government/fiscal impact; and regulatory compliance for Clark County, Nevada;"
- that she "[s]ynthesized over a decade of research data addressing socio-economic, demographic, and behavioral research in order to identify key relationships that influence risk perception and behavior;"
- that she "[c]onducted statistical analysis of a survey of local businesses to determine their perception of risk from the proposed transport of high-level radioactive waste;" and
- that she "[a]nalyzed a draft Environmental Impact Statement for NEPA and NWPA compliance."

Conway CV at 1.

[6] DOE also has examined the 35 documents posted to the LSN by potential parties other than Clark that are identified as having been authored by Dr. Mushkatel, and the 27 documents in which the word "mushkatel" appears that have a document date within the last five years. None of those documents is one of the 15 monographs described by Dr. Mushkatel in his CV.

Dr. Conway's CV further states that she authored *The 2007 Projected Impacts to Clark County and Local Governmental Public Safety Agencies Resulting from the Transportation of High-Level Nuclear Waste to Yucca Mountain*, but there is no document of that title on the LSN. The version Dr. Conway mentions in her CV evidently is an update of the 2005 version of this document. *See*, *An Update Of The Projected Impacts To Clark County And Local Governmental Public Safety Agencies Resulting From The Transportation Of High-Level Nuclear Waste To Yucca Mountain* (Aug. 2005) (LSN# CLK000000055). Having included the predecessor to the 2007 version in its LSN collection, it is difficult to understand why Clark County would not include the latest version.

Dr. Conway's CV lists 8 other papers with the words "Clark County" in the title, but apart from one that was posted in header-only format by DOE, none of them appears to be on the LSN. And while the number of documents authored by Drs. Mushkatel and Conway that Clark has included within its LSN collection is minuscule, there are none at all in Clark County's collection that were authored by the County's other expert Dr. Dennis Bley.

A potential party is required to make available on the LSN all reports and studies prepared by it or on its behalf that are relevant to the LA and the topical guidelines in Reg. Guide 3.69. Importantly, a potential party's obligation to make reports and studies available on the LSN is not subject to a reliance criterion. That is, a potential party must make its reports and studies available on the LSN regardless of whether or not they support its positions in the licensing proceeding. 10 C.F.R. § 2.1001 (definition of "documentary material"). *See also U.S. Dep't of Energy* (High-Level Waste Repository: Pre-Application Matters), CLI-06-5, 63 NRC 143, 152-53 (2006) (discussing that requirement to make reports and studies available on the LSN is not dependent on a reliance criterion).

Contrary to that obligation, Clark County appears to have engaged in a production that systematically falls short of a petitioning party's obligation to demonstrate that it has made available reports and studies.[7]

Clark County's production also appears to fall short with respect to non-supporting material. As DOE pointed out in its earlier motion to strike Clark County's initial certification, the County's LSN Procedure Manual suffered from the facial deficiency that it required production only of "supporting" documentary material. Department of Energy Motion to Strike Initial LSN Certification of Clark County (January 28, 2008) at 8, *citing* January 2008 Clark County LSN Policy and Procedure Manual at 10 ("Clark County will use due diligence in locating and making available *supporting* document [*sic*] material"). There was no indication, when Clark County made its initial certification, that it had engaged in the kind of collection, review, and submission processes that would ensure the inclusion of non-supporting material in its collection.

At the urging of DOE, Clark modified its manual to require review and production of "all documentary material . . . including but not limited to supporting and non-supporting material." July 2008 Clark County LSN Policy and Procedure Manual at 10. But there is no indication that such a review has been done.

Clark County did not state in its Petition that it had conducted such a review. Further, the limited number of documents Clark County added to the LSN after it modified its procedures indicates that it did not undertake to review documents to identify non-supporting information. As mentioned, the County amended its procedures in July 2008 to include the obligation to

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[7] LSN regulations also require parties to produce "graphic-oriented documentary material," such as "raw data, computer runs, computer programs and codes, field notes, laboratory notes, maps, diagrams and photographs." 10 C.F.R. § 2.103(a)(2). Apart from graphic-oriented material contained in reports, Clark County's collection does not appear to include such graphic-oriented material.

identify and make available non-supporting information. Yet by DOE's count, Clark County has added only 25 documents to its LSN collection since July 2008. In fact, these 25 documents are all the documents Clark has added to the LSN since its initial LSN certification in January, 2008. Of the 25 documents, 19 are dated in 2007 or 2008, which belies the possibility that Clark County's supplemental production entailed any significant review of existing documents in the possession of its experts, consultants and staff to identify non-supporting information since amending its procedures. Moreover, a significant percentage of Clark County's new documents are either additional reports or documents specifically cited in the County's contentions, which further indicates that these were not identified pursuant to a review for non-supporting information.[8]

Also, absent from Clark County's LSN collection are the types of documents that are expected to contain non-supporting information such as internal memoranda and emails. The continued absence of any emails from the Clark County collection is yet additional indication of Clark County's failure to either search for or produce non-supporting material.[9]

In sum, Clark County has not demonstrated that it is in substantial and timely compliance with its LSN obligations. Clark County's Petition is silent, and the evidence from Clark

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[8] *See*, *e.g.*, Nation Research Council, *Going the Distance? The Safe Transport of Spent Nuclear Fuel and High-Level Radioactive Waste in the United States* (The National Academies Press 2006) (LSN# CLK000000088), *Stockpile Stewardship Program* (Sept. 2004) (LSN# CLK000000090), and *National Security and Nuclear Weapons: Maintaining Deterrence in the 21st Century* (July 2007) (LSN# CLK000000087).

[9] Clark County previously has defended the absence of emails from its collection on the ground that "very few substantive emails are exchanged" among the 8 employees of the Clark County Nuclear Waste Oversight Program office. However plausible or implausible this contention, it is important to remember that the LSN obligation extends beyond these 8 employees to the 4 experts (and their employees) retained by Clark. To take the example of Dr. Mushkatel, it seems certain in this day and age that he did not spend the $2 million dollars conferred on him by the County or produce the 15 monographs he has produced over the last 4 years without exchanging emails with his staff. The absence of procedures specifically requiring review of such emails coupled with the absence of any emails from Clark County's collection hardly demonstrates that the County is in substantial and timely compliance with its LSN obligations.

County's LSN production defeats any finding of compliance. The Board should deny Clark County's Petition as a result.[10]

III. LEGAL STANDING

Because the Commission has stated that "[a]ny AULG [Affected Unit of Local Government] seeking party status shall be considered a party to this proceeding, provided that it files at least one admissible contention" Hearing Notice, 73 Fed. Reg. at 63,031, DOE has no objection to Clark County's legal standing.

IV. ADMISSIBILITY OF CONTENTIONS

A. Applicable Legal Standards and Relevant NRC Precedent

1. Petitioner Must Submit at Least One Admissible Contention to be Admitted as a Party

To be admitted as a party in the Yucca Mountain licensing proceeding, a petitioner must proffer at least one admissible contention. *See* 10 C.F.R. §§ 2.309(a), 2.309 (d)(2)(iii). The NRC will deny a petition to intervene from a petitioner who has complied with the LSN requirements and has demonstrated standing to intervene, but who has not proffered at least one admissible contention. *See generally Fla. Power & Light Co.* (Turkey Point Nuclear Generating

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[10] 10 C.F.R. § 2.1012(b)(1) is clear that a potential party "may not be granted" party status or participate under 10 C.F.R. § 2.315(c) if it cannot demonstrate substantial and timely compliance "at the time it requests participation." 10 C.F.R. § 2.1012(b)(2) makes clear that the time to cure any such failure to meet LSN requirements is *after* party status or the right to participate has been "denied," and not in any such Reply.

Clark County may not "cure" this or any other defect in its Petition, in its Reply pursuant to 10 C.F.R. § 2.309(h)(2). It is well recognized that "[r]eplies must focus narrowly on the legal or factual arguments first presented in the original petition or raised in the answers to it." *Nuclear Mgmt Co., L.L.C.* (Palisades Nuclear Plant), CLI-06-17, 63 NRC 727, 732 (2006)(citing cases); *see Louisiana Energy Servs., L.P.* (National Enrichment Facility), CLI-04-25, 60 NRC 223, 225 (2004)(citing Final Rule, Changes to Adjudicatory Process, 69 Fed. Reg. 2182, 2203 (Jan. 14, 2004)). Replies cannot be used to "expand the scope of the arguments set forth in the original hearing request," nor should they be used to introduce new bases for contentions submitted with the original petition. *See Nuclear Mgmt Co., L.L.C.*, CLI-06-17, 63 NRC at 732. Additionally, the Advisory PAPO Board explicitly stated that "[r]eplies shall be limited to addressing points that have been raised in answers." *U.S. Dep't of Energy* (High-Level Waste Repository: Pre-Application Matters, Advisory PAPO Board), LBP-08-10, 67 NRC __ (slip op. at 9) (June 20, 2008).

DOE reserves the right to move to strike any portions of any Replies that fail to adhere to these limitations or to seek other relief as appropriate

Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 5 (2001). As the Commission has observed, "[i]t is the responsibility of the Petitioner to provide the necessary information to satisfy the basis requirement for the admission of its contentions and demonstrate that a genuine dispute exists within the scope of this proceeding." *Baltimore Gas & Elec. Co.* (Calvert Cliffs Nuclear Power Plant, Units 1 and 2), CLI-98-14, 48 NRC 39, 41 (1998). "A contention's proponent, not the licensing board, is responsible for formulating the contention and providing the necessary information to satisfy the basis requirement for the admission of contentions." *Statement of Policy on Conduct of Adjudicatory Proceedings*, CLI-98-12, 48 NRC 18, 22 (1998). Finally, "government entities seeking to litigate their own contentions are held to the same pleading rules as everyone else." *Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-05-24, 62 NRC 551, 568 (2005).

2. Petitioner in this Proceeding Has a Heightened Obligation to Proffer Well Pled and Adequately Supported Contentions Given the Availability of the LSN

As the Commission has noted, this proceeding involves a number of "unique facts and circumstances" – one of those being the development of the LSN as a substitute for traditional document discovery. In developing this system, the NRC sought both to streamline the discovery process *and* to facilitate submittal of well-pled contentions:

> Another efficiency the [LSN] provides is reducing the effort consumed in carrying out document discovery and allowing more effort to be spent in case preparation. Because access to these documents is provided *before* the application is docketed, each party can focus on formulating meaningful contentions before the licensing hearing begins. *There should be no excuse for poorly crafted contentions, and the licensing board can reduce hearing delays by readily rejecting or otherwise disposing of unfocused or unsupported contentions.* Likewise, the [LSN] rule places tighter restrictions on amending or adding contentions late in the hearing processes because the [LSN] affords the parties an opportunity to

> raise and resolve issues earlier than what traditionally has been possible.

SECY-95-153, Memorandum from James M. Taylor, Executive Director of Operations, to the Commissioners, "Licensing Support System Senior Management Team Recommendations on Direction of the Licensing Support System," June 14, 1995, *available at* ADAMS Accession No. 9506280652 (emphasis added).

In issuing the final LSN rule nearly a decade later, the Commission noted that "the history of the LSN and its predecessor . . . makes it apparent it was the Commission's expectation that the LSN, among other things, would provide potential participants with the opportunity to frame focused and meaningful contentions" and avoid potential discovery-related delays. Final Rule, LSN, Submissions to the Electronic Docket, 69 Fed. Reg. at 32,843. The Commission added that "[t]hese objectives are still operational." *Id*. In fact, in a recent adjudicatory order related to this proceeding, the Commission reaffirmed these objectives:

> The use of the LSN was intended, among other things, to "enabl[e] the comprehensive and early review of the millions of pages of relevant licensing material by the potential parties to the proceeding, so as to permit the earlier submission of better focused contentions resulting in a substantial saving of time during the proceeding."

U.S. Dep't of Energy (High-Level Waste Repository: Pre-Application Matters), CLI-08-12, 67 NRC __ (slip op. at 8) (June 17, 2008).

And in fact, DOE's production of documentary material on the LSN fulfilled those objectives. DOE first made documentary material available on the LSN in 2004, when it publicly released approximately 1.3 million documents. Transcript of Record at 540, *U.S. Dep't of Energy* (High-Level Waste Repository: Pre-Application Matters), ASLBP No. 04-8239-01-PAPO (July 12, 2005). DOE made another 2.1 million documents publicly available on the LSN

in April, 2007—more than a year before it submitted the LA. Policy Issue Information Memorandum, SECY-07-0130, August 7, 2007, *available at* ADAMS No. ML071930440 at 5. DOE regularly added documents to the LSN each month thereafter, and in October, 2007, DOE certified that all its extant documentary material was available on the LSN. The Department of Energy submitted its Certification of Compliance on October 19, 2007. DOE has since then updated its LSN production each month with new documentary material that it has generated, received, or identified. *See, e.g.,* The Department of Energy's Certification of Licensing Support Network Supplementation (November 1, 2007); *see also* Revised Second Case Management Order, ASLBP No. 04-829-01-PAPO (July 6, 2007) at 21 (requiring monthly supplemental production on LSN of documentary material created or discovered after party's initial LSN certification).

Altogether, DOE has made more than 3.5 million documents available on the LSN. *U.S. Dep't of Energy* (High-Level Waste Repository: Pre-Application Matters), LBP-08-01, 67 NRC __ (slip op. at 11) (January 4, 2008) (stating that "it is not disputed that DOE has made available a massive amount of documentary material—3.5 million documents, amounting to over 30 million pages, including redacted versions of some privileged documents and privilege logs for hundreds of others"). That production includes documents that DOE cites and relies upon in the LA. It includes extensive underlying calculations, data, and other material on which those documents are based. Further, as required by regulation, it also includes documents with information that does not support the information DOE intends to cite or rely upon in the licensing proceeding. 10 C.F.R. § 2.1001 (definition of "documentary material").

DOE's extensive production substantially heightens Clark County's ability—*and its corresponding obligation*—to proffer focused and adequately supported contentions in this

proceeding. As the Commission observed in rejecting a challenge to DOE's initial LSN certification, "potential parties had access to millions of DOE documents upon which to begin formulating meaningful contentions" during the period following that certification, as contemplated by the Commission's regulations. *U.S. Dep't of Energy*, CLI-08-12, 67 NRC __ (slip op. at 9). Indeed, because of DOE's early production of documentary material on the LSN starting 4 years before LA submittal, every potential party has had an even greater opportunity than the regulations contemplate to use those materials to develop contentions.

Based on the above circumstances, Clark County must be held to a particularly heightened burden to proffer well-pled and adequately supported contentions. It is a well-positioned participant that has had the legal and technical resources to review DOE's documentary material to develop contentions, and has used those resources over the years for that very purpose.

3. Proffered Contentions Must Meet All of the Contention Admissibility Requirements of 10 C.F.R. § 2.309(f)(1) as Well as the Requirements of the Applicable June 20, 2008 and September 29, 2008 Case Management Orders

Section 2.309(f)(1) requires a petitioner to "set forth with particularity the contentions sought to be raised," and to satisfy the following six criteria: (1) provide a specific statement of the legal or factual issue sought to be raised; (2) provide a brief explanation of the basis for the contention; (3) demonstrate that the issue raised is within the scope of the proceeding; (4) demonstrate that the issue raised is material to the findings the NRC must make to support the licensing action that is the subject of the proceeding; (5) provide a concise statement of the alleged facts or expert opinions, including references to specific sources and documents that support the petitioner's position and upon which the petitioner intends to rely; and (6) provide sufficient information to show that a genuine dispute exists with regard to a material issue of law

or fact. *See* 10 C.F.R. § 2.309(f)(1)(i)-(vi). *A failure to comply with any one of the six admissibility criteria is grounds for rejecting a proffered contention*. *See* Final Rule, Changes to Adjudicatory Process, 69 Fed. Reg. 2182, 2221 (Jan. 14, 2004) (emphasis added); *see also Private Fuel Storage L.L.C.* (Independent Spent Fuel Storage Installation) CLI-99-10, 49 NRC 318, 325 (1999).

The purpose of these six criteria is to "focus litigation on concrete issues and result in a clearer and more focused record for decision." Final Rule, Changes to Adjudicatory Process, 69 Fed. Reg. at 2202. The current contention admissibility standards are "strict by design," *Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-01-24, 54 NRC 349, 358 (2001), *recons. denied*, CLI-02-1, 55 NRC 1 (2002), and were intended to "raise the threshold for the admission of contentions." Rules of Practice for Domestic Licensing Proceedings—Procedural Changes in the Hearing Process, 54 Fed. Reg. 33,168 (Aug. 11, 1989); *see also Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2 and 3), CLI-99-11, 49 NRC 328, 334 (1999). As explained above, the availability of the LSN further raises this threshold for the admission of a contention in this proceeding. In revising its Part 2 rules in 2004, the Commission reiterated that the standards are "necessary to ensure that hearings cover only genuine and pertinent issues of concern and that the issues are framed and supported concisely enough at the outset to ensure that the proceedings are effective and focused on real, concrete issues." Final Rule, Changes to Adjudicatory Process, 69 Fed. Reg. at 2189-90 (stating that the NRC "should not have to expend resources to support the hearing process unless there is an issue that is appropriate for, and susceptible to, resolution in an NRC hearing"); *id*. at 2202.

Strict application of these contention admissibility criteria in this proceeding is critically important. The vast number of contentions submitted and the "rigorous schedule" imposed by

the NWPA and Appendix D to Part 2 present unprecedented challenges to the conduct of a timely, effective, and focused adjudication. Recognizing these challenges, the Advisory PAPO Board, with the Commission's express approval, issued its Case Management Order "to help both potential parties and licensing boards address the admissibility of contentions in any HLW proceeding effectively and efficiently." *U.S. Dep't of Energy* (High-Level Waste Repository: Pre-Application Matters, Advisory PAPO Board), LBP-08-10, 67 NRC __ (slip op. at 3) (June 20, 2008) (Case Management Order).[11] That Order imposes numerous format requirements for proffered contentions. Failure to adhere to these format requirements may provide an additional basis for rejection of proffered contentions should a potential party significantly and in bad faith ignore these requirements. *Id.* at 3, 5-9.

The six contention admissibility criteria set forth in § 2.309(f)(1), and the related pleading requirements contained in the Case Management Order, are discussed further below.

a. Petitioner Must Specifically State the Issue of Law or Fact to Be Raised

Section 2.309(f)(1)(i), the first admissibility criterion, requires that a petitioner "provide a specific statement of the issue of law or fact to be raised or controverted," by "articulat[ing] at the outset the specific issues [it] wish[es] to litigate as a prerequisite to gaining formal admission as [a party]." *Duke Energy Corp*., CLI-99-11, 49 NRC at 338. To be admissible, a contention "must explain, with specificity, particular safety or legal reasons requiring rejection of the contested [application]." *Dominion Nuclear Conn., Inc.*, CLI-01-24, 54 NRC at 359-60. Section 2.309(f)(1)(i) "bar[s] contentions where petitioners have only 'what amounts to generalized suspicions, hoping to substantiate them later.'" *Duke Energy Corp.* (McGuire Nuclear Station,

[11] A second case management order was issued. *See U.S. Dep't of Energy* (Regarding Contention Formatting and Tables of Contents), LBP-08-10, 67 NRC __ (September 29, 2008).

Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-03-17, 58 NRC 419, 424 (2003) (quoting *Duke Energy Corp*., CLI-99-11, 49 NRC at 337-39). Elaborating further on this requirement, the June 20, 2008, Case Management Order for this proceeding requires "narrow, *single-issue* contentions" that are "sufficiently specific as to define the relevant issues for eventual rulings on the merits, and not require" extensive narrowing or clarification by the parties or boards. *U.S. Dep't of Energy*, LBP-08-10, 67 NRC __ (slip op. at 6) (emphasis added).

b. Petitioner Must Briefly Explain the Basis for the Contention

Section 2.309(f)(1)(ii) requires that a petitioner provide "a brief explanation of the basis for the contention." *See also* Rules of Practice for Domestic Licensing Proceedings—Procedural Changes in the Hearing Process, 54 Fed. Reg. at 33,170. This includes "sufficient foundation" to "warrant further exploration." *Public Serv. Co. of N.H.* (Seabrook Station, Units 1 and 2), ALAB-942, 32 NRC 395, 428 (1990) (footnote omitted). A petitioner's explanation serves to define the scope of a contention, as "[t]he reach of a contention necessarily hinges upon its terms coupled with its stated bases." *Public Serv. Co. of N.H.* (Seabrook Station, Units 1 and 2), ALAB-899, 28 NRC 93, 97 (1988), *petitions denied in part, granted in part, Mass. v. U.S. Nuclear Regulatory Comm'n*, 924 F.2d 311 (D.C. Cir. 1991), *cert. denied*, 502 U.S. 899 (1991). The Board, however, must determine the admissibility of the contention itself, not the admissibility of individual "bases." *Duke Energy Corp*. (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-28, 56 NRC 373, 379 n.45 (2002).

c. Petitioner Must Demonstrate that the Issue Raised in the Contention is Within the Scope of the Proceeding

Section 2.309(f)(1)(iii) requires that a petitioner demonstrate "that the issue raised in the contention is within the scope of the proceeding." The scope of the proceeding is defined by the Commission's Notice of Hearing and the NRC regulations governing review and approval of the

Application. *See, e.g.*, *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-825, 22 NRC 785, 790-91 (1985). Contentions are necessarily limited to issues that are germane to the specific application pending before the Board. *Yankee Atomic Elec. Co.* (Yankee Nuclear Power Station), CLI-98-21, 48 NRC 185, 204 n.7 (1998). Any contention that falls outside the specified scope of this proceeding – as discussed further below – must be rejected. *See, e.g.*, *Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-04-36, 60 NRC 631, 639 (2004).

A contention that challenges an NRC rule is outside the scope of this proceeding because, absent a waiver, "no rule or regulation of the Commission . . . is subject to attack . . . in any adjudicatory proceeding…." 10 C.F.R. § 2.335(a). This includes contentions that advocate stricter requirements than agency rules impose or that otherwise seek to litigate a generic determination established by a Commission rulemaking. *See Fla. Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), LBP-01-6, 53 NRC 138, 159 (2001), *aff'd on other grounds*, CLI-01-17, 54 NRC 3. For instance, any direct or indirect challenge to the current EPA standard or NRC implementing rule is a collateral attack and is outside the scope of the proceeding. Moreover, Nevada challenged the EPA rule in federal court and thus this proceeding is the wrong forum to raise such a challenge.

In addition, any contention that collaterally attacks applicable statutory requirements or the basic structure of the NRC regulatory process must also be rejected by the Board as outside the scope of the proceeding. *Carolina Power & Light* (Shearon Harris Nuclear Power Plant Units 1), LBP-07-11, 65 NRC 41, 57-58 (citing *Philadelphia Elec. Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20 (1974)). Accordingly, a contention that simply states the petitioner's views about what the regulatory policy should be does not

present a litigable issue. *See Philadelphia Elec. Co.*, ALAB-216, 8 AEC at 20-21, 21 n.33. Similarly, challenges to the adequacy of the NRC Staff's safety review process, including the contents of its SER, are outside the scope of this proceeding. "The NRC has not, and will not, litigate claims about the adequacy of the Staff's safety review in licensing adjudications." *AmerGen Energy Co., LLC* (License Renewal for Oyster Creek Nuclear Generating Station), CLI-08-28, 68 NRC __ (slip op. at 13-14) (Nov. 6, 2008).

Furthermore, asserting that generalized "uncertainties" exist in postclosure models or data, without showing in any way, how or why those uncertainties call into question the conclusions reached by DOE, or findings the NRC must make in its review of the LA, is not a sufficient basis for an admissible contention. To merely assert the existence of such uncertainties, without specifying their impact on a finding NRC must make in its issuance of the construction authorization, amounts to an improper challenge to Part 63, which explicitly recognizes that such uncertainties exist and cannot be eliminated. The Commission, in the Statements of Consideration accompanying Part 63, expressly rejected requests made by several commenters to define an acceptable level of uncertainty in Part 63, finding it "neither practical nor appropriate." Final Rule, Disposal of High-Level Radioactive Wastes in a Proposed Geologic Repository at Yucca Mountain, NV, 66 Fed. Reg. 55,732, 55,747-748 (Nov. 2, 2001). The Commission "decided to adopt EPA's preferred criterion of 'reasonable expectation' for purposes of judging compliance with the postclosure performance objectives [because] . . . a standard of 'reasonable expectation' allows it the necessary flexibility to account for the inherently greater uncertainties in making long-term projections of a repository's performance." *Id*. at 55,740. This flexibility encompasses consideration of the use, as appropriate, of cautious

but reasonable approaches consistent with present knowledge in lieu of bounding or more conservative approaches. *See, e.g.,* 10 C.F.R. § 63.305(c).

The following examples from 10 C.F.R. § 63.101 are illustrative of the reasonable expectation standard:

- "Proof that the geologic repository will conform with the objectives for postclosure performance is not to be had in the ordinary sense of the word because of the uncertainties inherent in the understanding of the evolution…."
- "[W]hat is required is reasonable expectation, making allowance for the . . . uncertainties involved, that the outcome will conform with the objectives for postclosure…."
- "[D]emonstration of compliance must take uncertainties and gaps in knowledge into account so that the Commission can make the specified finding…."

10 C.F.R. § 63.304 describes the characteristics of reasonable expectation by stating that reasonable expectation:

- Requires less than absolute proof because absolute proof is impossible to attain for disposal due to the uncertainty of projecting long-term performance;
- Accounts for the inherently greater uncertainties in making long-term projections of the performance of the Yucca Mountain disposal system;
- Does not exclude important parameters from assessments and analyses simply because they are difficult to precisely quantify to a high degree of confidence; and
- Focuses performance assessments and analyses on the full range of defensible and reasonable parameter distributions rather than only upon extreme physical situations and parameter values.

In addition, 10 C.F.R. § 63.305(c) makes clear that, in the context of reasonable expectation, conservative means the use of cautious but reasonable assumptions consistent with present knowledge.

Given the obligation of the Commission under section 801(b) of the Energy Policy Act of 1992 (EPACT) to modify its technical requirements and criteria under section 121(b) of the NWPA to be consistent with the radiological protection standards promulgated by the

Environmental Protection Agency (EPA) under section 801(a) of EPACT, the proper application of the reasonable expectation standard must take into account the statements by EPA in promulgating the standards required by EPACT.[12] These statements make clear that, while reasonable assurance and reasonable expectation are similar concepts, the evaluation of the Yucca Mountain repository requires a different level and type of technical proof than required for reactors and other situations licensed by NRC in the past.[13] Reasonable expectation recognizes that, in the context of the Yucca Mountain repository, "unequivocal numerical proof of compliance is neither necessary nor likely to be obtained,"[14] and while some "sources of uncertainty can be addressed, or at least accounted for while in other [data or model] areas our knowledge may be too limited to even characterize the uncertainty, much less explicitly account for it."[15] Identifying postclosure uncertainties, without specifying their impact on whether the reasonable expectation standard is met, does not provide an adequate basis to admit a contention.

Therefore, in formulating its contentions, the initial burden is on the petitioner to explain the implications of alleged uncertainties and show why, if true, they exceed the range of acceptable (and unavoidable) uncertainties clearly reflected in the regulations, particularly the reasonable expectation standard set forth in 10 C.F.R. § 63.101. Any contention attempting to shift that burden to the applicant is an improper challenge to 10 C.F.R. § 2.309. *See Entergy*

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[12] *See* Final Rule, Public Health and Environmental Radiation Protection Standards for Yucca Mountain, NV, 66 Fed. Reg. 32,074, 32,101-03 (June 13, 2001) (section III.B.2.c titled "What Level of Expectation Will Meet Our Standards?"); *see also* Proposed Rule, Public Health and Environmental Radiation Protection Standards for Yucca Mountain, NV, 70 Fed. Reg. 49,014, 49,020-21 (August 22, 2005) (section I.A.1.c titled "What is "Reasonable Expectation?"); Final Rule, Public Health and Environmental Radiation Protection Standards for Yucca Mountain, NV, 73 Fed. Reg. 61,256, 61,271-73 (October 15, 2008) (section III.A.4 titled "How Did We Consider Uncertainty and Reasonable Expectation?").

[13] *See* Final Rule, Public Health and Environmental Radiation Protection Standards for Yucca Mountain, NV, 66 Fed. Reg. at 32,101.

[14] Proposed Rule, Public Health and Environmental Radiation Protection Standards for Yucca Mountain, NV, 70 Fed. Reg. at 49,021.

[15] Final Rule, Public Health and Environmental Radiation Protection Standards for Yucca Mountain, NV, 73 Fed. Reg. at 61,271, n.22.

Nuclear Generation Co. and Entergy Nuclear Operations, Inc. (Pilgrim Power Station), LBP-06-23, 64 NRC 257, 358-59 (2006). DOE's responses to specific contentions identify where these pleading requirements have been violated.

d. Petitioner Must Demonstrate That Each Contention Raises a Material Issue

Section 2.309(f)(1)(iv) requires that a petitioner "[d]emonstrate that the issue raised in the contention is *material* to the *findings the NRC must make to support the action* that is involved in the proceeding." Emphasis added. As the Commission has observed, "[t]he dispute at issue is 'material' if its resolution would 'make a difference in the outcome of the licensing proceeding.'" *Duke Energy Corp*., CLI-99-11, 49 NRC at 333-34; *see also* Rules of Practice for Domestic Licensing Proceedings–Procedural Changes in the Hearing Process, 54 Fed. Reg. at 33,172. Thus, each contention must be one that, if proven, would entitle the petitioner to relief. *Yankee Atomic Elec. Co.* (Yankee Power Station), CLI-96-7, 43 NRC 235, 244 (1996). The Case Management Order states that this criterion "requires citation to a statute or regulation that, explicitly or implicitly, has not been satisfied by reason of the issue raised in the contention." *U.S. Dep't of Energy*, LBP-08-10, 67 NRC __ (slip op. at 7).

The "findings the NRC must make to support" the issuance of a construction authorization for a geologic repository are set forth in 10 C.F.R. § 63.31. To authorize construction of the repository, the NRC must determine that:

- there is reasonable assurance that the types and amounts of radioactive materials described in the application can be received and possessed in a geologic repository operations area of the design proposed without unreasonable risk to the health and safety of the public;
- there is reasonable expectation that the materials can be disposed of without unreasonable risk to the health and safety of the public; and

- there is reasonable assurance that the activities proposed in the application will not be inimical to the common defense and security.

In short, the NRC must determine the validity of DOE's conclusions concerning the ability of the repository design to limit exposure to radioactivity, both during the construction and operation phase of the repository (*i.e.*, preclosure phase) and during the phase after the repository has been filled, closed, and sealed (*i.e.*, postclosure phase).

In making these determinations, the NRC must evaluate DOE's compliance with the applicable provisions of Part 63, including, among other things, whether DOE has described the proposed geologic repository as specified in § 63.21, and whether the site and design comply with the Part 63 performance objectives and requirements. Proposed safety contentions that fail to raise issues that are material to these findings are inadmissible. For example, Part 63 permits DOE to use probabilistic analyses to calculate potential postclosure radiation doses, 10 C.F.R. § 63.102(j), and to report those doses as *mean* doses. *See* 10 C.F.R. § 63.303. Therefore, contentions that either independently or cumulatively, fail to demonstrate an increase in the mean dose *above regulatory limits* are immaterial and inadmissible because they would not "make a difference in the outcome of the licensing proceeding." *Duke Energy Corp*., CLI-99-11, 49 NRC at 333-34.

e. Petitioner Must Demonstrate that Each Contention is Supported by Adequate Factual Information and/or Expert Opinion

Section 2.309(f)(1)(v) requires a petitioner to present the factual information or expert opinions necessary to support its contention adequately, and failure to do so requires the Board to reject the contention. *See also Yankee Atomic Elec. Co.*, CLI-96-7, 43 NRC at 262 (in referencing 10 C.F.R. § 2.714, the predecessor to 10 C.F.R. § 2.309, the Commission stated that petitioners must present "claims rooted in fact, documents, or expert opinions"). A petitioner is

"obligated to put forward and support contentions when seeking intervention, based on the application and information available" by examining the application and publicly available information. *Consumers Energy Co*. (Palisades Nuclear Power Plant), CLI-07-18, 65 NRC 399, 414 n.46 (2007).

As explained above, the LSN heightens a petitioner's already "ironclad" obligation to furnish adequate support because "early access to . . . documents in an electronically searchable form [has] allow[ed] for a thorough and comprehensive technical review of the license application by all parties and potential parties to the HLW licensing proceeding." Final Rule, LSN, Submissions to the Electronic Docket, 69 Fed. Reg. at 32,837. Thus, where a petitioner neglects to provide the requisite support for its contentions, the Board may not—and in this case absolutely should not—make assumptions of fact that favor the petitioner or supply information that is lacking. *See Ariz. Pub. Serv. Co.* (Palo Verde Nuclear Generating Station, Unit Nos. 1, 2, and 3), CLI-91-12, 34 NRC 149, 155 (1991).

Vague references to documents are not permissible. A petitioner must identify specific portions of the documents on which it relies. *See Pub. Serv. Co. of N.H.* (Seabrook Station, Units 1 and 2), CLI-89-03, 29 NRC 234, 240-41 (1989). Moreover, the mere incorporation of massive documents by reference is unacceptable. *See Tenn. Valley Auth.* (Browns Ferry Nuclear Plant, Units 1 and 2), LBP-76-10, 3 NRC 209, 216 (1976). Consistent with these requirements, the Case Management Order directs petitioners to ensure that documentary references "be as specific as reasonably possible." *U.S. Dep't of Energy*, LBP-08-10, 67 NRC __ (slip op. at 7). Additionally, it requires that supporting documents (with the exception of readily available legal authorities, copyright-restricted material, and LSN documentary material), be electronically

attached to the petition. In citing LSN documents, petitioners must include the LSN accession number as well as the title, date, and relevant pages of the document.

A petitioner also must explain the significance of any factual information upon which it relies. *See Fansteel, Inc.* (Muskogee, Oklahoma Site), CLI-03-13, 58 NRC 195, 204-05 (2003). With respect to factual information or expert opinion proffered in support of a contention, "the Board is not to accept uncritically the assertion that a document or other factual information or an expert opinion supplies the basis for a contention." *Private Fuel Storage* (Independent Spent Fuel Storage Installation), LBP-98-7, 47 NRC 142, 181 (1998), *aff'd on other grounds*, CLI-98-13, 48 NRC 26. Any supporting material provided by a petitioner, including those portions thereof not relied upon, is subject to Board scrutiny, "both for what it does and does not show." *See Yankee Atomic Elec. Co.*, LBP-96-2, 43 NRC 61, 90 (1996), *rev'd in part on other grounds and remanded*, CLI-96-7, 43 NRC 235 (1996). The Board should examine documents to confirm that they support the proposed contention(s). *See Vt. Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-919, 30 NRC 29, 48 (1989), *vacated in part on other grounds and remanded*, CLI-90-04, 31 NRC 333 (1990). A petitioner's imprecise reading of a document cannot be the basis for a litigable contention. *See Ga. Inst. of Tech.* (Georgia Tech Research Reactor, Atlanta, Georgia), LBP-95-6, 41 NRC 281, 300 (1995).

Furthermore, "an expert opinion that merely states a conclusion (*e.g.*, the application is 'deficient,' 'inadequate,' or 'wrong') without providing *a reasoned basis or explanation* for that conclusion is inadequate because it deprives the Board of the ability to make the necessary, reflective assessment of the opinion" alleged to provide a basis for the contention. *See USEC, Inc.* (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 472 (2006) (emphasis added) (quoting *Private Fuel Storage*, LBP-98-7, 47 NRC at 181). Conclusory statements cannot

provide "sufficient" support for a contention, simply because they are proffered by an alleged expert. *See USEC*, CLI-06-10, 63 NRC at 472. In summary, a contention "will be ruled inadmissible if the petitioner 'has offered no tangible information, no experts, no substantive affidavits', but instead only 'bare assertions and speculation.'" *Fansteel*, CLI-03-13, 58 NRC at 203 (quoting *Gen. Pub. Utils. Nuclear, Inc*. (Oyster Creek Nuclear Generating Station), CLI-00-06, 51 NRC 193, 208 (2000)).

f. Petitioner Must Demonstrate that the Contention Raises a Genuine Dispute With Respect to a Material Issue of Law or Fact

With regard to the final requirement, that a petitioner "provide sufficient information to show . . . a genuine dispute . . . with the applicant . . . on a material issue of law or fact," 10 C.F.R. § 2.309(f)(1)(vi), the Commission has stated that the petitioner must "read the pertinent portions of the license application, . . . state the applicant's position and the petitioner's opposing view," and explain why it disagrees with the applicant. Rules of Practice for Domestic Licensing Proceedings—Procedural Changes in the Hearing Process, 54 Fed. Reg. at 33,170; *Dominion Nuclear Conn., Inc.*, CLI-01-24, 54 NRC at 358.

In claiming that the Application fails to address adequately a material issue, a petitioner must "explain why the application is deficient." Rules of Practice for Domestic Licensing Proceedings—Procedural Changes in the Hearing Process, 54 Fed. Reg. at 33,170; *Ariz. Pub. Serv. Co.*, CLI-91-12, 34 NRC at 156. An allegation that some aspect of a license application is "inadequate" or unacceptable does not give rise to a genuine dispute unless it is supported by facts and a reasoned statement of why the application is unacceptable in some material respect. *See Fla. Power & Light Co.* (Turkey Point Plant, Unit Nos. 3 and 4), LBP-90-16, 31 NRC 509, 521, 521 n.12 (1990). Put another way, a contention that does not *directly controvert a position taken by the applicant in the application* is subject to dismissal. *See Tex. Utils. Elec. Co.*

(Comanche Peak Steam Electric Station, Unit 2), LBP-92-37, 36 NRC 370, 384 (1992) (emphasis added). For example, if a petitioner submits a contention of omission, but the allegedly missing information is, in fact, contained in the license application, then the contention does not raise a genuine dispute.

4. Environmental Contentions Addressing DOE's Final Environmental Impact Statement and its Supplements Must Also Meet the Requirements of 10 C.F.R. § 51.109 and 10 C.F.R. § 2.326

In its Hearing Notice, the Commission reaffirmed that proposed environmental contentions are subject to substantially heightened admissibility standards.[16] In addition to the NRC's contention admissibility requirements in 10 C.F.R. § 2.309(f), environmental contentions must also meet the requirements of 10 C.F.R. § 51.109 and the requirements of 10 C.F.R. § 2.326. These two sections impose the following admissibility standards on environmental contentions:

1. Contentions must allege that it is not practicable to adopt the DOE EIS for one of two reasons:

   "(1)(i) The action proposed to be taken by the Commission differs from the action proposed in the license application submitted by [DOE]; and (ii) the difference may significantly affect the quality of the human environment;[17] or

[16] In February of 2002, DOE issued 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, February 2002) (2002 FEIS). On April 8, 2004, DOE announced in a Record of Decision (2004 ROD) the selection of the mostly rail alternative analyzed in the 2002 FEIS for transporting spent nuclear fuel and high-level radioactive waste nationally and within Nevada. 69 Fed. Reg. 18,557. DOE also announced in the 2004 ROD that it had selected the Caliente rail corridor in which to examine possible alignments for construction of a rail line in Nevada. In July 2008, DOE issued the *Final Supplemental 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-S1) (Repository SEIS), the *Final Supplemental 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 – Nevada Rail Transportation Corridor* (DOE/EIS-0250F-S2) (Nevada Rail Corridor SEIS), and the *Final Environmental Impact Statement for a Rail Alignment for the Construction and Operation of a Railroad in Nevada to a Geologic Repository at Yucca Mountain, Nye County, Nevada* (DOE/EIS-0369) (Rail Alignment EIS). On October 10, 2008, DOE issued a Record of Decision (2008 ROD) announcing its decision to construct and operate a railroad along a rail alignment within the Caliente corridor. 73 Fed. Reg. 60,247.

[17] Because the action proposed to be taken by the NRC does not differ from the action proposed in DOE's application, this first factor has no relevance to this proceeding and will not be discussed further.

(2) Significant and substantial new information or new considerations render such [EIS] inadequate." 10 C.F.R. § 51.109(c).

2. The contention must address a "significant" environmental issue. 10 C.F.R. § 2.326(a)(2).

3. The contention must demonstrate that, if true, "a materially different result would be or would have been likely . . . ." 10 C.F.R. § 2.326(a)(3).

4. The contention must be supported by affidavits that set forth the factual and/or technical basis for the movant's claims and must be given by competent individuals with knowledge of the facts or by experts in the appropriate disciplines. 10 C.F.R. § 2.326(b).[18]

These additional admissibility standards are discussed in greater detail below.

a. The 10 C.F.R. § 51.109 Criteria

Given the *sui generis* nature of this proceeding, neither the Commission nor its boards have applied § 51.109 in the context of an adjudication. Nevertheless, existing Commission decisions and federal caselaw under NEPA provide guidance with respect to how the criteria under § 51.109 should be applied in this proceeding.

First, the Commission has made clear that its adjudicatory boards should not "automatically assume" that a proffered environmental contention—though cognizable as a "new consideration" under the D.C. Circuit's decision in *NEI*—contains "significant and substantial information" that, if true, would render the DOE EIS and its supplements "inadequate" under NEPA. Letter from Bradley W. Jones, Esq., Assistant Gen. Counsel, U.S. Nuclear Regulatory Comm'n, to Martin G. Malsch, Esq., "Request By Nevada For Reconsideration and Clarification of Notice of Denial," March 20, 2008, *available at* ADAMS Accession No. ML080810175 (Jones Letter). This approach is consistent with well-established NEPA principles, as applied by

[18] In addition, evidence in the affidavits must meet NRC admissibility standards and each criteria in 10 C.F.R. § 2.326 must be addressed separately.

the federal courts, under which reviewing courts have held that the identification of a deficiency in an EIS does not necessarily render that EIS "inadequate." For example, the D.C. Circuit so held in denying Nevada's challenge to the transportation-related portions of DOE's 2002 FEIS. *Nevada v. Dep't of Energy*, 457 F.3d 78, 93 (D.C. Cir. 2006) (rejecting alleged inadequacies in the FEIS relating to environmental impacts on cultural resources, floodplains and archaeological and historic impacts and stating "we do not think that the inadequacies to which Nevada points make the FEIS inadequate" or render DOE's selection of the Caliente Corridor "arbitrary [and] capricious"). The D.C. Circuit in this prior proceeding emphasized that courts "will not 'flyspeck' an agency's environmental analysis, looking for any deficiency no matter how minor." *Id.* (citing *Fuel Safe Wash. v. FERC*, 389 F.3d 1313, 1323 (10th Cir. 2004); *Half Moon Bay Fishermans' Mktg. Ass'n v. Carlucci*, 857 F.2d 505, 508 (9th Cir. 1988)).

The Commission, for its part, has indicated that this same standard applies in its licensing proceedings. As the Commission explained:

> NEPA's twin goals are to inform the agency and the public about the environmental effects of a project. At NRC licensing hearings, petitioners may raise contentions seeking correction of *significant inaccuracies and omissions* in the [applicant's environmental report ("ER") or agency's EIS]. Our boards do not sit to 'flyspeck" environmental documents or to add details or nuances. If the ER (or EIS) on its face "comes to grips with all important considerations" nothing more need be done.[19]

Sys. Energy Res., Inc. (Early Site Permit for Grand Gulf ESP Site), CLI-05-4, 61 NRC 10, 13 (2005) (quoting *Hydro Res., Inc*. (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC

[19] *See also Duke Energy Corp.* (McGuire Nuclear Stations Units 1 and 2; Catawba Nuclear Station Units 1 and 2), CLI-03-17, 58 NRC at 419 (2003) ("NRC adjudicatory hearings are not EIS editing sessions. Our busy boards do not sit to parse and fine-tune EISs"). The Commission's admonition against the "flyspecking" and "fine-tuning" of EISs is particularly apt here, given that DOE has "primary responsibility" for consideration of environmental matters under the NWPA. Final Rule, NEPA Review Procedures for Geologic Repositories for High-Level Waste, 54 Fed. Reg. 27,864, 27,865 (July 3, 1989) (codified at 10 C.F.R. § 51.109). In contrast, under the NWPA, the NRC's NEPA-related responsibility in this proceeding is limited to determining whether adoption of DOE's EIS, as supplemented, is "practicable." *Id.*

31, 71 (2001)) (emphasis added). A petitioner's claim must "suggest *significant environmental oversights* that warrant further inquiry at an evidentiary hearing." *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-29, 62 NRC 801, 811 (2005) (emphasis added). Thus, as the D.C. Circuit recognized in *Nuclear Energy Inst., Inc. v. Envtl. Protection Agency*, there must be significant "substantive defects" in the FEIS. 373 F.3d 1251, 1314 (D.C. Cir. 2004) (*NEI*).

Under NEPA, an EIS is not inadequate merely because a reviewing court or other adjudicatory tribunal might have reached a different conclusion. As the U.S. Supreme Court has explained, "[n]either the statute nor its legislative history contemplates that a court should substitute its judgment for that of the agency as to the environmental consequences of its actions." *Kleppe v. Sierra Club,* 427 U.S. 390, 410 n.21 (1976). The NRC has indicated that it would adhere to this same tenet in deciding whether to adopt DOE's EIS. Specifically, in promulgating 10 C.F.R. § 51.109, the NRC stated that "the adoption of the [DOE] statement does not necessarily mean that NRC would independently have arrived at the same conclusions on matters of fact or policy." Proposed Rule, NEPA Review Procedures for Geologic Repositories for High-Level Waste, 53 Fed. Reg. 16,131, 16,142 (May 5, 1988). Thus, in accordance with 10 C.F.R. § 51.109(d), insofar as the presiding officer determines that NRC adoption of DOE's EIS is "practicable" under § 51.109(d), "such adoption shall be deemed to satisfy all responsibilities of the Commission under NEPA and no further consideration under NEPA or this subpart shall be required."

In this proceeding, DOE submits that boards should apply § 51.109 consistent with the above referenced well established NEPA caselaw and decisions of the Commission.

b. The 10 C.F.R. § 2.326 Criteria and Procedures

Section 51.109(a)(2) directs the presiding officer, "to the extent possible," to use the "criteria and procedures that are followed in ruling on motions to reopen under § 2.326." In its Hearing Notice, the Commission reiterated that a presiding officer should, to the extent possible, apply the reopening procedures and standards set forth in § 2.326. *See* Hearing Notice, 73 Fed. Reg. at 63,031.

By explicitly directing presiding officers to use the criteria and procedures contained in § 2.326, the Commission reaffirmed its longstanding intent to avoid, in accordance with the NWPA, "the wide-ranging independent examination of environmental concerns that is customary in NRC licensing proceedings." NEPA Review Procedures for Geologic Repositories for High-Level Waste, 53 Fed. Reg. at 16,136; *see also* NEPA Review Procedures for Geologic Repositories for High-Level Waste, 54 Fed. Reg. at 27,865 ("[W]e believe it to be a fair reading of Congressional intent that NRC can adequately exercise its NEPA responsibility with respect to a repository by relying upon DOE's environmental impact statement"). Specifically, the Commission has noted that the test for reopening a closed record—the same test to be applied by the Board in ruling on the admissibility of environmental contentions in this proceeding—is a "stiff test" that imposes a "strict" burden. *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-06-3, 63 NRC 19, 22, 25 (2006); *see also Fla. Power & Light Co.* (Turkey Point Plant, Units 3 and 4), LBP-87-21, 25 NRC 958, 963-64 (1987) (stating that "a party seeking to reopen the record has a 'heavy burden' to bear") (quoting *Ka. Gas and Elec. Co.* (Wolf Creek Station, Unit No. 1), ALAB-462, 7 NRC 320, 338 (1978)). Parties seeking to reopen a closed record must raise a "significant" safety or environmental issue and demonstrate that "a materially different result [is] 'likely' as a result of the new evidence." *Private Fuel*

Storage, CLI-06-3, 63 NRC at 25. In applying this test, the Commission has further noted that "[n]ew information is not enough, *ipso facto*, to reopen a closed hearing record," and that "the information must be significant and plausible enough to require reasonable minds to inquire further." *Private Fuel Storage* (Independent Spent Fuel Storage Installation), CLI-05-12, 61 NRC 345, 350 (2005).

The Commission has further noted that the supporting material required by § 2.326(b) "must be set forth with a degree of particularity *in excess of* the basis and specificity requirements contained in 10 C.F.R. [§ 2.309] for admissible contentions. Such supporting information must be more than mere allegations; it must be tantamount to evidence." *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-89-1, 29 NRC 89, 93 (1989) (quoting *Pacific Gas and Elec. Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-775, 19 NRC 1361, 1366 (1984), *aff'd sub nom. San Luis Obispo Mothers for Peace v. U.S. Nuclear Regulatory Comm'n*, 751 F.2d 1287 (D.C. Cir. 1984), *aff'd on reh'g en banc*, 789 F.2d 26 (1986), *cert. denied*, 479 U.S. 923 (1986)). An intervenor's mere "belief" is insufficient to satisfy § 2.326(b). *Fla. Power & Light Co.*, LBP-87-21, 25 NRC at 963.

In short, "the Commission expects its adjudicatory boards to enforce the [§ 2.326] requirements rigorously—*i.e.*, to reject out-of-hand reopening motions that do not meet those requirements within their four corners." *Pub. Serv. Co. of N.H.* (Seabrook Station, Units 1 and 2), ALAB-915, 29 NRC 427, 432 (1989) (citing *La. Power & Light Co.* (Waterford Steam Electric, Unit 3), CLI-86-1, 23 NRC 1 (1986); *Cleveland Elec. Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), CLI-86-7, 23 NRC 233 (1986), *aff'd sub nom. Ohio v. U.S. Nuclear Regulatory Comm'n*, 814 F.2d 258 (6th Cir. 1987)).

In the *Private Fuel Storage* decision (CLI-06-3) discussed above, the Commission applied the § 2.326 standard in ruling on a motion to reopen the record (after the Commission had rendered its final adjudicatory decision and authorized license issuance) to litigate a proposed environmental contention. The Commission's ruling is illustrative and underscores the heavy burden imposed by § 2.326.[20] For example, the Commission emphasized "a high threshold" for reopening a record as established by "longstanding NRC regulations and precedent." *Private Fuel Storage*, CLI-06-3, 63 NRC at 22; *see also id.* at 25 (stating that the NRC does "not lightly reopen [its] adjudicatory proceedings"). The Commission found that the intervenor had failed to meet substantive and evidentiary requirements of § 2.326, stating that "we cannot say on the current record that a materially different result in our licensing proceeding is so 'likely' that we must reopen the adjudicatory proceeding for additional hearings and findings." *Id.* at 26-27. Consequently, the Commission rejected the intervenor's request that the entire project be placed on hold.

In the context of the Yucca Mountain proceeding, the requirement that the petitioner must demonstrate that a materially different outcome would likely result means that the contention, if true, would severely impact the EIS such that it could not be adopted unless formally supplemented by NRC or DOE.

In summary, given the considerably heightened admissibility standards applicable here, DOE submits that in this proceeding a presiding officer should admit *environmental* contentions in this proceeding only under very limited circumstances. Under 10 C.F.R. §§ 51.109(c) and

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[20] In recently denying a motion to reopen the record, the Commission emphasized the "deliberately heavy" burden associated with § 2.326. *See AmerGen Energy Co., LLC* (License Renewal for Oyster Creek Nuclear Generating Station), CLI-08-28, 68 NRC __ (slip op. at 13-14) (Nov. 6, 2008) ("The burden of satisfying the reopening requirements is a heavy one, and proponents of a reopening motion bear the burden of meeting all of [these] requirements.") (internal quotation marks and citations omitted).

2.326, an environmental contention must present *evidence* concerning a "significant" environmental issue. Under those same provisions, that information must be so "substantial" as to demonstrate that the alleged inadequacy in the DOE EISs is "likely" to dictate a "materially different result." As the Commission explained in *Private Fuel Storage*, this means that any "new information" proffered by a petitioner must present a "*seriously* different picture of the environmental landscape," such that it would "be likely to change the outcome of the proceeding or affect the licensing decision in a material way." CLI-06-3, 63 NRC at 19, 28.

5. Contention Subjects That Are Outside the Scope of, or Immaterial to the NRC's Required Findings in, the Yucca Mountain Licensing Proceeding

As discussed above, a petitioner seeking admission of a proposed contention must, among meeting other requirements, demonstrate that the issue raised in the contention is within the scope of the proceeding and material to the findings that the NRC must make to support issuance of a repository construction authorization to DOE. A non-exclusive discussion of certain categories of contentions that clearly fall outside the proper scope of this proceeding and/or lack a material nexus to the Staff's required findings is provided below.

a. Contentions Relating to Transportation of Spent Nuclear Fuel (SNF) and High Level Radioactive Waste (HLW) Are Beyond The Scope of This Proceeding

(1) The NRC has no regulatory authority over transportation of SNF or HLW.

Under the AEA and the Energy Reorganization Act (ERA), NRC does not have regulatory authority over DOE's facilities and activities except as specifically provided by statute. 42 U.S.C. § 5851. Section 202 of the ERA provides the NRC with licensing and related regulatory authority over certain specific facilities of the DOE, including facilities for the disposal of SNF and HLW. 42 U.S.C. § 5842. However, neither section 202 of the ERA, nor the

NWPA, nor any other statute provides NRC with authority over the transportation by DOE of SNF and HLW.

DOE's transportation of SNF or HLW therefore is not subject to NRC regulation and the NRC has recognized the limited scope of its regulatory authority. For example, in its discussion of proposed amendments to its regulations regarding GROA Security and Material Control and Accounting Requirements, the NRC explained that the rulemaking did not cover transportation of HLW to the GROA because "the NRC's regulatory authority is limited to the operations at a GROA." GROA Security and Material Control and Accounting Requirements, 72 Fed. Reg. 72,522, 72,527 (Dec. 20, 2007). DOE is required by the NWPA to use NRC certified casks for shipment of SNF or HLW to the repository.[21] 42 U.S.C. § 10175. That certification, however, is separate and distinct from the repository licensing action being undertaken by the NRC under Part 63. The requirements for such a certification are set forth not in Part 63, but instead in 10 C.F.R. Part 71.

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[21] Similarly, in a May 10, 2002, response to a March 22, 2002, letter from Senator Richard Durbin, asking what role the NRC would play regarding transportation of spent fuel to Yucca Mountain, NRC Chairman Richard Meserve stated:

> If DOE takes custody of the spent fuel at the licensee's site, *DOE regulations would control the actual spent fuel shipment*. Under such circumstances, the NRC's primary role in transportation of spent fuel to a repository would be certification of the packages used for transport.
>
> * * *
>
> As stated previously, if DOE takes custody to the spent fuel at the reactor site the only involvement NRC will have in the transport will be the certification of the transport cask.

Letter from Richard Meserve, former Chairman of the NRC, to Sen. Richard Durbin at 2 (May 10, 2002) *available at* ADAMS Accession No. ML21060662 (emphasis added). DOE's plan is to take custody of the spent fuel at the reactor site.

(2) Contentions challenging DOE's Records of Decision concerning transportation of materials to Yucca Mountain are outside the scope of this proceeding and are within the original and exclusive jurisdiction of the Courts of Appeals.

In addition to the NRC's lack of regulatory authority over transportation of SNF and HLW, under the NWPA, any challenges to DOE transportation decisions, to the extent reviewable, are within the original and exclusive jurisdiction of the federal courts of appeals. In particular, section 119 of the NWPA expressly provides that the United States Courts of Appeals shall have original and exclusive jurisdiction over any civil action for review of any final decision or action of the Secretary of Energy as well as of any civil action alleging the failure of the Secretary "to make any decision, or take any action, required under this subtitle." 42 U.S.C. § 10139(a)(1)(C). Any such action must be initiated through a petition for review filed with a court of appeals within 180 days of the decision or action or failure to act involved. 42 U.S.C. § 10139(c).

Relevant to this proceeding, on October 10, 2008, DOE issued a Record of Decision (ROD) documenting DOE's decision to construct a railroad in the State of Nevada in an alignment within the Caliente corridor along various segments together with various support facilities as detailed in the ROD. As discussed below, any challenge to the ROD accordingly must be initiated through a petition for review to a court of appeals – not through the NRC contention process.

In *Nevada v. DOE* and *NEI v. EPA*, the D.C. Circuit anticipated that DOE would in the future be issuing transportation related decisions. For example, in *NEI*, 373 F.3d at 1312, the Court stated:

> Section 114(f)(4) of the NWPA provides, in relevant part, that the DOE's FEIS "shall, to the extent practicable, be adopted by [NRC] in connection with the issuance by [NRC] of a construction

> authorization and license for such repository." 42 U.S.C. § 10134(f)(4). To the extent NRC adopts the FEIS, NRC's responsibilities under the National Environmental Policy Act shall be deemed satisfied and "no further consideration shall be required." *Id*. *In addition, DOE is expected to use the FEIS to support one or more future decisions related to Yucca Mountain, including the selection of an alternative for transporting waste to the site*.

Emphasis added.

On April 8, 2004, DOE issued a ROD addressing transportation matters. Subsequently, following issuance of DOE's April 8, 2004 ROD, Nevada filed a petition for review with the D.C. Circuit pursuant to section 119 of the NWPA seeking review of the ROD and the transportation-related portions of the 2002 FEIS on which it was based. The ROD announced DOE's selection, both nationally and in Nevada, of the mostly rail scenario analyzed in the 2002 FEIS as the primary means of transporting SNF and HLW to the repository. The ROD also selected the Caliente rail corridor from several corridors considered in the 2002 FEIS as the corridor in which to study possible alignments for a rail line connecting the Yucca Mountain site to an existing rail line in Nevada. *See* ROD on Mode of Transportation and Nevada Fuel and High-Level Radiation Waste at Yucca Mountain, Nye County, NV, 69 Fed. Reg. 18,557 (Apr. 8, 2004). Nevada claimed that "in selecting a national transportation mode and Nevada rail corridor for the movement of waste to Yucca, DOE violated NEPA and NEPA implementing regulations" and acted in an arbitrary and capricious manner and contrary to law. Petitioner's Final Opening Brief at 2-4, *Nevada v. DOE*, 457 F.3d 78 (D.C. Cir. 2006) (No. 04-1309).

The D.C. Circuit took jurisdiction of the State's petition for review and rejected the State's claims on their merits (with the exception of certain contingency plans which the court

held were not ripe for review).[22] The Court held, among other things, that DOE had taken the "requisite hard look" at the potential rail corridor environmental impacts and that "DOE's analysis of the environmental impacts of rail corridor selection in its FEIS is adequate." *Nevada*, 457 F.3d at 89-93. The D.C. Circuit also held that "[w]e summarily deny any claims not specifically addressed in this opinion," which included all the issues raised in the State's briefs. *Id.* at 94 n.10.

This decision is res judicata as to Nevada and the preclusive effect of this decision applies not only to those NEPA claims decided by the court of appeals but also to those which could have been raised. *W. Radio Servs. Co. v. Glickman,* 123 F. 3d 1189 (9th Cir. 1997) (concluding that "any cognizable claims should have been raised in *Western Radio I*, and are thus barred by res judicata"). Of course, any person who failed to file a challenge within 180 days would be time barred pursuant to NWPA section 119(c) among other defenses. Further, as the Commission has recognized, a person does not have the option of postponing judicial review under section 119 of the NWPA, by instead trying to raise transportation-related environmental issues before the NRC. In particular, the NRC rejected this approach when it was raised in comments to the proposed 10 C.F.R. § 51.109 in 1989. In their comments to the Commission, certain environmental organizations stated that "affected parties may decide for reasons of litigative strategy" to raise environmental issues "in NRC licensing proceedings rather than by going to court." Final Rule, NEPA Review Procedures for Geologic Repositories for High-Level Radioactive Waste, 54 Fed. Reg. at 27,866. The Commission responded by stating that such a "unilateral decision" would "circumvent the clear policy of the NWPA…." *Id*.

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[22] The Court of Appeals noted that "[a]lthough much of the FEIS concentrated on the Yucca site, it also analyzed alternatives for, and the 'potential environmental consequences' of, transporting nuclear waste from the many production sources throughout the country to the repository at Yucca." *Nevada*, 457 F.3d at 82.

The same path of review followed in 2004 is appropriate with respect to challenges to DOE's transportation decisions set forth in the Department's October 10, 2008 ROD. The fact that the NRC construction authorization proceeding, which is limited to activities at the GROA, now has commenced does not alter the requirement under section 119 of the NWPA that final DOE decisions must be appealed to the courts of appeals whose jurisdiction is "original and exclusive" over such matters. 42 U.S.C. § 10139(a)(1).

In summary, challenges to the April 2004 ROD, and the transportation related portions of the 2002 FEIS on which it was based, are no longer subject to review in any forum, both as a result of the expiration of the 180 day period to challenge that ROD set forth in section 119 of the NWPA and as a result of the D.C. Circuit's 2006 decision. Any challenges to DOE's transportation decisions set forth in the October 10, 2008 ROD also are not appropriately a part of this proceeding; such challenges may be pursued only through a petition for review to a federal court of appeals.

(3) Consideration by NRC of transportation impacts under NEPA is limited.

Under Section 114 of the NWPA, the Commission must adopt DOE's FEIS to the extent practicable. In considering the environmental impacts of transportation decisions made by DOE, the role of the NRC here is similar to that adopted by the Commission in *Pub. Serv. Co. of N.H.*, (Seabrook Station, Units 1 and 2), CLI-78-1, 7 NRC 1, 25 (1978), and affirmed by the court of appeals in *New England Coalition on Nuclear Pollution v. U.S. Nuclear Regulatory Comm'n*, 582 F.2d 87 (1st Cir. 1978). In that case, the petitioners argued that NEPA did not permit the NRC to adopt EPA findings made under the Federal Water Pollution Control Act (FWPCA) without an independent inquiry of the effects a proposed nuclear power plant would have on the aquatic environment. As the Commission noted, Congress had amended the FWPCA to avoid

duplicative reviews, and left to the EPA the decision as to the water pollution control criteria to which a nuclear power plant's cooling system would be held. The NRC was not free to ignore considerations of aquatic impact; "it would have to consider them, but only as part of its overall 'balancing judgment' on whether it is in the public interest to grant the requested permit." *Pub. Serv. Co. of N.H.*, CLI-78-1, 7 NRC at 25. The NRC, further, could not "go behind" the EPA's determination. *Id*. at 26.

Similarly, in this proceeding, the NRC should decide whether to issue construction authorization for the repository given the transportation impacts as determined by DOE (and potentially as reviewed by the court of appeals). Accordingly, contentions challenging the accuracy or adequacy of DOE's NEPA analysis of the impacts of transporting SNF or HLW are not proper subjects for contentions in this proceeding.

B. DOE's Answer Regarding the Admissibility of Petitioner's Proposed Contentions

1. CLK-SAFETY-001—The DOE's Inadequate Treatment of Uncertainty

Treatment of uncertainty in the Safety Analysis Report (SAR) is neither complete, integrated, nor unbiased. Three important sources of uncertainty that impact the SAR results—data assumptions, model assumptions, and methods assumptions—appear in the SAR primarily as assumptions, screening "analyses," and claims of conservatism, presented without associated technical bases. As a result, risk could be much higher than calculated. The DOE's evaluation of risk is therefore unreliable and fails to comply with the safety requirements of 10 CFR Part 63.

RESPONSE

This contention alleges that DOE's "[t]reatment of uncertainty in the … SAR is neither complete, integrated, nor unbiased." Clark County concludes that, as a result, "risk could be much higher than calculated," and "DOE's evaluation of risk is … unreliable and fails to comply with the safety requirements of 10 C.F.R. Part 63."

a. Statement of Issue of Law or Fact to be Controverted

Clark County alleges that "[t]here are many potential sources for uncertainty in the results of the SAR." Petition at 3. In its "summary of the basis for the contention" in paragraph 2, Clark County generically discusses Chapter 1 of the SAR regarding preclosure as well as the TSPA, which, as it points out, "is the basis of the post-closure safety analysis in Chapter 2 of the SAR." Rather than discussing *specific* sections of SAR Chapters 1 and 2, Clark County includes a table at the end of its contention. It asserts that this table provides "*examples* of improper treatment of uncertainty," Petition at 3 (emphasis added), although some of these "examples" fail to even reference the Application. *See* Petition at 16 ("infiltration" and "canister damage").

It is impossible to discern what precisely the focus of this contention is and which section of the LA it is that Clark County seeks to challenge. 10 CFR § 2.309(f)(1)(i) requires "a specific statement of the issue of law or fact to be raised or controverted." The June 20, 2008 Case Management Order further notes that "this [§ 2.309(f)(1)(i)] statement shall set forth petitioner's contention in precisely the form it wishes the contention to be considered." *U.S. Dep't of Energy*, LBP-08-10, 67 NRC __ (slip op. at 6). Clark County's broad reference to SAR sections 1 and 2, and its use of "examples" that fail to indicate specific SAR sections that it wishes to challenge, make it clear that it has not met the pleading specificity requirements of 10 CFR § 2.309(f)(1)(i) and its related obligations of the June 20, 2008 Case Management Order. In a footnote, Clark County mentions that it "considered" entering each example as a separate contention, but it chose not to. Its justification does not suffice to cure this contention. Accordingly, it should be dismissed.

b. Brief Explanation of Basis

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

c. Whether the Issue is Within the Scope of the Proceeding

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

d. Whether the Issue is Material to the Findings that the NRC Must Make

Clark County generically claims noncompliance with a litany of regulatory provisions in 10 C.F.R. Part 63, including §§ 63.10, 63.31, 63.111, 63.112, 63.113, and 63.114. Petition at 6-7. The mere recitation of regulatory provisions does not satisfy its burden of demonstrating the issue raised in this contention is material to the findings that the NRC must make in this

proceeding. 10 C.F.R. § 2.309(f)(1)(iv) requires a showing by a petitioner that "the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding . . .," not merely a citation of the relevant regulations. In this regard, a contention is material only if its resolution would make a difference in the outcome of the proceeding. *See Duke Energy Corp*. (Oconee Nuclear Station, Units 1, 2 and 3), CLI-99-11, 49 NRC 328, 333-34 (1999).

While the Advisory PAPO Board directed the potential parties to provide a "citation to a statute or regulation that, explicitly or implicitly, has not been satisfied" because specific citations are "preferable" to general citations (June 20, 2008 CMO, at 7), this direction cannot be read to dispense with the well-recognized requirement that resolution of the contention would make a difference in the outcome of the proceeding, particularly since the CMO focused exclusively on "format" and "procedural matters." CMO at 3.

As discussed in Section IV.A. 3 above, the NRC must determine the validity of DOE's conclusions concerning the ability of the repository design to limit exposure to radioactivity, both during the construction and operation phase of the repository (*i.e.*, preclosure phase) and during the phase after the repository has been filled, closed, and sealed (*i.e.*, postclosure phase). In making these determinations, the NRC must evaluate DOE's compliance with the applicable provisions of Part 63, including, among other things, whether DOE has described the proposed geologic repository as specified in § 63.21, and whether the site and design comply with the Part 63 performance objectives and requirements. Proposed safety contentions that fail to raise issues that are material to these findings or DOE's compliance with the underlying Part 63 technical requirements are inadmissible.

In particular, with regard to preclosure performance, Clark County must demonstrate that the resolution of the issue would prevent the NRC from finding that there is a "reasonable assurance" that the types and amounts of radioactive materials described in the application can be received and possessed in a geologic repository operations area of the design proposed without unreasonable risk to the health and safety of the public. *See* 10 C.F.R. § 63.31(a)(1). Proposed safety contentions that fail to raise issues that are material to these findings are inadmissible. Thus, contentions that either independently or cumulatively fail to demonstrate an increase in the dose *above the regulatory limit* are immaterial and inadmissible because they would not "make a difference in the outcome of the licensing proceeding." *Duke Energy Corp.*, CLI-99-11, 49 NRC at 333-34.

With regard to postclosure performance, Clark County must demonstrate that the resolution of the issue would prevent the NRC from finding that there is a "reasonable expectation" that the radioactive materials can be disposed of without unreasonable risk to the health and safety of the public. *See* 10 C.F.R. § 63.31(a)(2). However, as discussed in Section IV.A.3, *supra*, and in 10 C.F.R. § 63.101 (a)(2), "because of the uncertainties inherent in the understanding of the evolution of the geologic setting, biosphere, and engineered barrier system," DOE is not required to provide complete assurance that each postclosure performance objective specified at § 63.113 will be met. Therefore, Clark must demonstrate that there is no reasonable expectation that the overall objective could be met. This contention makes no such showing.

The method the DOE used in its treatment of uncertainties is consistent with what the NRC contemplates in 10 C.F.R. § 63.304, which recognizes that determining that there is a "reasonable expectation": (1) requires less than absolute proof, (2) accounts for the inherently

greater uncertainties in making long-term projections of disposal system performance, (3) does not exclude important parameters from assessments and analyses due to the difficulty in quantifying with a high degree of confidence, and (4) focuses on performance assessments and analyses on the full range of defensible and reasonable parameter distributions rather than only upon extreme physical situations and parameter values.

In making its "reasonable expectation" determination, the NRC must evaluate DOE's compliance with the applicable provisions of Part 63, including, among other things, whether DOE has described the proposed geologic repository as specified in § 63.21, and whether the site and design comply with the Part 63 performance objectives and requirements. Proposed safety contentions that fail to raise issues that are material to these findings are inadmissible. For example, Part 63 permits DOE to use probabilistic analyses to calculate potential postclosure radiation doses, 10 C.F.R. § 63.102(j), and to report those doses as *mean* doses. *See* 10 C.F.R. § 63.303. Therefore, contentions that either independently or cumulatively, fail to demonstrate an increase in the mean dose *above regulatory limits* are immaterial and inadmissible because they would not "make a difference in the outcome of the licensing proceeding." *Duke Energy Corp*. (Oconee Nuclear Station, Units 1, 2 and 3), CLI-99-11, 49 NRC 328, 333-34 (1999).

While Clark County claims that "risk could be much higher than calculated," it has not alleged an increase in the dose at all, let alone an increase *above regulatory limits*. Petition at 3. Accordingly, this contention fails to raise an issue that is material to the findings that the NRC must make in this proceeding, contrary to 10 C.F.R. § 2.309(f)(1)(iv), and, thus, must be dismissed.

e. Statement of Alleged Facts or Expert Opinion Supporting Petitioner's Position and Supporting References

For the reasons set forth in c and f, this contention fails to sufficiently set forth alleged facts or expert opinion supporting the contention; and therefore, must be dismissed.

f. Existence of a Genuine Dispute on a Material Issue of Law or Fact, With Supporting References to the License Application

The contention states that "[t]here are many potential sources for uncertainty in the results of the SAR." Petition at 3. According to Clark County "both kinds of uncertainty [*i.e.*, aleatory effects (randomness) and epistemic (the result of lack of knowledge)] must be treated properly if the results of the analysis are to be meaningful." *Id*. For the several reasons set forth below, this contention does not establish a genuine dispute of material fact.

First, this contention is premised on a fundamental misunderstanding of "uncertainty" in the context 10 C.F.R. Part 63. Generically citing to "10 CFR Part 63 paragraphs 10, 21, 104, 114 and 311," Clark County asserts that "uncertainty must be thoroughly addressed *qualitatively and quantitatively* if the results are to be adequate to support the licensing of the facility." Petition at 4 (emphasis added). To the contrary, as explained in Section IV.A.3 above, the Commission, in the Statements of Consideration accompanying Part 63, expressly rejected requests made by several commenters to define an acceptable level of uncertainty in Part 63, finding it "neither practical nor appropriate." Final Rule, Disposal of High-Level Radioactive Wastes in a Proposed Geologic Repository at Yucca Mountain, NV, 66 Fed. Reg. 55,732, 55,747-48 (Nov. 2, 2001). The Commission focused, instead, upon the capability of DOE to account for such residual uncertainties in its performance assessment. *See id*. (Part 63 also contains other requirements, *e.g.*, multiple barriers, performance confirmation program, to compensate for these uncertainties.).

Notably, with regard to the performance assessment, the Commission indicated that "s]ome of these uncertainties will be directly included in the DOE's estimate of performance." *Id*. at 55,747. According to the Commission, however, "other uncertainties are not necessarily quantified but are considered during the development of the conceptual models for the performance assessment (e.g., consideration of alternative models, inclusion and exclusion of FEPs)." *Id*. Thus, contrary to Clark County's assertions, DOE is not required to address uncertainties both "qualitatively and quantitatively," but must "account for uncertainties and variabilities in parameter values and provide for the technical basis for the parameter ranges, probability distributions, or bounding values used in the performance assessment." 10 C.F.R. § 63.114(b). The License Application, and its supporting documentation, account for uncertainties and variabilities in parameter values and provide for the technical basis for the parameter ranges, probability distributions, or bounding values, in accordance with 10 C.F.R. Part 63. Thus, Clark County fails to demonstrate a genuine dispute with DOE.

Second, although Clark County provides a 10-page table detailing "problems found on the SAR," (Petition at 12-21), it fails to point out the ramifications of these alleged errors and ignores the TSPA's intrinsic conservatisms and margins of safety. LBP-03-17, 60 NRC at 236. As discussed earlier, contentions that allege errors, omissions, uncertainties or alternative approaches—without specifying the ramifications or results of such alleged deficiencies—fail to raise a genuine dispute of material fact or law and are, therefore, inadmissible. Clark County's contention suffers from this flaw. It provides no quantitative or even qualitative information regarding whether and the extent to which DOE's inadequate treatment of uncertainty affects dose to the RMEI, and thus, does not establish a genuine dispute.

Third, this contention is speculative and based on conjecture. By way of example, it asserts the following: (1) [t]here are many *potential* sources for uncertainty in the results of the SAR" (Petition at 3) (emphasis added); (2) "[t]here are many ways in which the assumptions used in developing the analysis *could* be upset" (Petition at 5 (emphasis added); an (3) " *[it] would seem* that the introduction of stresses from accidental collisions would add to the uncertainty and have a *possible* effect on localized corrosion" (Petition at 16) (emphasis added). The Board should not accept such hypothetical and unsupported assertions. Even if these claims were construed to have been submitted by an expert, it would not be sufficient to support a contention. With respect to factual information or expert opinion proffered in support of a contention, "the Board is not to accept uncritically the assertion that a document or other factual information or an expert opinion supplies the basis for a contention." *Private Fuel Storage*, LBP-98-7, 47 NRC at 181, *aff'd on other grounds*, CLI-98-13, 48 NRC 26.

In support of its contention, Clark County cites to documents from the Nuclear Waste Technical Review Board (NWTRB), the Independent Performance Assessment Review (IPAR) and the NRC Staff, and concludes that they "apparently agree that the issue identified in the contention is relevant, legitimate, and persuasive." Petition at 9. The documents cited, however, hardly amount to sound support for this sweeping assertion. For example, with regard to the NWTRB, Clark County cites to a letter regarding integration of waste acceptance and transportation. Petition at 9. While the NWTRB indicates that DOE analyzed a single scenario based on "optimistic assumptions," nowhere in the document does the NWTRB challenge DOE's treatment of uncertainties. *See* Letter from B. J. Garrick, U.S. Nuclear Technical Waste Technical Review Board, to E.F. Sproat III, DOE, Nov. 5, 2008 (LSN# NEN000000780).

With regard to IPAR, Clark County contends that identification of the "unsupported 'conservative' treatment of SCC allowed an inappropriate screening of alternative corrosion models." Petition at 9. Clark County provides no citation for this assertion. It does cite to an IPAR report in support of its argument that "treatment of uncertainty must be held to a high standard" that, according to Clark County, DOE fails to "adhere to." Contrary to these assertions, however, IPAR does not establish standards or regulations with which DOE must comply. *See generally* Nuclear Waste Policy Act of 1982, 42 U.S.C. §§ 10101, 10140 (specifically authorizing the NRC to promulgate technical requirements for applications for high-level waste repositories).

With regard to the NRC Staff, Clark County cites to Requests for Additional Information (RAIs) regarding "issues where DOE has not provided a technical basis for assumptions in the analyses, alteration of methods for calculations, claims of conservatism, and apparently the use of inappropriate data." Petition at 9. It asserts that the "NRC Staff should not be forced to identify … such a pervasive list of items lacking adequate analysis and documentation …." Petition at 10. The Commission, however, has made clear that RAIs "are a standard and ongoing part of NRC licensing reviews." *Duke Energy Corp*. (Oconee Nuclear Station, Units 1, 2 and 3), CLI-99-11, 49 NRC 328, 336 (quoting *Baltimore Gas & Elec. Co*. (Calvert Cliffs Nuclear Power Plant,Units 1 & 2), CLI-98-25, 48 NRC 325, 349 (1998), and *Concerned Citizens of R.I. v. NRC*, 430 F. Supp. 627, 634 (D. R.I. 1977)). Thus, Commission precedent prevents Clark County from resting solely on the NRC Staff's RAI to show there is a genuine dispute. *Id*. at 336-37.

Finally, throughout its contention, in an effort to justify its use of "examples" of DOE's alleged errors, Clark County complains about "the difficulty in unraveling the analysis through the Application," the "limited resources and time to submit the contention," and the "thousands

of pages of supporting documents to the Application." Petition at 9-11. As discussed in Section IV.A.3 above, in formulating its contentions, Clark County's initial burden to explain the implications of alleged uncertainties and show why, if true, they exceed the range of acceptable (and unavoidable) uncertainties is clearly reflected in the regulations. Any contention attempting to shift that burden to the applicant is an improper challenge to 10 C.F.R. § 2.309. *See Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc*. (Pilgrim Power Station), LBP-06-23, 64 NRC 257, 358-59 (2006).

In summary, this contention does not establish a genuine issue of material fact. Therefore, the contention does not satisfy 10 C.F.R. § 2.309(f)(vi) and should be rejected.

2. CLK-SAFETY-002—The DOE's Failure to Analyze Missile Testing

The SAR improperly failed to analyze the risks to the proposed repository at Yucca Mountain associated with ground-to-ground missile testing at the Nevada Test Site ("the NTS").

RESPONSE

This contention alleges that the SAR fails to analyze the risks to the proposed repository posed by ground-to-ground missile testing at the Nevada Test Site ("the NTS"). Citing SAR Section 1.6.3.4.1, Clark County asserts that the "sole basis" for DOE's elimination of analysis of ground-to-ground missile testing at the NTS is a single e-mail which states only that "no future launches are anticipated in the near future." Petition at 27. Clark County claims that "future ground-to-ground missile testing at the NTS is reasonable and likely within the entire pre-closure period." *Id.* at 25.

For the reasons discussed below, contrary to 10 C.F.R. § 2.309(f)(1)(v) that requires adequate factual support or expert opinion in order for a contention to be admitted, this contention fails to explain how the alleged facts and documents upon which Clark County relies support the contention, and provides no other supporting information, including expert opinion. In addition, the contention also must be rejected because it fails to establish a genuine dispute with DOE on a material issue of law or fact, contrary to 10 C.F.R. § 2.309(f)(1)(vi). As here, when a contention does not directly controvert a position taken by the applicant in the license application, it is subject to dismissal.

a. Statement of Issue of Law or Fact to be Controverted

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

b. Brief Explanation of Basis

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

c. Whether the Issue is Within the Scope of the Proceeding

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

d. Whether the Issue is Material to the Findings that the NRC Must Make

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

e. Statement of Alleged Facts or Expert Opinion Supporting Petitioner's Position and Supporting References

The legal standards under 10 C.F.R. § 2.309(f)(1)(v) that require adequate factual support or expert opinion in order for a contention to be admitted are discussed in Section IV.A.3 above. This contention fails to meet those standards because it fails to explain how the alleged facts and documents upon which Clark County relies support the contention, and provides no other supporting information, including expert opinion. The reasons supporting this conclusion are set forth below.

As a threshold matter, contrary to Clark County's suggestion, ground-to-ground missile testing is not explicitly discussed in SAR Subsection 1.6.3.4.1. Rather, it is discussed in SAR Section 1.1.1.3 ("Man-Made Features"), which provides information concerning the locations of prominent man-made features and associated activities that "may be relevant to the PCSA and to the design of the GROA." SAR at 1.1-4. Such features include federal facilities, military facilities, civilian airports, military airports, roads, railroads, and potentially hazardous commercial operations and manufacturing centers. *Id.*

In particular, SAR Subsection 1.1.1.3.1.7 states as follows with respect to missile launches:

> The last Army Tactical Missile System launch at the Nevada Test Site was conducted in Area 26 (Figure 1.1-6) in June 2000. No launches are expected in the near future, and, because this launch was the last for the program, there are no forecasts for future ground-to-ground missile testing (BSC 2007a, Section 6.5).

Id. at 1.1-13. Section 6.5 (p. 21) of BSC 2007a, "Identification of Aircraft Hazards," further states that "ground-to-ground missile testing is not evaluated further" as a potential aircraft hazard given the cessation of launches associated with the Army Tactical Missile System, or ATACMS. The ATACMS provides artillery units with a long-range capability for destroying high-priority targets with ground-to-ground (*a.k.a.*, surface-to-surface) missiles; *i.e.*, guided projectiles that may be launched from a vehicle-mounted or other fixed installation.

Clark County has presented no information which demonstrates, or even remotely suggests, that DOE "improperly" excluded ground-to-ground missile testing from further evaluation in its aircraft hazard analysis. Clark County proffers two documents (Attachments 5 and 6 to its Petition) as ostensible factual support for its contention. As shown below, however, neither of these documents is relevant to ground-to-ground missile testing on the Nevada Test Site, the subject of Clark County's contention.

The first document (Attachment 5) is a "Fact Sheet" entitled "Stockpile Stewardship Program," published in September 2004 by the National Nuclear Security Administration (NNSA). NNSA is an agency within DOE that is responsible for the management and security of the nation's nuclear weapons, nuclear nonproliferation, and naval reactor programs. The cited NNSA Fact Sheet, which is available on the internet, simply provides an overview of the NNSA's Stockpile Stewardship Program. The principal purpose of that program is to "certify

the safety and reliability of the nation's nuclear stockpile" through the development of "improved computer models and advanced experimental capabilities that provide accurate predictive capability of weapon performance in the absence of nuclear testing." Clark County Attachment 5 at 1. NNSA implemented the program in response to a moratorium on nuclear testing instituted in 1992 by the President, who directed DOE "to maintain a test readiness program in the event that resumption of nuclear weapons testing becomes necessary." *Id.* at 1-2.

Significantly, Clark County fails to identify any nexus between the information presented in Attachment 5 and ground-to-ground missile testing at the Nevada Test Site. As indicated above, the NNSA's Stockpile Stewardship Program is a nuclear weapons "test readiness" program. As such, it is entirely unrelated to the ATACMS program mentioned in the SAR. Indeed, the referenced NNSA Fact Sheet makes no reference to the ATACMS program or ground-to-ground missile testing at the Nevada Test Site. That is because the ATACMS program and ground-to-ground missile testing at the Nevada Test Site bear no relation to maintenance of "the nation's nuclear stockpile."

Insofar as the NNSA Fact Sheet even mentions the NTS, it does so in the context of the Big Explosives Experimental Facility, or BEEF. Clark County Attachment 5 at 2. As explained in the SAR, the BEEF is a hydrodynamic testing facility located in Area 4 of the NTS, more than 20 miles from the repository. SAR at 1.1-5; Clark County Attachment 5 at 2. This facility consists of two underground bunkers, one aboveground structure containing primary diagnostic facilities (including radiography), and three blast-protective enclosures allowing for diagnostic assessment equipment. SAR at 1.1-5. Research activities conducted at the BEEF include surface and belowground detonation of conventional explosives. They do *not* include the launching of ATACMS ground-to-ground missiles. Notwithstanding Clark County's failure to

establish any discernible link to DOE's aircraft hazard analysis, the SAR explicitly states that "[t]he activities associated with conventional high-explosives testing, surface dynamic experiments, and hydrodynamic tests [at the BEEF] are not expected to affect facilities surrounding these tests." SAR at 1.1-10. Clark County has not presented any information to suggest otherwise—including any information that implicates DOE's aircraft hazard analysis.

The second document upon which Clark County relies similarly fails to provide even a scintilla of factual support for the contention. That document (Attachment 6) is a July 2008 NNSA Fact Sheet entitled "National Security and Nuclear Weapons: Maintaining Deterrence in the 21st Century." This Fact Sheet focuses on the Reliable Replacement Warhead (RRW) Program, which is largely intended to increase confidence, without underground nuclear testing, that U.S. warheads will perform as intended over the long term. Clark County claims that this document supports its contention, in view of NNSA's statement that delays in implementing the RRW program "raise the prospect of having to return to underground nuclear testing to certify existing weapons." Petition at 27. The cited NNSA document, however, makes no mention of the NTS or ground-to-ground missile testing. Indeed, as with Attachment 5, Clark County confuses two unrelated issues: (1) the highly speculative, possible future need for *underground testing of nuclear warheads* (at some unidentified site) and (2) the potential for resumed testing of ground-to-ground missiles at the NTS. Accordingly, Attachment 6 fails to provide any factual support for Clark County's contention.

In short, Clark County has furnished no competent factual support for its claim that "future ground-to-ground missile testing at the NTS is reasonable and likely within the entire pre-closure period." Petition at 23. The documents upon which Clark County relies discuss the need for long-term maintenance of the nation's existing nuclear arsenal. They have no relevance

to ground-to-ground missile testing—past or future—at the NTS. As discussed in Section V.A.3 above, a petitioner's imprecise reading of its own supporting documentation cannot provide the basis for a litigable contention. *See Ga. Inst. of Tech.*, (Georgia Tech. Research Reactor), LBP-95-6, 41 NRC 281, 300 (1995).

f. Existence of a Genuine Dispute on a Material Issue of Law or Fact, With Supporting References to the License Application

This contention also must be rejected because it fails to establish a genuine dispute with DOE on a material issue of law or fact, contrary to 10 C.F.R. § 2.309(f)(1)(vi). As here, when a contention does not directly controvert a position taken by the applicant in the license application, it is subject to dismissal. *Comanche Peak*, LBP-92-37, 36 NRC at 384. As explained above, Clark County has not controverted DOE's statement in the SAR (at 1.1-13) that "there are no forecasts for future ground-to-ground missile testing" at the Nevada Test Site.

Furthermore, Clark County has not addressed—and certainly has not controverted—those portions of the SAR which demonstrate that DOE has clear and sufficient authority to preclude any *potential* future threat to the repository from ground-to-ground missile testing on the NTS. Specifically, SAR Section 1.1.1.3.2.1 (at 1.1-13 to -14) describes the NTS Airspace, which is protected by restricted areas R-4808N and R-4808S (known jointly as R-4808). *See also* SAR Figure 1.1-7. The Yucca Mountain Repository is located in R-4808N, which is designated as nonjoint use by the Federal Aviation Administration. DOE maintains exclusive, continuous control over R-4808. Accordingly, any postulated future activity involving ground-to-ground missile testing, including any activities that might occur during the preclosure period, would need to be planned and scheduled through DOE, and evaluated with respect to other NTS activities, including repository operations at Yucca Mountain. In this regard, DOE would be able to preclude any testing that might pose an unacceptable threat to the repository. The

contention is silent with respect to these statements in the SAR, which clearly undercut Clark County's claim that DOE has relied "solely" on a single e-mail and taken "an unwarranted and unsupported leap of faith" by excluding ground-to-ground missile launches from further evaluation in the SAR. Petition at 26-27.

For the foregoing reasons, the contention does not directly controvert the application and establish a "genuine dispute of fact or law meriting an evidentiary hearing." *Northeast Nuclear Energy Co.* (Millstone Nuclear Power Station, Unit No. 3; Facility Operating License NPF-49), CLI-01-03, 53 NRC 22, 24 (2001). Therefore, the contention should be rejected.

3. CLK-SAFETY-003—The DOE Miscalculates Basaltic Magma Melting Depth

SAR Subsections 2.2.2.2.3.1, 2.3.11.2.2 and related sections, which indicate the probability of igneous activity disrupting a repository drift, underestimates that probability, likely by two or more orders of magnitude, because it assumed incorrectly that melting to produce basaltic magma will be in the shallow lithospheric mantle and not in the deeper asthenosphere.

RESPONSE

Clark County alleges that DOE underestimates the probability of igneous activity disrupting a repository drift by two or more orders of magnitude because: (1) DOE assumes that basaltic magma will originate in the shallow lithospheric mantle; (2) a shallow lithospheric source for basaltic magma "infers a dwindling supply of new basalt and little chance of future events"; and (3) "published data and interpretations [that] indicate that melting to produce basalt in the [vicinity of Yucca Mountain] is in the asthenosphere and not in the lithosphere[,]" which "implies a more active igneous future for Yucca Mountain and a higher probability of igneous activity disrupting repository drifts." Petition at 28. As discussed below, Clark County's argument is not material, lacks appropriate expert support, and fails to raise a genuine dispute on a material issue of fact because, among other things, DOE's assessment of future igneous activity included the possibility that the asthenosphere was the source of basaltic magma.

a. Statement of Issue of Law or Fact to be Controverted

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

b. Brief Explanation of Basis

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

c. Whether the Issue is Within the Scope of the Proceeding

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

d. Whether the Issue is Material to the Findings that the NRC Must Make

In its attempt to demonstrate that this contention is material to the findings that the NRC must make in this proceeding, Clark County sets forth and describes a number of regulations. Petition at 29 (citing 10 C.F.R. §§ 63.31(a)(2) and (a)(3), 63.21(c)(9) and (c)(15), 63.113, 63.114, and Subpart E). Clark County concludes its general description of these regulations with the mere assertion that "this contention alleges violations of these provisions and therefore raises a material issue within the scope of the licensing proceeding." *Id*. But 10 C.F.R. § 2.309(f)(1)(iv) requires a showing by a petitioner that "the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding ...," not merely a citation or discussion of regulations. In this regard, a contention is material only if its resolution would make a difference in the outcome of the proceeding. *See Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2 and 3), CLI-99-11, 49 NRC 328, 333-34 (1999).

While the Advisory PAPO Board directed the potential parties to provide a "citation to a statute or regulation that, explicitly or implicitly, has not been satisfied" because specific citations are "preferable" to general citations (June 20, 2008 CMO, at 7), this direction cannot be read to dispense with the well-recognized requirement that resolution of the contention would

make a difference in the outcome of the proceeding, particularly since the CMO focused exclusively on "format" and "procedural matters." CMO at 3.

In particular, because the issue presented in this contention concerns postclosure performance, Clark County must demonstrate that the resolution of the issue would prevent the NRC from finding that there is a "reasonable expectation" that the radioactive materials can be disposed of without unreasonable risk to the health and safety of the public. *See* 10 C.F.R. § 63.31(a)(2). However, as discussed in Section IV.A.3, *supra*, and in 10 C.F.R. § 63.101 (a)(2), "because of the uncertainties inherent in the understanding of the evolution of the geologic setting, biosphere, and engineered barrier system," DOE is *not* required to provide complete assurance that each postclosure performance objective specified at § 63.113 will be met. Therefore, Clark County must demonstrate that there is no reasonable expectation that the overall objective could be met. This contention makes no such showing.

The method the DOE used in addressing the potential impacts to the repository from an igneous event is consistent with what the NRC contemplates in 10 C.F.R. § 63.304, which recognizes that determining that there is a "reasonable expectation": (1) requires less than absolute proof, (2) accounts for the inherently greater uncertainties in making long-term projections of disposal system performance, (3) does not exclude important parameters from assessments and analyses due to the difficulty in quantifying with a high degree of confidence, and (4) focuses on performance assessments and analyses on the full range of defensible and reasonable parameter distributions rather than only upon extreme physical situations and parameter values.

However, Clark County fails to demonstrate that resolution of the contention would make a difference in the proceeding. As stated in Section IV.A.3, *supra*, Part 63 permits DOE to use

probabilistic analyses to calculate potential post-closure radiation doses, 10 C.F.R. § 63.102(j), and to report those doses as *mean* doses. *See* 10 C.F.R. § 63.303. Therefore, contentions that either independently or cumulatively, fail to demonstrate an increase in the mean dose *above regulatory limits* are immaterial and inadmissible because they would not "make a difference in the outcome of the licensing proceeding." *Duke Energy Corp*., CLI-99-11, 49 NRC at 333-34.

Clark County asserts that DOE, in assuming that the source of the basaltic magna is in the shallow lithosphere, did not account for published data and interpretations that indicate that melting to produce basalt is in the asthenosphere and not in the lithosphere. Clark County further asserts that melting of the asthenosphere implies a more active igneous future for Yucca Mountain and a higher probability of igneous activity disrupting repository drifts. Petition at 28. However, Clark County does not explain how considering these data and interpretations would increase the probability of an igneous event affecting a repository drift. Clark County is equally silent, and fails to demonstrate, that any increase in probability of an igneous event would cause any increase, let alone an exceedance of the repository performance standards. Therefore, Clark County's claims are unsupported assertions that are immaterial and inadmissible.

e. Statement of Alleged Facts or Expert Opinion Supporting Petitioner's Position and Supporting References

The contention does not reference any supporting expert opinion. However, one of the affidavits attached to the Petition states that the affiant "adopts" the discussion in this contention. Petition, Attachment 3 (Dr. Eugene Smith). As discussed in more detail in Section IV.A.3 of this Answer, such affidavits are not sufficient to satisfy the requirements of § 2.309(f)(1)(v).

Furthermore, Clark County argues that if the source of basaltic magma in the Yucca Mountain Region is the asthenosphere, then the probability of igneous activity disrupting a repository drift would increase "likely by two or more orders of magnitude." Petition at 28. Yet

Dr. Smith's adoption of the statement still fails as a valid supporting position because he provides no support for this assertion. He provides no modeling results or evaluations, nor does he state that he performed any such evaluations. There is no evidence in the Petition or its attachments as to how Petitioner arrived at this 2+ order of magnitude change in annual probability. Accordingly, the Board must treat Dr. Smith's conclusory statement as speculation that is inadequate to support admissibility of a contention. Conclusory statements cannot provide "sufficient" support for a contention, even when they are proffered by an alleged expert. *See USEC, Inc.*, CLI-06-10, 63 NRC at 472.

f. Existence of a Genuine Dispute on a Material Issue of Law or Fact, With Supporting References to the License Application

The Licensing Board also must dismiss this contention because it does not establish that a genuine dispute exists with DOE on a material issue of law or fact. For background, DOE estimates that the mean probability of igneous activity disrupting a repository drift is 1.7×10^{-8} events/year. SAR at 2.3.11-21. This probability "was developed from the results of an expert elicitation that was completed in 1996." SAR at 2.3.11.1. This expert elicitation process was the basis for DOE's Probabilistic Volcanic Hazards Assessment (PVHA) which culminated in a publicly-available PVHA Report. SAR at 2.3.11-13 (referencing CRWMS M&O 1996 (LSN# DEN000861156)). The PVHA Report documents the judgments of the ten experts who participated in the elicitation process on various aspects of the PVHA, including the volcanic/tectonic setting, event definition, region of interest, and event counts. PVHA Report, Appendix E (Elicitation Interview Summaries).

Clark County's entire argument relies on a few sentences in the SAR:

> The PVHA experts generally view volcanism in the Yucca Mountain region as a regional-scale phenomenon resulting from melting processes in the upper lithospheric mantle. . . .

> Analyses of magmatic processes in the Yucca Mountain region generally indicate that the magnitude of mantle melting has significantly decreased since the middle Miocene. The analyses also suggest that melts in the past few million years were generated within relatively cool ancient lithospheric mantle (compared to asthenospheric mantle), which is a factor that may contribute to the relatively small and decreasing volume of basaltic melt erupted in the Yucca Mountain region since the Miocene period (BSC 2004k, Section 6.3.3).

Petition at 30 (quoting SAR at 2.2-97 and 2.3.11-23). Clark County argues that "[t]hese statements are contrary to published research that clearly points out that melting of lithospheric mantle to produce basalt late in an extensional event, as DOE assumes, is difficult if not impossible." Petition at 30. It then lists and discusses scientific articles and papers that purport to support its argument. Petition at 30-33. It concludes that "[i]f the DOE were to make the correct assumption," that the source of basaltic magma in the Yucca Mountain Region is the asthenosphere, then the probability would increase "likely by two or more orders of magnitude." Petition at 34.

These arguments and scientific articles do not raise a genuine dispute of material fact or law because Clark County misreads the SAR, and its expert's own published papers acknowledge that his opinion about asthenospheric-origins are in the minority, and that DOE's interpretation is equally valid.

First, Clark County misreads the SAR. The SAR does not state that DOE's PVHA experts assumed that the lithosphere was the only source of basaltic magma. Rather, it states that the "PVHA experts *generally* view volcanism in the Yucca Mountain region as a regional-scale phenomenon resulting from melting processes in the upper lithospheric mantle." Indeed, there were some experts who specifically discussed the asthenosphere as the possible source of basaltic magma in the Yucca Mountain Region. *See* PVHA Report, Appendix E, at MK- 2 of 22

(discussion of "volcanic/tectonic setting" in the elicitation interview for Dr. Mel A. Kuntz) ("The low volumes of recent basaltic eruptions and the lack of recent rhyolitic volcanism may be due largely to the fact that both the upper asthenosphere and the entire lithosphere in the [Yucca Mountain] region have been drained of their low-temperature, partial-melting fractions by previous melting events, resulting in an asthenosphere and a lithosphere that are essentially non-fertile with respect to future melting events."); *id.* at MS-2 of 22 (discussion of volcanic/tectonic setting in the elicitation interview for Dr. Michael F. Sheridan) ("The basic process leading to volcanism involves generation of a melt from a source zone within the asthenosphere or lower lithosphere and migration of the magma to the surface where it erupts"). If a petitioner alleges that the applicant omits information, but the allegedly missing information is indeed there, then the contention does not raise a genuine issue. *See, e.g., Fla. Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 & 4), LBP-90-16, 31 NRC 509, 521, 521 n.12 (1990).

And second, Clark County's expert acknowledges that his own interpretation is controversial and that DOE's interpretation is valid. Attachment 3 of the Petition includes a list of the expert's (Dr. Eugene Smith) published papers. In one of those papers, the expert states the following about his theory that the asthenosphere will be the origin of future basaltic magma at Yucca Mountain: "We realize that our observations and conclusions are controversial and anticipate that many questions will be asked about both temporal and mantle melting models." Smith, E.I., Keenan, D.L., and Plank, T., 2002, Episodic Volcanism and Hot Mantle: Implications for Volcanic Hazard Studies at the Proposed Nuclear Waste Repository at Yucca Mountain, Nevada: GSA Today, v. 12, no. 4, at 7.

In a more recent paper, cited in the Petition at 31, n.22 and 23, this same expert states that:

> Basaltic magmatism beneath the western US derives from the mantle, but considerable uncertainty exists as to the cause and location of mantle melting beneath volcanoes. There are valid arguments for magma sources in the mantle lithosphere (the old, cold roots to continents). Equally valid arguments have been made that magma derives from the mantle asthenosphere (the deeper, hot, flowing upper mantle).

Smith, E.I., Conrad, C.P., Plank, T., Tibbetts, A., Keenan, D., 2008, Testing models for basaltic volcanism: implications for Yucca Mountain, Nevada: American Nuclear Society, Proceedings of the 12th International High-Level Radioactive Waste Management Conference, at 156.

Because the controversial theory of the asthenosphere as the source of basaltic magma was incorporated into DOE's PVHA, and because Clark County's expert acknowledges that the lithospheric model is at least equally valid, there is no genuine dispute of material fact or law, and the contention must be rejected.

4. CLK-SAFETY-004—The DOE Ignores the Time Span of Basaltic Volcanism

SAR Subsections 2.2.2.2.3.1, 2.3.11.2.2 and related sections, which indicate the probability of igneous activity disrupting a repository drift, underestimates that probability, likely by two or more orders of magnitude, because the DOE ignored the entire 11 million year span of basaltic volcanism near Yucca Mountain.

RESPONSE

Clark County alleges that DOE underestimates the probability of igneous activity disrupting a repository drift "likely by two or more orders of magnitude, because DOE ignored the entire 11 million year span of basaltic volcanism near Yucca Mountain." Petition at 35. As discussed below, Clark County's argument is not material, lacks appropriate expert support, and fails to raise a genuine dispute on a material issue of fact because DOE's assessment of future igneous activity considered the entire 11 million year span of basaltic volcanism near Yucca Mountain.

a. Statement of Issue of Law or Fact to be Controverted

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

b. Brief Explanation of Basis

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

c. Whether the Issue is Within the Scope of the Proceeding

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

d. Whether the Issue is Material to the Findings that the NRC Must Make

In its attempt to demonstrate that this contention is material to the findings that the NRC must make in this proceeding, Clark County sets forth and describes a number of regulations. Petition at 36 (citing 10 C.F.R. §§ 63.31(a)(2) and (a)(3), 63.21(c)(9) and (c)(15), 63.113, 63.114, and Subpart E). Clark County concludes its general description of these regulations with the mere assertion that "this contention alleges violations of these provisions and therefore raises a material issue within the scope of the licensing proceeding." *Id*. But 10 C.F.R. § 2.309(f)(1)(iv) requires a showing by a petitioner that "the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding ...," not merely a citation or discussion of regulations. In this regard, a contention is material only if its resolution would make a difference in the outcome of the proceeding. *See Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2 and 3), CLI-99-11, 49 NRC 328, 333-34 (1999).

While the Advisory PAPO Board directed the potential parties to provide a "citation to a statute or regulation that, explicitly or implicitly, has not been satisfied" because specific citations are "preferable" to general citations (June 20, 2008 CMO, at 7), this direction cannot be read to dispense with the well-recognized requirement that resolution of the contention would make a difference in the outcome of the proceeding, particularly since the CMO focused exclusively on "format" and "procedural matters." CMO at 3.

In particular, because the issue presented in this contention concerns postclosure performance, Clark County must demonstrate that the resolution of the issue would prevent the NRC from finding that there is a "reasonable expectation" that the radioactive materials can be disposed of without unreasonable risk to the health and safety of the public. *See* 10 C.F.R.

§ 63.31(a)(2). However, as discussed in Section IV.A.3, *supra*, and in 10 C.F.R. § 63.101 (a)(2), "because of the uncertainties inherent in the understanding of the evolution of the geologic setting, biosphere, and engineered barrier system," DOE is *not* required to provide complete assurance that each postclosure performance objective specified at § 63.113 will be met. Therefore, Clark County must demonstrate that there is no reasonable expectation that the overall objective could be met. This contention makes no such showing.

The method the DOE used in addressing the potential impacts to the repository from an igneous event is consistent with what the NRC contemplates in 10 C.F.R. § 63.304, which recognizes that determining that there is a "reasonable expectation": (1) requires less than absolute proof, (2) accounts for the inherently greater uncertainties in making long-term projections of disposal system performance, (3) does not exclude important parameters from assessments and analyses due to the difficulty in quantifying with a high degree of confidence, and (4) focuses on performance assessments and analyses on the full range of defensible and reasonable parameter distributions rather than only upon extreme physical situations and parameter values.

However, Clark County fails to demonstrate that resolution of the contention would make a difference in the proceeding. As stated in Section IV.A.3, *supra*, Part 63 permits DOE to use probabilistic analyses to calculate potential post-closure radiation doses, 10 C.F.R. § 63.102(j), and to report those doses as *mean* doses. *See* 10 C.F.R. § 63.303. Therefore, contentions that either independently or cumulatively, fail to demonstrate an increase in the mean dose *above regulatory limits* are immaterial and inadmissible because they would not "make a difference in the outcome of the licensing proceeding." *Duke Energy Corp.*, CLI-99-11, 49 NRC at 333-34.

Clark County asserts that if DOE had considered the entire 11 million years span of basaltic volcanic activity in the Yucca Mountain region, then the mean annual frequency of an igneous event disrupting a repository drift would increase. Petition at 35. However, Clark County does not explain how considering these data would increase the probability of an igneous event affecting a repository drift. Clark County is equally silent, and fails to demonstrate, that any increase in probability of an igneous event would increase dose, let alone cause the repository performance standards to be exceeded. Therefore, Clark County's claims are unsupported assertions that are immaterial and inadmissible.

e. Statement of Alleged Facts or Expert Opinion Supporting Petitioner's Position and Supporting References

The contention does not reference any supporting expert opinion. However, one of the affidavits attached to the Petition states that the affiant "adopts" the discussion in this contention. Petition, Attachment 11 at 1 (Dr. Eugene Smith). As discussed in more detail in Section IV.A.3 of this Answer, such affidavits are not sufficient to satisfy the requirements of Section 2.309(f)(1)(v).

The contention is not adequately supported for other reasons as well. Clark County does not provide a single citation to a scientific article or scholarly document that supports its factual positions. It cites to the SAR and to "Valentine, G.A. and Perry, F.V., 'Tectonically Controlled, Time-Predictable Basaltic Volcanism from a Lithospheric Source' (2007), LSN# DN2002382703 at 201-216," Petition at 37, but solely to explain why these documents are wrong. Accordingly, there is literally no appropriate support for the contention.

And the facts alleged in paragraph 5 of the contention lack citations and/or specificity. For example:

- Clark County says that the "Yucca Mountain core provides a unique opportunity to view the volcanic history of the Yucca Mountain area back to 11 million years ago." Petition at 37. But the contention does not provide a cite for this sentence, nor does it explain what this "core" is, who collected it, when it was collected, how long it is, etc. Is this core one of the "rock cores from the North Ramp" (SAR at 2.3.11-36), as this is the *only* occurrence of the word "core" in all of SAR § 2.3.11?

- Clark County says that "the record from the core, combined with data from surface exposures" supports its position. *Id*. But the contention does not provide a citation for this sentence either, nor does it explain what the "data" are or what the "surface exposures" are.

- Clark County says that there is "chemical evidence of early larger degrees of melt formation followed by a pattern of waning volcanism as revealed by higher Ce/Yb and increasing epsilon Nd values." *Id*. at 38. But the contention does not provide a citation for this sentence either.

Conclusory statements cannot provide "sufficient" support for a contention, even if they are proffered by an alleged expert. *See USEC, Inc.* (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 472 (2006).

Furthermore, Clark County argues that if the DOE had not ignored the entire 11 million year span of basaltic volcanism near Yucca Mountain, then the probability of igneous activity disrupting a repository drift would increase "likely by two or more orders of magnitude." Petition at 35, 38. Yet Dr. Smith's adoption of the statement still fails as a valid supporting position because he provides no support for this assertion. He provides no modeling results or evaluations, nor does he state that he performed any such evaluations. There is no evidence in the Petition or its attachments as to how he arrived at this purported 2+ orders of magnitude change in probability. Accordingly, the Board must treat Dr. Smith's conclusory statement as speculation that is inadequate to support admissibility of a contention. Again, conclusory statements cannot provide "sufficient" support for a contention, even if they are proffered by an alleged expert. *See USEC*, *Inc.*, CLI-06-10, 63 NRC at 472.

f. Existence of a Genuine Dispute on a Material Issue of Law or Fact, With Supporting References to the License Application

The Licensing Board also must dismiss this contention because it does not establish that a genuine dispute exists with DOE on a material issue of law or fact. For background, DOE estimates that the mean probability of igneous activity disrupting a repository drift is 1.7×10^{-8} events/year. SAR at 2.3.11-21. This probability "was developed from the results of an expert elicitation that was completed in 1996." SAR at 2.3.11-9. This expert elicitation process was the basis for DOE's Probabilistic Volcanic Hazards Assessment (PVHA) which culminated in a publicly-available PVHA Report. SAR at 2.3.11-14 (referencing CRWMS M&O 1996 (LSN# DEN000861156)). The PVHA Report documents the opinions of the ten experts who participated in the elicitation process on various aspects of the PVHA, including the volcanic/tectonic setting, event definition, region of interest, and event counts. PVHA Report, Appendix E (Elicitation Interview Summaries).

Clark County's entire argument relies on a few sentences in the SAR:

> The decreased eruptive volume through time, together with geochemical evidence (Perry, Crowe, et al., 1998, p. 4-8) indicates that the intensity of mantle-melting processes beneath the Yucca Mountain region has waned over the past 5 million years (Perry and Crowe 1992, p. 2359; Perry, Crowe, et al., 1998, p. 4-1). Considered in terms of total eruption volume, recurrence intervals, and duration of volcanism during the past 5 million years, the Crater Flat volcanic field, adjacent on the west to Yucca Mountain, is one of the least active basaltic volcanic fields in the western United States (BSC 2004a, Section 6.1.1.1).

Petition at 37 (quoting SAR at 2.3.11-16). It argues that "SAR Subsection 2.3.11.2.1 . . . [advocates] that the volcanic system near Yucca Mountain represents a simple system that began with high volume activity and is now in a waning period." *Id*. at 38. If DOE used the "entire 11 million year record" it would see that "another super-episode of activity could occur." *Id*.

Therefore, Clark County concludes, DOE's "probability of igneous activity disrupting a repository drift [of] 1.7 x 10^{-8} events/year, underestimates that probability, likely by two or more orders of magnitude." *Id.*

These arguments do not raise a genuine dispute of material fact or law because DOE did not ignore the entire 11 million year record. SAR Section 2.3.11 and the PVHA Report demonstrate that this entire 11 million year period was considered:

- Silicic volcanism was approximately synchronous with a period of major crustal extension or stretching, which occurred between 13 and 9 million years ago. SAR at 2.3.11-15.
- Around 11 million years ago, the character of volcanism changed from rhyolitic (silicic) to basaltic, and the volume of material erupted decreased dramatically compared to the final rhyolitic eruptions. SAR at 2.3.11-16.
- Silicic volcanism has not occurred in the region in the last 7 or 8 million years and, as a result, is not included as part of the igneous conceptual model. SAR at 2.3.11-16.
- Small-volume basaltic volcanism has continued into the Quaternary as part of the general decline in eruption volume over the past 11 million years in the Yucca Mountain region. SAR at 2.3.11-16.[23]
- The observed record of basaltic volcanism in the Yucca Mountain region during the last 10 million years indicates that volcanic centers have been constructed of both effusive and pyroclastic deposits. SAR at 2.3.11-18.

The supporting PVHA Report also confirms that the 11 million year record was not ignored. The expert hazard models developed for the PVHA considered the regional spatial and temporal patterns of igneous activity as a basis to describe event counts at various volcanic centers. *See* PVHA Report, Figures 3-3(a), 3-62 and 3-63. Figure 3-62 summarizes the experts'

[23] Clark County acknowledges this quote from the SAR. Petition at 37. After providing this quote, it argues that DOE's experts, however, placed "emphasis on activity over the past 5 million years." *Id.* But the "Statement of the Contention Itself" claims that DOE "ignored" the 11 million year period. Petition at 35; *see also id*. (DOE "do[es] *not consider* the entire history of volcansim") (emphasis added). A statement that DOE's experts placed "emphasis" on the past 5 million years (in section 5 of a contention), does not support a contention that DOE "ignored" or "do[es] not consider" the past 11 million years (in paragraphs 1 and 2 of a contention).

assessments for various spatial and temporal components of the PVHA model and shows that events as old as 11 Ma were considered in the PVHA. Generally, however, the experts assigned low weights to the significance of events older than about 5 Ma in the development of their hazard models (*e.g., id*., Figure 3-3(a)), because most experts considered the post-5 Ma events as more relevant to the hazard model. *See id*., and Appendix E (Elicitation Interview Summaries). Hence, the allegation that DOE ignored the entire 11 million year span of basaltic volcanism near Yucca Mountain is not correct. Petitioner's imprecise reading of the SAR and the PVHA Report does not raise a genuine dispute to litigate in this proceeding.

Because DOE considered the entire 11 million year span of basaltic volcanism near Yucca Mountain, there is no genuine dispute of material fact or law, and the contention must be rejected.

5. CLK-SAFETY-005—The DOE Improperly Focuses on Upper Crustal Extension Patterns

SAR Subsections 2.2.2.2.3.1, 2.3.11.2.2 and related sections, which indicate the probability of igneous activity disrupting a repository drift, underestimate that probability, likely by two or more orders of magnitude, because the DOE focuses improperly on upper crustal extension patterns to explain volcano location and the timing of volcanic events.

RESPONSE

Clark County alleges that DOE underestimates the probability of igneous activity disrupting a repository drift "likely by two or more orders of magnitude, because DOE focuses improperly on upper crustal extension patterns to explain volcano location and the timing of volcanic events." Petition at 40. As discussed below, this argument is not material, lacks appropriate expert support, and fails to raise a genuine dispute because DOE's assessment of future igneous activity did not focus improperly on upper crustal extension patterns.

a. Statement of Issue of Law or Fact to be Controverted

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

b. Brief Explanation of Basis

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

c. Whether the Issue is Within the Scope of the Proceeding

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

d. Whether the Issue is Material to the Findings that the NRC Must Make

In its attempt to demonstrate that this contention is material to the findings that the NRC must make in this proceeding, Clark County sets forth and describes a number of regulations. Petition at 41 (citing 10 C.F.R. §§ 63.31(a)(2) and (a)(3), 63.21(c)(9) and (c)(15), 63.113, 63.114, and Subpart E). Clark County concludes its general description of these regulations with the mere assertion that "this contention alleges violations of these provisions and therefore raises a material issue within the scope of the licensing proceeding." *Id*. But 10 C.F.R. § 2.309(f)(1)(iv) requires a showing by a petitioner that "the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding ...," not merely a citation or discussion of regulations. In this regard, a contention is material only if its resolution would make a difference in the outcome of the proceeding. *See Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2 and 3), CLI-99-11, 49 NRC 328, 333-34 (1999).

While the Advisory PAPO Board directed the potential parties to provide a "citation to a statute or regulation that, explicitly or implicitly, has not been satisfied" because specific citations are "preferable" to general citations (June 20, 2008 CMO, at 7), this direction cannot be read to dispense with the well-recognized requirement that resolution of the contention would make a difference in the outcome of the proceeding, particularly since the CMO focused exclusively on "format" and "procedural matters." CMO at 3.

In particular, because the issue presented in this contention concerns postclosure performance, Clark County must demonstrate that the resolution of the issue would prevent the NRC from finding that there is a "reasonable expectation" that the radioactive materials can be disposed of without unreasonable risk to the health and safety of the public. *See* 10 C.F.R.

§ 63.31(a)(2). However, as discussed in 10 C.F.R. § 63.101 (a)(2), "because of the uncertainties inherent in the understanding of the evolution of the geologic setting, biosphere, and engineered barrier system," DOE is *not* required to provide complete assurance that each postclosure performance objective specified at § 63.113 will be met. Therefore, Clark County must demonstrate that there is no reasonable expectation that the overall objective could be met. This contention makes no such showing.

The method the DOE used in addressing the potential impacts to the repository from an igneous event is consistent with what the NRC contemplates in 10 C.F.R. § 63.304, which recognizes that determining that there is a "reasonable expectation": (1) requires less than absolute proof, (2) accounts for the inherently greater uncertainties in making long-term projections of disposal system performance, (3) does not exclude important parameters from assessments and analyses due to the difficulty in quantifying with a high degree of confidence, and (4) focuses on performance assessments and analyses on the full range of defensible and reasonable parameter distributions rather than only upon extreme physical situations and parameter values.

However, Clark County fails to demonstrate that resolution of the contention would make a difference in the proceeding. As stated in Section IV.A.3, *supra*, Part 63 permits DOE to use probabilistic analyses to calculate potential post-closure radiation doses, 10 C.F.R. § 63.102(j), and to report those doses as *mean* doses. *See* 10 C.F.R. § 63.303. Therefore, contentions that either independently or cumulatively, fail to demonstrate an increase in the mean dose *above regulatory limits* are immaterial and inadmissible because they would not "make a difference in the outcome of the licensing proceeding." *Duke Energy Corp.*, CLI-99-11, 49 NRC at 333-34.

Clark County asserts that if DOE had focused on other mechanisms to explain volcano location and the timing of volcanic events, then the mean annual frequency of an igneous event disrupting a repository drift would increase. Petition at 40. However, Clark County does not explain how considering these data would increase the probability of an igneous event affecting a repository drift. Clark County is equally silent, and fails to demonstrate, that any increase in probability of an igneous event would increase dose, let alone cause the repository performance standards to be exceeded. Therefore, Clark County's claims are immaterial and inadmissible.

e. Statement of Alleged Facts or Expert Opinion Supporting Petitioner's Position and Supporting References

The contention does not reference any supporting expert opinion. However, one of the affidavits attached to the Petition states that the affiant "adopts" the discussion in this contention. Petition, Attachment 11 at 1 (Dr. Eugene Smith). As discussed in more detail in Section IV.A.3 of this Answer, such affidavits are not sufficient to satisfy the requirements of § 2.309(f)(1)(v).

Furthermore, Clark County argues that if the DOE had not focused improperly on upper crustal extension patterns, then the probability of igneous activity disrupting a repository drift would increase "likely by two or more orders of magnitude." Petition at 40. Yet Dr. Smith's adoption of the statement still fails as a valid supporting position because he provides no support for this assertion. He provides no modeling results or evaluations, nor does he state that he performed any such evaluations. There is no evidence in the Petition or its attachments as to how he arrived at this purported 2+ orders of magnitude change in probability. Accordingly, the Board must treat Dr. Smith's conclusory statement as speculation that is inadequate to support admissibility of a contention. Again, conclusory statements cannot provide "sufficient" support for a contention, even if they are proffered by an alleged expert. *See USEC, Inc.* (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 472 (2006).

f. Existence of a Genuine Dispute on a Material Issue of Law or Fact, With Supporting References to the License Application

The Licensing Board also must dismiss this contention because it does not establish that a genuine dispute exists with DOE on a material issue of law or fact. Clark County's entire argument relies on a few sentences in the SAR. The first sentence is:

> [f]or regional volcanism, no single base-case conceptual model is appropriate because the underlying physical processes that control the precise timing and location of volcanic events within a particular region remain uncertain (BSC 2004a, Section 6.3.1.6).

Petition at 42 (quoting SAR at 2.3.11-23). It concludes from this sentence that "DOE clearly does not understand the processes that control volcanism." *Id*.

This argument does not raise a genuine dispute because its own expert confirms that underlying physical processes that control the precise timing and location of volcanic events within a particular region remain uncertain. Footnote 37 of page 42 of the Petition cites to articles authored by the expert to support the contention. In one of those articles (Smith, E.I., Conrad, C.P., Plank, T., Tibbetts, A., Keenan, D., 2008, "Testing Models for Basaltic Volcanism: Implications for Yucca Mountain, Nevada," American Nuclear Society, Proceedings of the 12th International High-Level Radioactive Waste Management Conference (2008) (LSN# CLK000000085), the expert states that:

> Basaltic magmatism beneath the western US derives from the mantle, but *considerable uncertainty exists* as to the cause and location of mantle melting beneath volcanoes. There are valid arguments for magma sources in the mantle lithosphere (the old, cold roots to continents). Equally valid arguments have been made that magma derives from the mantle asthenosphere (the deeper, hot, flowing upper mantle).

Id. at 156 (emphasis added). Thus, although the contention alleges that DOE does not understand the processes that control volcanism, Clark County's expert agrees that there is uncertainty in those processes and that DOE's model is valid.

Clark County then cites other sections of the SAR which it characterizes as DOE "call[ing] upon crustal structures and extension rates to explain the location and timing of volcanism." Petition at 42. It claims that there is "considerable literature that contradicts [DOE's] conclusion for basaltic volcanism and suggests that thermal anomalies, mantle flow patterns, and topography at the base of the lithosphere explain the location and timing of volcanism." *Id*. It further claims that "DOE *ignores* the role of the mantle and published geochemical and geophysical work that suggests that deep melting of asthenospheric mantle caused by upwelling associated with low-viscosity 'pockets' and a step in lithospheric thickness explain the occurrence of volcanic activity near Yucca Mountain, and the episodic nature of volcanism." *Id*. (emphasis added). For support, it provides citations to articles published by its expert.

These arguments also do not raise a genuine dispute of material fact or law because DOE neither solely relied upon crustal structures and extension rates to explain the location and timing of volcanism, nor did it ignore the role of the mantle, deep melting from the asthenosphere, etc. and the other matters raised in this contention.

For background, DOE estimates that the mean probability of igneous activity disrupting a repository drift is 1.7×10^{-8} events/year. SAR at 2.3.11-21. This probability "was developed from the results of an expert elicitation that was completed in 1996." SAR at 2.3.11-9. This expert elicitation process was the basis for DOE's Probabilistic Volcanic Hazards Assessment (PVHA) which culminated in a publicly-available PVHA Report. SAR at 2.3.11-14 (referencing

CRWMS M&O 1996 (LSN# DEN000861156)). The PVHA Report documents the judgments of the ten experts who participated in the elicitation process on various aspects of the PVHA, including the volcanic/tectonic setting, event definition, region of interest, and event counts. PVHA Report, Appendix E (Elicitation Interview Summaries). At issue in this contention is the volcanic/tectonic setting of the Yucca Mountain Region.

The SAR and the PVHA Report confirm that DOE did not "focus[] improperly on upper crustal extension patterns to explain volcano location and the timing of volcanic events" (Petition at 40), or "*ignore[]* the role of the mantle and published geochemical and geophysical work that suggests []deep melting of asthenospheric mantle . . . ." Petition at 42 (emphasis added). Rather, as discussed above, and in examples below, DOE considered a broad range of potential causes and processes for the volcanic setting of the Yucca Mountain region.

The hazard estimate produced by the PVHA's expert elicitation process is based on spatial and temporal patterns of volcanism observed in the region surrounding Yucca Mountain. BSC, *Characterize Framework for Igneous Activity at Yucca Mountain, Nevada*, ANL-MGR-GS-000001 REV 02, Section 6.3.1.3 (2004) (LSN# DN2001632124; DN2002077196; DEN001580092). The hazard estimate described in SAR was revised based on the PVHA to consider changes in the repository footprint that occurred after the PVHA was completed. *Id*. The revision also considered alternative conceptual models of volcanism (*id*., Section 6.3.1.6) and effects of buried volcanic centers (*id*., Section 6.3.1.7), alternative estimates of the probability of intersection (*id*., Section 6.3.1.8), and descriptions of the Crater Flat structural domain (*Id*., Section 6.4).

The upper crustal extension patterns described in Crater Flat were considered by the experts *along with other independent information*, identified above, that were incorporated into

the hazard estimate. PVHA Report, Section 4.3. All of this information, plus information from analog studies completed following completion of the PVHA, were incorporated into the updated hazard estimate (BSC 2004, Table 7-1) that is presented in SAR Subsections 2.2.2.2 and 2.3.11.2. Hence, the claim in the contention regarding such undue focus has no support either within the contention or the record, and must therefore be dismissed as not presenting a genuine dispute on a material issue of law or fact.

6. CLK-SAFETY-006—The DOE Improperly Excludes the Death Valley Volcanic Field and Greenwater Range from Volcanism Calculations

SAR Subsections 2.2.2.2.3.1, 2.3.11.2.2 and related sections, which indicate the probability of igneous activity disrupting a repository drift, underestimate that probability, likely by two or more orders of magnitude, because the DOE does not include the Death Valley volcanic field in the Greenwater Range as part of the area to be considered for hazard calculations.

RESPONSE

Clark County alleges that DOE underestimates the probability of igneous activity disrupting a repository drift by two or more orders of magnitude because: (1) DOE "does not include the Death Valley volcanic field in the Greenwater Range as part of the area to be considered for hazard calculations"; and (2) DOE "ignores volcanic activity in the Greenwater Range" despite "chemical, mineralogical, and age similarities to those [volcanic rocks] near Yucca Mountain." Petition at 49. As discussed below, Clark County's argument is not material, lacks appropriate factual and expert support, and fails to raise a genuine dispute of material fact because, among other things, Death Valley and Greenwater Range volcanic fields *were* considered in DOE's assessment of future igneous activity.

a. Statement of Issue of Law or Fact to be Controverted

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

b. Brief Explanation of Basis

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

c. Whether the Issue is Within the Scope of the Proceeding

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

d. Whether the Issue is Material to the Findings that the NRC Must Make

In its attempt to demonstrate that this contention is material to the findings that the NRC must make in this proceeding, Clark County identifies various regulations. *See* Petition at 50. Clark County concludes this general description of various sections of 10 C.F.R. Part 63 with the mere assertion that "this contention alleges non-compliance with these regulatory provisions." *Id*. But 10 C.F.R. § 2.309(f)(1)(iv) requires a showing by a petitioner that "the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding ...," not merely a citation to regulations. In this regard, a contention is material only if its resolution would make a difference in the outcome of the proceeding. *See Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2 and 3), CLI-99-11, 49 NRC 328, 333-34 (1999).

While the Advisory PAPO Board directed the potential parties to provide a "citation to a statute or regulation that, explicitly or implicitly, has not been satisfied" because specific citations are "preferable" to general citations (June 20, 2008 CMO, at 7), this direction cannot be read to dispense with the well-recognized requirement that resolution of the contention would make a difference in the outcome of the proceeding, particularly since the CMO focused exclusively on "format" and "procedural matters." CMO at 3.

In particular, because the issue presented in this contention concerns postclosure performance, Clark County must demonstrate that the resolution of the issue would prevent the NRC from finding that there is a "reasonable expectation" that the radioactive materials can be

disposed of without unreasonable risk to the health and safety of the public. *See* 10 C.F.R. § 63.31(a)(2). However, as discussed in Section IV.A.3, *supra*, and in 10 C.F.R. § 63.101 (a)(2), "because of the uncertainties inherent in the understanding of the evolution of the geologic setting, biosphere, and engineered barrier system," DOE is *not* required to provide complete assurance that each postclosure performance objective specified at § 63.113 will be met. Therefore, Clark County must demonstrate that there is no reasonable expectation that the overall objective could be met. This contention makes no such showing.

The method the DOE used in addressing the potential impacts to the repository from an igneous event is consistent with what the NRC contemplates in 10 C.F.R. § 63.304, which recognizes that determining that there is a "reasonable expectation": (1) requires less than absolute proof, (2) accounts for the inherently greater uncertainties in making long-term projections of disposal system performance, (3) does not exclude important parameters from assessments and analyses due to the difficulty in quantifying with a high degree of confidence, and (4) focuses on performance assessments and analyses on the full range of defensible and reasonable parameter distributions rather than only upon extreme physical situations and parameter values.

However, Clark County fails to demonstrate that resolution of the contention would make a difference in the proceeding. As stated in Section IV.A.3, *supra*, Part 63 permits DOE to use probabilistic analyses to calculate potential post-closure radiation doses, 10 C.F.R. § 63.102(j), and to report those doses as *mean* doses. *See* 10 C.F.R. § 63.303. Therefore, contentions that either independently or cumulatively, fail to demonstrate an increase in the mean dose *above regulatory limits* are immaterial and inadmissible because they would not "make a difference in the outcome of the licensing proceeding." *Duke Energy Corp*., CLI-99-11, 49 NRC at 333-34.

Clark County asserts that, if DOE had considered volcanic activity from a larger volcanic field that included Death Valley, then the mean annual frequency of an igneous event disrupting a repository drift would increase "likely by two or more orders of magnitude." Petition at 49, 53. However, Clark County does not explain how considering Death Valley would increase the probability of an igneous event affecting a repository drift. Clark County is equally silent, and fails to demonstrate, that any increase in probability of an igneous event would increase dose, let alone cause the repository performance standards to be exceeded. Therefore, Clark County's claims are immaterial and inadmissible.

e. Statement of Alleged Facts or Expert Opinion Supporting Petitioner's Position and Supporting References

This contention does not reference any supporting expert opinion. The one affidavit attached to the Petition, however, states that the affiant "adopts" the opinions and statements expressed in the contention. Affidavit of Dr. Eugene I. Smith (Petition Attach. 3) at 1. This affidavit does not save the contention from being dismissed for failure to provide an adequate statement of alleged facts or expert opinion. As discussed in more detail in Section IV.A.3 of this Answer, such an affidavit is not sufficient to satisfy the requirements of § 2.309(f)(1)(v).

Furthermore, Clark County argues that if DOE had considered an expanded volcanic region, then the probability of igneous activity disrupting a repository drift would increase "likely by two or more orders of magnitude." Petition at 49, 53. Yet Dr. Smith provides no support for this assertion. He provides no modeling results or evaluations, nor does he state that he performed any such evaluations. There is no evidence in the Petition or its attachments as to how Clark County arrived at this 2+ order of magnitude change in annual probability. Accordingly, the Board must treat Dr. Smith's conclusory statement as speculation that is inadequate to support admissibility of a contention. Conclusory statements cannot provide

"sufficient" support for a contention, even if they are proffered by an alleged expert. *See USEC, Inc.* (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 472 (2006).

f. Existence of a Genuine Dispute on a Material Issue of Law or Fact, With Supporting References to the License Application

The Licensing Board also must dismiss this contention because it does not establish that a genuine dispute exists with DOE on a material issue of law or fact. For background, DOE estimates that the mean probability of igneous activity disrupting a repository drift is 1.7×10^{-8} events/year. SAR at 2.3.11-21. This probability "was developed from the results of an expert elicitation that was completed in 1996." SAR at 2.3.11-9. This expert elicitation process was the basis for DOE's Probabilistic Volcanic Hazards Assessment (PVHA) which culminated in a publicly-available PVHA Report. SAR at 2.3.11-14 (referencing CRWMS M&O 1996 (LSN# DEN000861156)). The PVHA Report documents the judgments of the ten experts who participated in the elicitation process on various aspects of the PVHA, including the volcanic/tectonic setting, event definition, region of interest, and event counts. PVHA Report, Appendix E (Elicitation Interview Summaries).

Clark County's entire argument relies on the assumption that DOE did not "include the Death Valley volcanic field in the Greenwater Range as part of the area to be considered for hazard calculations." Petition at 49. But DOE did consider this volcanic field. The PVHA was conducted using an expert panel that based its assessments on the spatial and temporal patterns of volcanism in the Yucca Mountain Region and in the region including volcanism in the Death Valley volcanic field in the Greenwater Range. Documentation in the PVHA Report (Figures 3-23, 3-28, 3-32, 3-46, and 3-51), clearly shows that at least 5 experts explicitly considered igneous activity in the Greenwater Range in the development of their models for regional igneous activity. *See also id.* at Appendix E (example discussions in elicitation interviews), at RC-3 of

20 (elicitation interview of Dr. Richard W. Carlson), GW-1 of 15 and GW-3 of 15 (elicitation interview of Dr. George P.L. Walker). Generally, the Greenwater Range activity was considered in the context of alternative regions of interest. *E.g.*, *id*., Figures 3-23, 3-28, 3-46, and 3-51. Therefore, information related to the Death Valley volcanic field in the Greenwater Range was not ignored by DOE, but was considered by the PVHA expert panel members in their evaluations.

Accordingly, this contention does not raise a genuine dispute because DOE considered the very information that Clark County alleges it did not. Because Clark County has failed to controvert a position taken by DOE in the Application, the contention must be dismissed. *See Tennessee Valley Auth.* (Bellefonte Nuclear Power Plants Units 3 and 4), LBP-08-16, 68 NRC __ (slip op. at 18, 29, 39-40, 42) (Sept. 12, 2008); *Tex. Utils. Elec. Co.* (Comanche Peak Steam Electric Station, Unit 2), LBP-92-37, 36 NRC 370, 384 (1992).

7. CLK-SAFETY-007—The DOE Improperly Estimates Igneous Event Probability for 10,000 Years and 1,000,000 Years

DOE wrongly assumes in SAR Subsections 2.3.11 and 2.3.11.1 and related subsections that its approach to estimating the probability of igneous events for the first 10,000 years is applicable to the probability estimate for 1,000,000 years as well, because its approach fails to consider deep melting models or the entire period of volcanism from 11 million years to the present.

RESPONSE

Clark County alleges that DOE "wrongly assumes" that its approach for estimating the probability of igneous events for the first 10,000 years is the same for the period from 10,000 to 1,000,000 years because DOE did not "consider deep melting models" or the "period of volcanism from 11 million years to the present." Petition at 54. Moreover, Clark County alleges that, as a result of this assumption, DOE underestimates the probability of igneous activity disrupting a repository drift "likely by two or more orders of magnitude." Petition at 57. As discussed below, these arguments are not material, lack appropriate expert support, and fail to raise a genuine dispute of material fact because, among other things, DOE did consider deep melting models and the entire 11 million year period.

a. Statement of Issue of Law or Fact to be Controverted

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

b. Brief Explanation of Basis

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

c. Whether the Issue is Within the Scope of the Proceeding

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

d. Whether the Issue is Material to the Findings that the NRC Must Make

In its attempt to demonstrate that this contention is material to the findings that the NRC must make in this proceeding, Clark County identifies various regulations. *See* Petition at 55. Clark County concludes this general description of various sections of 10 C.F.R. Part 63 with the mere assertion that "this contention alleges non-compliance with these regulatory provisions and therefore raises a material issue." *Id*. But 10 C.F.R. § 2.309(f)(1)(iv) requires a showing by a petitioner that "the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding ...," not merely a citation to regulations. In this regard, a contention is material only if its resolution would make a difference in the outcome of the proceeding. *See Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2 and 3), CLI-99-11, 49 NRC 328, 333-34 (1999).

While the Advisory PAPO Board directed the potential parties to provide a "citation to a statute or regulation that, explicitly or implicitly, has not been satisfied" because specific citations are "preferable" to general citations (June 20, 2008 CMO, at 7), this direction cannot be read to dispense with the well-recognized requirement that resolution of the contention would make a difference in the outcome of the proceeding, particularly since the CMO focused exclusively on "format" and "procedural matters." CMO at 3.

In particular, because the issue presented in this contention concerns postclosure performance, Clark County must demonstrate that the resolution of the issue would prevent the NRC from finding that there is a "reasonable expectation" that the radioactive materials can be

disposed of without unreasonable risk to the health and safety of the public. *See* 10 C.F.R. § 63.31(a)(2). However, as discussed in Section IV.A.3, *supra*, and in 10 C.F.R. § 63.101 (a)(2), "because of the uncertainties inherent in the understanding of the evolution of the geologic setting, biosphere, and engineered barrier system," DOE is *not* required to provide complete assurance that each postclosure performance objective specified at § 63.113 will be met. Therefore, Clark County must demonstrate that there is no reasonable expectation that the overall objective could be met. This contention makes no such showing.

The method the DOE used in addressing the potential impacts to the repository from an igneous event is consistent with what the NRC contemplates in 10 C.F.R. § 63.304, which recognizes that determining that there is a "reasonable expectation": (1) requires less than absolute proof, (2) accounts for the inherently greater uncertainties in making long-term projections of disposal system performance, (3) does not exclude important parameters from assessments and analyses due to the difficulty in quantifying with a high degree of confidence, and (4) focuses on performance assessments and analyses on the full range of defensible and reasonable parameter distributions rather than only upon extreme physical situations and parameter values.

However, Clark County fails to demonstrate that resolution of the contention would make a difference in the proceeding. As stated in Section IV.A.3, *supra*, Part 63 permits DOE to use probabilistic analyses to calculate potential post-closure radiation doses, 10 C.F.R. § 63.102(j), and to report those doses as *mean* doses. *See* 10 C.F.R. § 63.303. Therefore, contentions that either independently or cumulatively, fail to demonstrate an increase in the mean dose *above regulatory limits* are immaterial and inadmissible because they would not "make a difference in the outcome of the licensing proceeding." *Duke Energy Corp.*, CLI-99-11, 49 NRC at 333-34.

Clark County asserts that, if DOE had considered deep melting models or the period of volcanism from 11 million years to the present, then the mean annual frequency of an igneous event disrupting a repository drift would increase "likely by two or more orders of magnitude." Petition at 57. However, Clark County does not explain how deep melting models or the period of volcanism from 11 million years to the present would increase the probability of an igneous event affecting a repository drift. Clark County is equally silent, and fails to demonstrate, that any increase in probability of an igneous event would increase dose, let alone cause the repository performance standards to be exceeded. Therefore, Clark County's claims are immaterial and inadmissible.

e. Statement of Alleged Facts or Expert Opinion Supporting Petitioner's Position and Supporting References

This contention does not reference any supporting expert opinion. The one affidavit attached to the Petition, however, states that the affiant "adopts" the opinions and statements expressed in the contention. Affidavit of Dr. Eugene I. Smith (Petition Attach. 3) at 1. This affidavit does not save the contention from being dismissed for failure to provide an adequate statement of alleged facts or expert opinion. As discussed in more detail in Section V.A.3 of this Answer, such an affidavit is not sufficient to satisfy the requirements of § 2.309(f)(1)(v).

Furthermore, Clark County argues that if DOE had considered an expanded volcanic region, then the probability of igneous activity disrupting a repository drift would increase "likely by two or more orders of magnitude." Petition at 57. Yet Dr. Smith provides no support for this assertion. He provides no modeling results or evaluations, nor does he state that he performed any such evaluations. There is no evidence in the Petition or its attachments as to how Clark County arrived at this 2+ order of magnitude change in probability. Accordingly, the Board must treat Dr. Smith's conclusory statement as speculation that is inadequate to support

admissibility of a contention. Conclusory statements cannot provide "sufficient" support for a contention, even if they are proffered by an alleged expert. *See USEC, Inc.* (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 472 (2006).

f. Existence of a Genuine Dispute on a Material Issue of Law or Fact, With Supporting References to the License Application

The Licensing Board also must dismiss this contention because it does not establish that a genuine dispute exists with DOE on a material issue of law or fact. For background, DOE estimates that the mean probability of igneous activity disrupting a repository drift is 1.7×10^{-8} events/year. SAR at 2.3.11-21. This probability "was developed from the results of an expert elicitation that was completed in 1996." SAR at 2.3.11-9. This expert elicitation process was the basis for DOE's Probabilistic Volcanic Hazards Assessment (PVHA) which culminated in a publicly-available PVHA Report. SAR at 2.3.11-14 (referencing CRWMS M&O 1996 (LSN# DEN000861156)). The PVHA Report documents the opinions of the ten experts who participated in the elicitation process on various aspects of the PVHA, including the volcanic/tectonic setting, event definition, region of interest, and event counts. PVHA Report, Appendix E (Elicitation Interview Summaries).

Clark County's entire argument relies on the assumption that DOE did not "consider deep melting models or the entire period of volcanism from 11 million years to the present." Petition at 54, 57. But DOE did consider deep melting models. PVHA Workshop 1 was conducted using an expert panel that identified 27 technical issues of interest to the experts (PVHA Report, Appendix C, Table 1 at C-4), including, *e.g.*, correlation of tectonic activity with recent or synchronous volcanism, structural control of spatial distribution of regional/local volcanic features, definition of "event," and model for magma generation and migration. The event definition and magma generation and migration items included consideration of deep melting

models. PVHA Report, Appendix E, at RC-1 to -3, BC-1 to -3, WD-1, RF-4, WH-1 to -2, MK-1 to -2, AM-1, and GT-1, -9. The PVHA experts requested and were provided information on basalt geochemistry, ages, and melt generation characteristics (PVHA Report at 2-25), and DOE included no restrictions on the use of that information in the development of conceptual models of volcanism in the Yucca Mountain Region. This information is reflected in the definition of an igneous event developed by the experts in the PVHA, which was explicitly based on a mantle melting source for basalts in the Yucca Mountain Region: "In the context of the PVHA, a volcanic event is a spatially and temporally distinct batch of magma ascending from the mantle through the crust as a dike or system of dikes ([PVHA Report,] Appendix E)." BSC, *Characterize Framework for Igneous Activity at Yucca Mountain, Nevada*, ANL-MGR-GS-000001 REV 02, at 1-2 (LSN# DN2001632124) (2004). In addition, various PVHA experts specifically discussed the asthenosphere as the possible source of basaltic magma in the Yucca Mountain Region. PVHA Report, Appendix E (example discussions in elicitation interviews), at MK-2 of 22 (elicitation interview of Dr. Mel A. Kuntz) and MS-2 of 22 (elicitation interview of Michael F. Sheridan). Therefore, the allegation that DOE's approach fails to consider deep melting models is not correct.

DOE also considered the period from 11 million years to the present. SAR § 2.3.11 demonstrates that this entire 11 million year period was considered:

- "Silicic volcanism was approximately synchronous with a period of major crustal extension or stretching, which occurred between 13 and 9 million years ago." SAR at 2.3.11-15.
- "Around 11 million years ago, the character of volcanism changed from rhyolitic (silicic) to basaltic, and the volume of material erupted decreased dramatically compared to the final rhyolitic eruptions." SAR at 2.3.11-16.

- "Silicic volcanism has not occurred in the region in the last 7 or 8 million years and, as a result, is not included as part of the igneous conceptual model." SAR at 2.3.11-16.

- "Small-volume basaltic volcanism has continued into the Quaternary as part of the general decline in eruption volume over the past 11 million years in the Yucca Mountain region." SAR at 2.3.11-16.

- "The observed record of basaltic volcanism in the Yucca Mountain region during the last 10 million years indicates that volcanic centers have been constructed of both effusive and pyroclastic deposits." SAR at 2.3.11-18.

The supporting PVHA Report also confirms that the 11 million year record was not ignored. The expert hazard models developed for the PVHA considered the regional spatial and temporal patterns of igneous activity as a basis to describe event counts at various volcanic centers. *See* PVHA Report, Figures 3-3(a), 3-62 and 3-63. Figure 3-62 summarizes the experts' assessments for various spatial and temporal components of the PVHA model and shows that events as old as 11 Ma were considered in the PVHA. Generally, however, the experts assigned low weights to the significance of events older than about 5 Ma in the development of their hazard models (*e.g., id.*, Figure 3-3(a)), because most experts considered the post-5 Ma events as more relevant to the hazard model. *See id*., and Appendix E (Elicitation Interview Summaries). Hence, the allegation that DOE did not consider the entire 11 million year span of basaltic volcanism near Yucca Mountain is not correct. Clark County's failure to understand the SAR or the PVHA does not raise a genuine dispute to litigate in this proceeding.

Because DOE considered deep melting models and the entire 11 million year span of basaltic volcanism near Yucca Mountain, there is no genuine dispute of material fact or law, and the contention must be rejected. *See Tennessee Valley Auth.* (Bellefonte Nuclear Power Plants Units 3 and 4), LBP-08-16, 68 NRC __ (slip op. at 18, 29, 39-40, 42) (Sept. 12, 2008); *Tex.*

Utils. Elec. Co. (Comanche Peak Steam Electric Station, Unit 2), LBP-92-37, 36 NRC 370, 384 (1992).

8. CLK-SAFETY-008—The DOE Ignores 11-Million Year Volcanism Data and Instead Relies on Only 5-Million Year Volcanism Data

The DOE's approach to determining the frequency of future igneous events wrongly ignores the data set obtained from core, which along with surface data provides a record of volcanism back to 11 million years that requires consideration, and wrongly relies instead on the chemistry of surface basalt erupted over the past 5 million years. This approach obscures long-term trends and provides an inaccurate prediction of future events.

RESPONSE

Petitioner alleges that DOE underestimates the probability of igneous activity disrupting a repository drift "likely by two or more orders of magnitude," Petition at 63, because DOE "ignores the data set obtained from core, which along with surface data provides a record of volcanism back to 11 million years that requires consideration, and [DOE] wrongly relies instead on the chemistry of surface basalt erupted over the past 5 million years." Petition at 59. As discussed below, Petitioner's argument is not material, lacks appropriate expert support, and fails to raise a genuine dispute because DOE considered the entire 11 million year record and did not rely on surface basalt chemistry.

a. Statement of Issue of Law or Fact to be Controverted

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

b. Brief Explanation of Basis

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

c. Whether the Issue is Within the Scope of the Proceeding

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

d. Whether the Issue is Material to the Findings that the NRC Must Make

In its attempt to demonstrate that this contention is material to the findings that the NRC must make in this proceeding, Clark County sets forth and describes a number of regulations. Petition at 29 (citing 10 C.F.R. §§ 63.31(a)(2) and (a)(3), 63.21(c)(9) and (c)(15), 63.113, 63.114, and Subpart E). Clark County concludes its general description of these regulations with the mere assertion that "this contention alleges violations of these provisions and therefore raises a material issue within the scope of the licensing proceeding." *Id*. But 10 C.F.R. § 2.309(f)(1)(iv) requires a showing by a petitioner that "the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding ...," not merely a citation or discussion of regulations. In this regard, a contention is material only if its resolution would make a difference in the outcome of the proceeding. *See Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2 and 3), CLI-99-11, 49 NRC 328, 333-34 (1999).

While the Advisory PAPO Board directed the potential parties to provide a "citation to a statute or regulation that, explicitly or implicitly, has not been satisfied" because specific citations are "preferable" to general citations (June 20, 2008 CMO, at 7), this direction cannot be read to dispense with the well-recognized requirement that resolution of the contention would make a difference in the outcome of the proceeding, particularly since the CMO focused exclusively on "format" and "procedural matters." CMO at 3.

In particular, because the issue presented in this contention concerns postclosure performance, Clark County must demonstrate that the resolution of the issue would prevent the NRC from finding that there is a "reasonable expectation" that the radioactive materials can be disposed of without unreasonable risk to the health and safety of the public. *See* 10 C.F.R. § 63.31(a)(2). However, as discussed in Section IV.A.3, *supra*, and in 10 C.F.R. § 63.101 (a)(2), "because of the uncertainties inherent in the understanding of the evolution of the geologic setting, biosphere, and engineered barrier system," DOE is *not* required to provide complete assurance that each postclosure performance objective specified at § 63.113 will be met. Therefore, Clark County must demonstrate that there is no reasonable expectation that the overall objective could be met. This contention makes no such showing.

The method the DOE used in addressing the potential impacts to the repository from an igneous event is consistent with what the NRC contemplates in 10 C.F.R. § 63.304, which recognizes that determining that there is a "reasonable expectation": (1) requires less than absolute proof, (2) accounts for the inherently greater uncertainties in making long-term projections of disposal system performance, (3) does not exclude important parameters from assessments and analyses due to the difficulty in quantifying with a high degree of confidence, and (4) focuses on performance assessments and analyses on the full range of defensible and reasonable parameter distributions rather than only upon extreme physical situations and parameter values.

However, Clark County fails to demonstrate that resolution of the contention would make a difference in the proceeding. As stated in Section IV.A.3, *supra*, Part 63 permits DOE to use probabilistic analyses to calculate potential post-closure radiation doses, 10 C.F.R. § 63.102(j), and to report those doses as *mean* doses. *See* 10 C.F.R. § 63.303. Therefore, contentions that

either independently or cumulatively, fail to demonstrate an increase in the mean dose *above regulatory limits* are immaterial and inadmissible because they would not "make a difference in the outcome of the licensing proceeding." *Duke Energy Corp.*, CLI-99-11, 49 NRC at 333-34.

Clark County asserts that if DOE had considered historical data and had not relied on chemistry of surface basalt, then the mean annual frequency of an igneous event disrupting a repository drift would increase. Petition at 59. However, Clark County does not explain how considering these data would increase the probability of an igneous event affecting a repository drift. Clark County is equally silent, and fails to demonstrate, that any increase in probability of an igneous event would increase dose, let alone cause the repository performance standards to be exceeded. Therefore, Clark County's claims are immaterial and inadmissible.

e. Statement of Alleged Facts or Expert Opinion Supporting Petitioner's Position and Supporting References

The contention does not reference any supporting expert opinion. However, one of the affidavits attached to the Petition states that the affiant "adopts" the discussion in this contention. Affidavit of Dr. Eugene Smith (Petition Attach. 3) at 1. As discussed in more detail in Section IV.A.3 of this Answer, such affidavits are not sufficient to satisfy the requirements of Section 2.309(f)(1)(v).

Petitioner argues that if the DOE had done what Petitioner suggests, then the probability of igneous activity disrupting a repository drift would increase "likely by two or more orders of magnitude." Petition at 63. Yet Dr. Smith's adoption of the statement fails as a valid supporting position because he provides no support for this assertion. He provides no modeling results or evaluations, nor does he state that he performed any such evaluations. There is no evidence in the Petition or its attachments as to how Petitioner arrived at this 2+ order of magnitude change in probability. Accordingly, the Board must treat Dr. Smith's conclusory statement as

speculation that is inadequate to support admissibility of a contention. Conclusory statements cannot provide "sufficient" support for a contention, even if they are proffered by an alleged expert. *See USEC, Inc.* (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 472 (2006).

f. Existence of a Genuine Dispute on a Material Issue of Law or Fact, With Supporting References to the License Application

The Licensing Board also must dismiss this contention because it does not establish that a genuine dispute exists with DOE on a material issue of law or fact. For background, DOE estimates that the mean probability of igneous activity disrupting a repository drift is 1.7×10^{-8} events/year. SAR at 2.3.11-21. This probability "was developed from the results of an expert elicitation that was completed in 1996." SAR at 2.3.11-9. This expert elicitation process was the basis for DOE's Probabilistic Volcanic Hazards Assessment (PVHA) which culminated in a publicly-available PVHA Report. SAR at 2.3.11-14 (referencing CRWMS M&O 1996 (LSN# DEN000861156)). The PVHA Report documents the judgments of the ten experts who participated in the elicitation process on various aspects of the PVHA, including the volcanic/tectonic setting, event definition, region of interest, and event counts. PVHA Report, Appendix E (Elicitation Interview Summaries).

Clark County's entire argument focuses on two sentences in the SAR:

> Major-element, trace-element and isotopic data were obtained from the buried basalt bodies and indicate that all are broadly basaltic in composition with typical SiO2 contents of 42-50%. These geochemical results are consistent with geochemical analyses of basalt samples from surface exposures near Yucca Mountain (Perry and Bowker 1998).

Petition at 61 (quoting SAR at 2.3.11-17).

To refute these sentences in the SAR, it cites to findings in a Research Report that its expert prepared. *Id*. (citing and discussing "'Report of Research Activities in 2007 Prepared to

Satisfy the Requirements of a Clark County Contract for Volcanic Hazard Assessment of the Proposed Nuclear Waste Repository at Yucca Mountain, Nevada' (07/08/2008), LSN# CLK000000071 at 9-10") (hereafter in this contention response, Smith's Research Report). It provides no other support for its argument.[24]

Clark County lists three alleged findings from Smith's Research Report to refute the SAR: (1) the chemistry in basalt from borings collected in Crater Flat and Amargosa Valley is quite different from the 1.0 million year old cinder cones in Crater Flats; (2) the range of SiO2 is different between the core (43 to 52 wt. %) and Crater Flat (47-50 wt. %), and has lower light rare-earth element concentrations; and (3) three rock types were observed in the core that were not found at the surface. Petition at 61. Clark County concludes that "[h]ad the DOE considered core data, which provides a record from the beginning of basalt volcanism 11 million years ago, [the Application], which indicate[s] that the probability of igneous activity disrupting a repository drift is 1.7×10^{-8} events/year, would have had to be revised as [it] underestimate[s] that probability, likely by two or more orders of magnitude." *Id*. at 63.

The arguments contained within Smith's Research Report do not raise a genuine dispute of material fact or law for two reasons. First, the contention incorrectly asserts that DOE's estimate of the annual frequency of intersection ignores data obtained from core and surface studies that provide a record of volcanism back to 11 million years ago. It ignores the PVHA which is the primary input to DOE's igneous evaluation. The igneous hazard estimate for Yucca Mountain is based on spatial and temporal patterns of volcanism as observed in the region. The record of volcanism in the region was used by the PVHA experts to describe the spatial and

[24] Clark County cites to Valentine, G.A. and Perry, F.V. (2007), "Tectonically Controlled, Time-Predictable Basaltic Volcanism from a Lithospheric Source" (02/07/2007), LSN# DN2002382703 at 1-22, but only to state why its findings are wrong. Petition at 61-62, n.53 & 54.

temporal patterns of volcanism, and those experts considered igneous activity that extended back 11 million years. *See, e.g.*, PVHA Report, Figures 3-3(a), 3-62 and 3-63. Figure 3-62 shows that events as old as 11 million years were considered in the PVHA, but generally the experts assigned little weight to events older than about 5 million years in the development of their hazard models because they considered events since then to be more relevant. *See, e.g.*, PVHA Report, Figure 3-3. However, the experts' judgment in that regard cannot be correctly interpreted as ignoring the record of volcanism back 11 million years; so the contention has misstated the facts, including the actual method used to develop the hazard estimate.[25]

Second, the contention alleges that the DOE approach wrongly relied on the chemistry of surface basalt erupted over the past 5 million years, but the Petition does not adequately explain how basalt chemistry relates to the development of the hazard estimate. The explanation offers tenuous ties between basalt chemistry and basalt ages, but ignores the fact that the basalts intersected by the most recent drilling are 10 million years or older. *See* Smith's Research Report at 3, 10, and 17. As noted earlier in this response, basalts older than about 5 million years were considered, but given little weight in the experts' hazard models. Therefore, Clark County has not demonstrated what effect these data would have had on the magnitude of the experts' hazard estimates.

In sum, DOE's igneous hazard estimate takes into account the record of volcanism back to 11 million years. Hence, the allegations that DOE ignored the record of volcanism back to 11 million years and wrongly relied on the chemistry of surface basalt erupted over the past 5 million years are not correct, and do not raise a genuine dispute on a material issue of fact or law.

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[25] In its response to CLK-SAFETY-004, DOE also provided discussion from the SAR (at 2.3.11-15, -16, and -18) which demonstrates that DOE considered the entire 11 million year record. That discussion is incorporated by reference here.

9. CLK-SAFETY-009—The DOE Fails to Consider Alternative Igneous Event Conceptual Models

The DOE's assessment of the frequency of igneous events does not consider appropriate alternative conceptual models that are consistent with available data and current scientific understanding, with the result that uncertainty is underestimated and not properly characterized.

RESPONSE

This contention is another attempt by Clark County to litigate its expert's controversial theory that the asthenosphere is the source of basaltic magma in the Yucca Mountain region. Specifically, Clark County alleges that "DOE's assessment of the frequency of igneous events does not consider appropriate alternative conceptual models that are consistent with available data and current scientific understanding, with the result that uncertainty is underestimated and not properly characterized." Petition at 64. As discussed below, this issue is not material, lacks appropriate expert support, and it does not raise a genuine dispute of fact because DOE did consider alternative conceptual models that are consistent with available data and current scientific understanding.

a. Statement of Issue of Law or Fact to be Controverted

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

b. Brief Explanation of Basis

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

c. Whether the Issue is Within the Scope of the Proceeding

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

d. Whether the Issue is Material to the Findings that the NRC Must Make

In its attempt to demonstrate that this contention is material to the findings that the NRC must make in this proceeding, Clark County sets forth and describes a number of regulations. Petition at 65-66 (citing 10 C.F.R. §§ 63.31(a)(2) and (a)(3), 63.21(c)(9) and (c)(15), 63.102(h), 63.113, 63.114, and Subpart E). Clark County concludes its general description of these regulations with the mere assertion that "this contention alleges violations of these provisions and therefore raises a material issue within the scope of the licensing proceeding." *Id*. But 10 C.F.R. § 2.309(f)(1)(iv) requires a showing by a petitioner that "the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding ...," not merely a citation or discussion of regulations. In this regard, a contention is material only if its resolution would make a difference in the outcome of the proceeding. *See Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2 and 3), CLI-99-11, 49 NRC 328, 333-34 (1999).

While the Advisory PAPO Board directed the potential parties to provide a "citation to a statute or regulation that, explicitly or implicitly, has not been satisfied" because specific citations are "preferable" to general citations (June 20, 2008 CMO, at 7), this direction cannot be read to dispense with the well-recognized requirement that resolution of the contention would make a difference in the outcome of the proceeding, particularly since the CMO focused exclusively on "format" and "procedural matters." CMO at 3.

In particular, because the issue presented in this contention concerns postclosure performance, Clark County must demonstrate that the resolution of the issue would prevent the NRC from finding that there is a "reasonable expectation" that the radioactive materials can be disposed of without unreasonable risk to the health and safety of the public. *See* 10 C.F.R.

§ 63.31(a)(2). However, as discussed in Section IV.A.3, *supra*, and in 10 C.F.R. § 63.101 (a)(2), "because of the uncertainties inherent in the understanding of the evolution of the geologic setting, biosphere, and engineered barrier system," DOE is *not* required to provide complete assurance that each postclosure performance objective specified at § 63.113 will be met. Therefore, Clark County must demonstrate that there is no reasonable expectation that the overall objective could be met. This contention makes no such showing.

The method the DOE used in addressing the potential impacts to the repository from an igneous event is consistent with what the NRC contemplates in 10 C.F.R. § 63.304, which recognizes that determining that there is a "reasonable expectation": (1) requires less than absolute proof, (2) accounts for the inherently greater uncertainties in making long-term projections of disposal system performance, (3) does not exclude important parameters from assessments and analyses due to the difficulty in quantifying with a high degree of confidence, and (4) focuses on performance assessments and analyses on the full range of defensible and reasonable parameter distributions rather than only upon extreme physical situations and parameter values.

However, Clark County fails to demonstrate that resolution of the contention would make a difference in the proceeding. As stated in Section IV.A.3, *supra*, Part 63 permits DOE to use probabilistic analyses to calculate potential post-closure radiation doses, 10 C.F.R. § 63.102(j), and to report those doses as *mean* doses. *See* 10 C.F.R. § 63.303. Therefore, contentions that either independently or cumulatively, fail to demonstrate an increase in the mean dose *above regulatory limits* are immaterial and inadmissible because they would not "make a difference in the outcome of the licensing proceeding." *Duke Energy Corp.*, CLI-99-11, 49 NRC at 333-34.

Clark County asserts that "the alternative model whereby melting to produce basalt occurs in the asthenosphere should have been included in the [TSPA]." Petition at 64. However, Clark County does not explain how considering these data would increase the probability of an igneous event affecting a repository drift. Clark County is equally silent, and fails to demonstrate, that any increase in probability of an igneous event would cause the repository performance standards to be exceeded. Therefore, Clark County's claims are immaterial and inadmissible.

e. Statement of Alleged Facts or Expert Opinion Supporting Petitioner's Position and Supporting References

The contention does not reference any supporting expert opinion. However, one of the affidavits attached to the Petition states that the affiant "adopts" the discussion of the contention. Affidavit of Dr. Eugene Smith (Petition Attach. 3) at 1. As discussed in more detail in Section IV.A.3 of this Answer, such an affidavit is not sufficient to satisfy the requirements of Section 2.309(f)(1)(v).

f. Existence of a Genuine Dispute on a Material Issue of Law or Fact, With Supporting References to the License Application

The contention asserts that "DOE's assessment of the frequency of igneous events does not consider appropriate alternative conceptual models that are consistent with available data and current scientific understanding, with the result that uncertainty is underestimated and not properly characterized." Petition at 64. The fundamental basis for this assertion is an allegation that DOE's volcanic hazards assessment is based on an outdated PVHA, and that the PVHA experts based their results on the assumption of shallow melting to produce basaltic magma. *Id*. This assertion is incorrect—and therefore does not raise a genuine dispute of material fact—for three reasons: 1) the PVHA experts considered a wide range of alternative conceptual models, 2)

neither DOE nor the PVHA experts assumed that shallow melting produces basaltic magma in the Yucca Mountain region, and 3) DOE evaluated data and conceptual models developed since the completion of the PVHA in 1996, and determined that they have no significant effect on the estimates of the frequency of igneous events, as discussed below.

(1) Alternative Conceptual Models Were Considered in the PVHA

For background, DOE estimates that the mean probability of igneous activity disrupting a repository drift is 1.7×10^{-8} events/year. SAR at 2.3.11-21. This probability "was developed from the results of an expert elicitation that was completed in 1996." SAR at 2.3.11-9. This expert elicitation process was the basis for DOE's Probabilistic Volcanic Hazards Assessment (PVHA) which culminated in a publicly-available PVHA Report. SAR at 2.3.11-14 (referencing CRWMS M&O 1996 (LSN# DEN000861156)). The PVHA Report documents the judgments of the ten experts who participated in the elicitation process on various aspects of the PVHA, including the volcanic/tectonic setting, event definition, region of interest, and event counts. PVHA Report, Appendix E (Elicitation Interview Summaries).

The PVHA was designed and conducted with the fundamental purpose of quantifying the annual frequency of intersection of a basaltic dike with the repository and to estimate the uncertainties associated with that hazard estimate. PVHA Report at 1-1. A key part of the uncertainty quantification was the identification and evaluation by the experts of alternative conceptual models. For example, two workshops were devoted to the identification and discussion of alternative conceptual models: Workshop 2 on Alternative Hazard Models and Workshop 3 on Alternative Interpretations. PVHA Report, Section 2.1, at 2-20 to 2-21. At those workshops, researchers from the Center for Nuclear Waste Regulatory Analysis, State of Nevada, Los Alamos National Laboratory, US Geological Survey, and several universities

discussed their alternative models for characterizing the future spatial and temporal distribution of volcanism. *Id*. at 1-8, 1-9, and 2-20. The PVHA was in essence an exercise in combining multiple alternative conceptual models into a single probability distribution for each expert and, in turn, a probability distribution across all ten experts that captured the uncertainty in the experts' conceptual models of the physical behavior of volcanism in the Yucca Mountain Region. BSC, *Characterize Framework for Igneous Activity at Yucca Mountain, Nevada*, ANL-MGR-GS-000001 REV 02 (2004) (LSN# DN2001632124, Section 6.3.1.6 at 6-16). Contributions of various conceptual models to the hazard results are given in the PVHA Report, Section 4.2, at 4-9 to 4-52.

Therefore, the claim that "DOE's assessment of the frequency of igneous events does not consider appropriate alternative conceptual models that are consistent with available data and current scientific understanding, with the result that uncertainty is underestimated and not properly characterized" is not correct. If a petitioner alleges that the applicant omits information, but the allegedly missing information is indeed there, then the contention does not raise a genuine issue. *See, e.g., Fla. Power & Light Co*. (Turkey Point Nuclear Generating Plant, Units 3 & 4), LBP-90-16, 31 NRC 509, 521, 521 n.12 (1990).

(2) No Assumption of Shallow Melting Was Made by the PVHA Experts

Clark County also states that:

> The PVHA panel of experts based their results on the *assumption* of shallow melting to produce basaltic magma. Using this *assumption* results in an underestimate of the probability of repository disruption, and at the least, the alternative model whereby melting to produce basalt occurs in the asthenosphere should have been included in the total systems performance assessment.

Petition at 64 (emphasis added). An assumption is something that is taken for granted as true or a supposition arrived at without the benefit of due consideration or evaluation. *See generally* American Heritage Dictionary (2nd ed.). As used in the contention, the implication is that DOE (or the experts on the PVHA panel) began their assessments with a supposition of shallow melting and that this somehow eliminated their consideration of alternative conceptual models, including the conceptual model that melting occurs in the asthenosphere.

But no such assumption was made by the PVHA experts nor was it imposed by DOE: consistent with an expert elicitation process, all experts were exposed through workshops and field trips to a wide range of technical viewpoints and alternative conceptual models. PVHA Report at 2-25 to -29. In making their technical evaluations, they were encouraged to act as evaluators and consider all viewpoints as well as their own experience in making their assessments and in quantifying their uncertainties. *Id*. at 2-10 to -12 (describing roles of the PVHA participants).

Clark County also misreads the SAR, because the SAR does not state that DOE's PVHA experts assumed a lithospheric potential source of basaltic magma, thereby ignoring an asthenospheric source. Petition at 64. Rather, it states that the "PVHA experts *generally* view volcanism in the Yucca Mountain region as a regional-scale phenomenon resulting from melting processes in the upper lithospheric mantle." Petition at 66 (quoting SAR at 2.2-97). Indeed, there were some experts who specifically discussed the asthenosphere as the possible source of basaltic magma in the Yucca Mountain Region. *See* PVHA Report, Appendix E, at MK- 2 of 22 (discussion of "volcanic/tectonic setting" in the elicitation interview for Dr. Mel A. Kuntz) ("The low volumes of recent basaltic eruptions and the lack of recent rhyolitic volcanism may be due largely to the fact that both the upper asthenosphere and the entire lithosphere in the [Yucca

Mountain] region have been drained of their low-temperature, partial-melting fractions by previous melting events, resulting in an asthenosphere and a lithosphere that are essentially non-fertile with respect to future melting events."); *id.* at MS-2 of 22 (discussion of volcanic/tectonic setting in the elicitation interview for Dr. Michael F. Sheridan) ("The basic process leading to volcanism involves generation of a melt from a source zone within the asthenosphere or lower lithosphere and migration of the magma to the surface where it erupts"). Again, if a petitioner alleges that the applicant omits information, but the allegedly missing information is indeed there, then the contention does not raise a genuine issue. *See, e.g., Fla. Power & Light Co*. (Turkey Point Nuclear Generating Plant, Units 3 & 4), LBP-90-16, 31 NRC 509, 521, 521 n.12 (1990).

(3) Data and Conceptual Models Developed Since the Completion of the PVHA Have No Significant Effect on the Estimates of the Frequency of Igneous Events

In the basis for the contention, Clark County also states that:

> SAR Subsection 2.2.2.3 and related subsections indicate that the license application relies on the results of the 1996 report of [the PVHA] expert panel report released in 1996 as the basis for hazard assessment. Except for new work on the tectonics of the Crater Flat area and a brief mention of buried basalt, DOE has not updated the PVHA findings, but still bases its conclusions on this out-dated report."

Petition at 64. This statement ignores the information that is provided in the SAR that identifies and evaluates the information that has become available since the conclusion of the PVHA and the findings that this information confirms the conclusions of the PVHA.

Clark County is factually incorrect because DOE did consider post-1996 information. The evaluation of information developed after the completion of the PVHA is plainly identified in the SAR and supporting documents. For example:

- Following the completion of the PVHA in 1996, DOE identified and evaluated additional conceptual models for volcanism in the Yucca Mountain Region. BSC, *Characterize Framework for Igneous Activity at Yucca Mountain, Nevada*, ANL-MGR-GS-000001 REV 02, Table 6-4, at 6-16 to 6-17 (LSN# DN2001632124; DN2002077196; DEN001580092) (2004).

- Published estimates from 1982 to 2000 of the probability of a volcanic event intersecting the repository footprint are summarized in SAR Table 2.3.11-4 (SAR at 2.3.11-96). As evident from that Table, the estimates, including the mean intersection probability estimated in the PVHA, "cluster at slightly greater than 10^{-8} per year, providing confidence that the PVHA probability estimate is robust." SAR at 2.3.11-24.

- In addition, DOE evaluated the potential significance of aeromagnetic data gathered after the PVHA was completed for its potential significance to the hazard estimate. SAR at 2.3.11-25. The SAR identifies three separate sensitivity studies, completed following the PVHA, which included evaluations of the sensitivity of the intersection probability to the presence of postulated buried volcanoes. *Id*. Even if all aeromagnetic anomalies identified in a 1999 aeromagnetic survey and beneath Crater Flat, Jackass Flats, and northern Amargosa Desert were assumed to be buried basalts of Pliocene and younger age, the SAR concludes that the hazard estimate would be 2.2×10^{-8}. *Id*. Each of the sensitivity studies described in SAR Subsection 2.3.11.2.2.6 shows that effects of information developed following completion of the PVHA are similarly insignificant.

Finally, an update to the PVHA (PVHA-U) was performed. The PVHA-U was conducted using a panel of eight experts, whose evaluations included data that had become available since the conclusion of the PVHA, including high-resolution aeromagnetic data, drilling, geochemical, and geochronological analyses conducted specifically to support the PVHA-U. "Probabilistic Volcanic Hazard Analysis Update (PVHA-U) for Yucca Mountain, Nevada Rev. 01" (09/02/2008), (LSN# DEN001601965) (cited in Petition at 833). As summarized in DOE's letter to NRC dated October 17, 2008:

> The differences between the PVHA-96 and PVHA-U distributions would not significantly affect the estimates of repository performance for either 10,000 years or 1,000,000 years, demonstrating that the PVHA-U results are confirmatory of the PVHA-96 technical basis. As a result, the volcanic hazard results presented in the License Application (LA) are robust and suitable

> for evaluating the expected performance of the repository, and no change to the technical basis presented in the LA is necessary.

Boyle, W.J., "Transmittal of Report: Probabilistic Volcanic Hazard Analysis Update (PVHA-U) for Yucca Mountain, Nevada," to NRC (October 17, 2008) (LSN#: DEN001606520). Clark County is simply incorrect that DOE ignored post-1996 information.

Clark County's allegation that DOE did not consider alternative conceptual models is not correct. Because Clark County has failed to controvert a position taken by the applicant in the Application, the contention must be dismissed. *See Tennessee Valley Auth.* (Bellefonte Nuclear Power Plants Units 3 and 4), LBP-08-16, 68 NRC __ (slip op. at 18, 29, 39-40, 42) (Sept. 12, 2008); *Tex. Utils. Elec. Co.* (Comanche Peak Steam Electric Station, Unit 2), LBP-92-37, 36 NRC 370, 384 (1992).

10. CLK-SAFETY-010—The DOE Ignores Igneous Event Data Evaluated Since 1996 in the Total System Performance Analysis

DOE's assessment of the frequency of igneous events in the Application ignores information and analyses since 1996 which would, if considered, have required a significant change in the TSPA and, as a result the Application is not complete or accurate in all material respects.

RESPONSE

This contention appears to raise two separate issues. First, Clark County alleges that DOE has not submitted an application that is complete and accurate, in violation of 10 C.F.R. §§ 63.10 and 63.21(a), because "the [LA] ignores information and analyses [generated] since 1996." Petition at 72. Clark County separately claims that, if these information and analyses had been considered, it would "have required a significant change in the TSPA." *Id*. at 72. As discussed below, these issues are not material, lack appropriate expert support, and/or fail to raise a genuine dispute on a material issue of fact because DOE did consider post-1996 information.

a. Statement of Issue of Law or Fact to be Controverted

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

b. Brief Explanation of Basis

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

c. Whether the Issue is Within the Scope of the Proceeding

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

d. Whether the Issue is Material to the Findings that the NRC Must Make

In its attempt to demonstrate that this contention is material to the findings that the NRC must make in this proceeding, Clark County identifies only two regulations: 10 C.F.R. §§ 63.10 and 63.21(a). Petition at 73. Clark County concludes its general description of these regulations with the mere assertion that "this contention alleges violations of these provisions." *Id*. But 10 C.F.R. § 2.309(f)(1)(iv) requires a showing by a petitioner that "the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding ...," not merely a citation to regulations. In this regard, a contention is material only if its resolution would make a difference in the outcome of the proceeding. *See Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2 and 3), CLI-99-11, 49 NRC 328, 333-34 (1999).

While the Advisory PAPO Board directed the potential parties to provide a "citation to a statute or regulation that, explicitly or implicitly, has not been satisfied" because specific citations are "preferable" to general citations (June 20, 2008 CMO, at 7), this direction cannot be read to dispense with the well-recognized requirement that resolution of the contention would make a difference in the outcome of the proceeding, particularly since the CMO focused exclusively on "format" and "procedural matters." CMO at 3.

In particular, because the issue presented in this contention concerns postclosure performance, Clark County must demonstrate that the resolution of the issue would prevent the NRC from finding that there is a "reasonable expectation" that the radioactive materials can be disposed of without unreasonable risk to the health and safety of the public. *See* 10 C.F.R. § 63.31(a)(2). However, as discussed in Section IV.A.3, *supra*, and in 10 C.F.R. § 63.101 (a)(2), "because of the uncertainties inherent in the understanding of the evolution of the geologic

setting, biosphere, and engineered barrier system," DOE is *not* required to provide complete assurance that each postclosure performance objective specified at § 63.113 will be met. Therefore, Clark County must demonstrate that there is no reasonable expectation that the overall objective could be met. This contention makes no such showing.

The method the DOE used in addressing the potential impacts to the repository from an igneous event is consistent with what the NRC contemplates in 10 C.F.R. § 63.304, which recognizes that determining that there is a "reasonable expectation": (1) requires less than absolute proof, (2) accounts for the inherently greater uncertainties in making long-term projections of disposal system performance, (3) does not exclude important parameters from assessments and analyses due to the difficulty in quantifying with a high degree of confidence, and (4) focuses on performance assessments and analyses on the full range of defensible and reasonable parameter distributions rather than only upon extreme physical situations and parameter values.

However, Clark County fails to demonstrate that resolution of the contention would make a difference in the proceeding. As stated in Section IV.A.3, *supra*, Part 63 permits DOE to use probabilistic analyses to calculate potential post-closure radiation doses, 10 C.F.R. § 63.102(j), and to report those doses as *mean* doses. *See* 10 C.F.R. § 63.303. Therefore, contentions that either independently or cumulatively, fail to demonstrate an increase in the mean dose *above regulatory limits* are immaterial and inadmissible because they would not "make a difference in the outcome of the licensing proceeding." *Duke Energy Corp*., CLI-99-11, 49 NRC at 333-34.

Clark County asserts that, if DOE had considered certain post-1996 information and analyses that it lists on pages 73-74 of the Petition, then DOE would have had to make "a significant change in the TSPA." *Id*. at 75. However, Clark County does not explain how

considering the post-1996 information it identifies would increase the probability of an igneous event affecting a repository drift. Clark County is equally silent, and fails to demonstrate, that any increase in probability of an igneous event would increase dose, let alone cause the repository performance standards to be exceeded. Therefore, Clark County's claims are immaterial and inadmissible.

e. Statement of Alleged Facts or Expert Opinion Supporting Petitioner's Position and Supporting References

The contention does not reference any supporting expert opinion. However, one of the affidavits attached to the Petition states that the affiant "adopts" the discussion of the contention, but only for paragraph 5. Affidavit of Dr. Eugene Smith (Petition Attach. 3) at 1. As discussed in more detail in Section IV.A.3 of this Answer, such an affidavit is not sufficient to satisfy the requirements of Section 2.309(f)(1)(v).

Clark County concludes that "[o]mission of all this work results in an underestimate of the probability of repository disruption and of the related uncertainties, which in turn leads to an erroneous [total systems performance assessment]." Petition at 74. It provides no support for this conclusion. Clark County provides no modeling results or evaluations, nor does it state that its experts performed any such evaluations. There is no evidence in the Petition or its attachments as to how Clark County arrived at this conclusion. Accordingly, the Board must treat this conclusory statement as speculation that is inadequate to support admissibility of a contention. Conclusory statements cannot provide "sufficient" support for a contention, even when proffered by an alleged expert. *See USEC, Inc.* (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 472 (2006).

f. Existence of a Genuine Dispute on a Material Issue of Law or Fact, With Supporting References to the License Application

Neither of the two claims in this contention raise a genuine dispute on a material issue of law or fact.

(1) No Genuine Dispute About Complying With 10 C.F.R. §§ 63.10 or 63.21(a)

As clearly set forth in 10 C.F.R. § 2.209(f)(1)(vi), Clark County—as the Petitioner—has the burden to demonstrate how its contention raises a genuine dispute. Clark County first relies upon Section 63.10, which requires that "[i]nformation provided to the Commission by an applicant for a license . . . must be complete and accurate in all material respects," and 10 C.F.R. § 63.21(a), which states that the "application must be as complete as possible in the light of information that is reasonably available at the time of docketing." To support its claim that the Application is not complete and accurate, Clark County states that "[s]ince 1996, DOE, NRC, the State of Nevada and Clark County have done *much work that is pertinent* to volcanic hazard analysis at Yucca Mountain but is not considered in the [license] application." Petition at 73 (emphasis added). To support this statement, in turn, Clark County lists 13 LSN documents. Petition at 73-74.

But merely listing 13 documents that might be "pertinent" is clearly insufficient to demonstrate that the Application violates 10 C.F.R. § 63.10. Clark County provides the list of the 13 documents, without citations to specific pages, and without any further explanation. And it makes no attempt to explain the materiality of the post-1996 references it cites.[26] Even

[26] Clark County does provide a brief explanation for one of the LSN documents—the update to DOE's PVHA (known as the PVHA-U). Petition at 74. But that explanation suggests that including the PVHA-U would *not* change DOE's analyses in a material way, contrary to what would need to be shown for a violation of Section 63.10 ("must be complete and accurate in all material respects"). *Id*. ("Despite the possibility that changes in hazard assessment models and calculations [in the PVHA-U] are modest, it is critical that this report be included in the license application.").

assuming that "much work" has been done in this scientific area, and that this work is "pertinent to volcanic hazards analysis at Yucca Mountain," these statements, without further explanation, in no way create a genuine dispute that the information in the Application is not complete and accurate in all material respects (§ 63.10), or that the application was not complete as possible in the light of information that was reasonably available at the time of docketing (Section 63.21(a)).

(2) No Genuine Dispute Regarding Considering the New Information and Analyses

The contention also states that "DOE's assessment of the frequency of igneous events in the Application ignores information and analyses since 1996 which would, if considered, have required a significant change in the TSPA. Petition at 72. Clark County cites 13 LSN documents and then alleges that "[o]mission" of the information contained in these documents "results in an underestimate of the probability of repository disruption and of the related uncertainties, which in turn leads to an erroneous TSPA. Petition at 74.

The Licensing Board also must dismiss this contention because these statements ignore the Application and supporting documents that identify and evaluate information that has become available since the conclusion of the Probabilistic Volcanic Hazards Assessment (PVHA), and DOE's finding that this information confirms the conclusions of the PVHA. For background, DOE estimates that the mean probability of igneous activity disrupting a repository drift is 1.7×10^{-8} events/year. SAR at 2.3.11-21. This probability "was developed from the results of an expert elicitation that was completed in 1996." SAR at 2.3.11-9. This expert elicitation process was the basis for DOE's PVHA which culminated in a publicly-available PVHA Report. SAR at 2.3.11-14 (referencing CRWMS M&O 1996 (LSN# DEN000861156)). The PVHA Report documents the judgments of the ten experts who participated in the elicitation process on various aspects of the PVHA, including the volcanic/tectonic setting, event definition,

region of interest, and event counts. PVHA Report, Appendix E (Elicitation Interview Summaries).

First, Clark County points to no legal requirement—other than §§ 63.10 and 63.21(a)—that DOE must mention or incorporate the results of studies performed, and papers published, after issuance of the PVHA in 1996. As demonstrated above, there is no genuine dispute to be litigated in this proceeding that the information in the application is not complete and accurate in all material respects (Section 63.10), or that the application was not as complete as possible in the light of information that was reasonably available at the time of docketing (Section 63.21(a)). And there are, in fact, no regulations requiring DOE to mention or incorporate the results of those studies.

Second, although Clark County alleges that there is new information and analyses that have been developed or published since 1996 that DOE did not consider, Clark County is factually incorrect because DOE did consider post-1996 information and analyses. The evaluation of information and analyses developed after the completion of the PVHA is plainly identified in the SAR and supporting documents. For example:

- Following the completion of the PVHA in 1996, DOE identified and evaluated additional conceptual models for volcanism in the Yucca Mountain Region. BSC, *Characterize Framework for Igneous Activity at Yucca Mountain, Nevada*, ANL-MGR-GS-000001 REV 02, Table 6-4, at 6-16 to 6-17 (LSN# DN2001632124; DN2002077196; DEN001580092 (2004)).

- Published estimates from 1982 to 2000 of the probability of a volcanic event intersecting the repository footprint are summarized in SAR Table 2.3.11-4 (SAR at 2.3.11-96). As evident from that Table, the estimates, including the mean intersection probability estimated in the PVHA, "cluster at slightly greater than 10^{-8} per year, providing confidence that the PVHA probability estimate is robust." SAR at 2.3.11-24.

- In addition, DOE evaluated the potential significance of aeromagnetic data gathered after the PVHA was completed for its potential significance to the hazard estimate. SAR at 2.3.11-25. The SAR identifies three separate sensitivity

> studies, completed following the PVHA, which included evaluations of the sensitivity of the intersection probability to the presence of postulated buried volcanoes. *Id*. Even if all aeromagnetic anomalies identified in a 1999 aeromagnetic survey and beneath Crater Flat, Jackass Flats, and northern Amargosa Desert were assumed to be buried basalts of Pliocene and younger age, the SAR concludes that the hazard estimate would be 2.2×10^{-8}. *Id*. Each of the sensitivity studies described in SAR at 2.3.11.2.2.6 shows that effects of information developed following completion of the PVHA are similarly insignificant.

Finally, the PVHA-U was conducted using a panel of eight experts, whose evaluations included data that had become available since the conclusion of the PVHA, including high-resolution aeromagnetic data, drilling, geochemical, and geochronological analyses conducted specifically to support the PVHA-U. "Probabilistic Volcanic Hazard Analysis Update (PVHA-U) for Yucca Mountain, Nevada Rev. 01" (09/02/2008), (LSN# DEN001601965) (cited in Petition at 833). As summarized in DOE's letter to NRC dated October 17, 2008:

> The differences between the PVHA-96 and PVHA-U distributions would not significantly affect the estimates of repository performance for either 10,000 years or 1,000,000 years, demonstrating that the PVHA-U results are confirmatory of the PVHA-96 technical basis. As a result, the volcanic hazard results presented in the License Application (LA) are robust and suitable for evaluating the expected performance of the repository, and no change to the technical basis presented in the LA is necessary.

Boyle, W.J., "Transmittal of Report: Probabilistic Volcanic Hazard Analysis Update (PVHA-U) for Yucca Mountain, Nevada," to NRC (October 17, 2008) (LSN#: DEN001606520). Clark County is simply incorrect that DOE ignored post-1996 information and analyses.

In sum, Clark County has failed to demonstrate that DOE violated §§ 63.10 and 63.21(a), as alleged. Clark County has also failed to demonstrate that the information and analyses generated after the PVHA was completed in 1996 would result in a significant change in the TSPA, and that even if there was a significant change, it would result in an exceedance of the repository performance standards. Because Clark County has failed to controvert a position

taken by DOE in the Application, the contention must be dismissed. *See Tennessee Valley Auth.* (Bellefonte Nuclear Power Plants Units 3 and 4), LBP-08-16, 68 NRC __ (slip op. at 18, 29, 39-40, 42) (Sept. 12, 2008); *Tex. Utils. Elec. Co.* (Comanche Peak Steam Electric Station, Unit 2), LBP-92-37, 36 NRC 370, 384 (1992).

11. CLK-SAFETY-011—The DOE Lacks Sufficient Geophysical Data to Support Its Volcanic Model

High-quality geophysical data is necessary to answer the fundamental question as to whether volcanoes are primarily controlled by upper crustal structure or mantle. The DOE's approach to predicting the location and frequency of future eruptions, as reflected in SAR Subsection 2.2.2.2.3.1 and related subsections, relies heavily on upper crustal structures and the local stress field, but does not provide sufficient geophysical data to support this model. This is inadequate because high-quality geophysical data are necessary to confirm or rule out the proposition, supported by the currently available data, that the primary control of the location of a basaltic field near Yucca Mountain is asthenospheric mantle processes.

RESPONSE

This contention is another attempt by Clark County to litigate its expert's controversial theory that the asthenosphere is the source of basaltic magma in the Yucca Mountain region. Specifically, Clark County alleges that the Application is "inadequate" because it "does not provide sufficient geophysical data" to support DOE's alleged position about the origin of volcanic events. Petition at 76. Even more specifically, Clark County alleges that DOE was required to generate "high-quality geophysical data" to "confirm or rule out" Clark County's theory "that the primary control of the location of a basaltic field near Yucca Mountain is asthenospheric mantle processes." *Id*. As discussed below, this issue is not material, lacks appropriate expert support, and fails to raise a genuine dispute of material fact because DOE did consider these kinds of data.

a. Statement of Issue of Law or Fact to be Controverted

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

b. Brief Explanation of Basis

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

c. Whether the Issue is Within the Scope of the Proceeding

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based on this requirement.

d. Whether the Issue is Material to the Findings that the NRC Must Make

In its attempt to demonstrate that this contention is material to the findings that the NRC must make in this proceeding, Clark County sets forth and describes a number of regulations. Petition at 77 (citing 10 C.F.R. §§ 63.31(a)(2) and (a)(3), 63.21(c)(9) and (c)(15), 63.113, 63.114, and Subpart E). Clark County concludes its general description of these regulations with the mere assertion that "this contention alleges violations of these provisions and therefore raises a material issue within the scope of the licensing proceeding." *Id*. But 10 C.F.R. § 2.309(f)(1)(iv) requires a showing by a petitioner that "the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding ...," not merely a citation or discussion of regulations. In this regard, a contention is material only if its resolution would make a difference in the outcome of the proceeding. *See Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2 and 3), CLI-99-11, 49 NRC 328, 333-34 (1999).

While the Advisory PAPO Board directed the potential parties to provide a "citation to a statute or regulation that, explicitly or implicitly, has not been satisfied" because specific citations are "preferable" to general citations (June 20, 2008 CMO, at 7), this direction cannot be read to dispense with the well-recognized requirement that resolution of the contention would

make a difference in the outcome of the proceeding, particularly since the CMO focused exclusively on "format" and "procedural matters." CMO at 3.

In particular, because the issue presented in this contention concerns postclosure performance, Clark County must demonstrate that the resolution of the issue would prevent the NRC from finding that there is a "reasonable expectation" that the radioactive materials can be disposed of without unreasonable risk to the health and safety of the public. *See* 10 C.F.R. § 63.31(a)(2). However, as discussed in Section IV.A.3, *supra*, and in 10 C.F.R. § 63.101 (a)(2), "because of the uncertainties inherent in the understanding of the evolution of the geologic setting, biosphere, and engineered barrier system," DOE is *not* required to provide complete assurance that each postclosure performance objective specified at § 63.113 will be met. Therefore, Clark County must demonstrate that there is no reasonable expectation that the overall objective could be met. This contention makes no such showing.

The method the DOE used in addressing the potential impacts to the repository from an igneous event is consistent with what the NRC contemplates in 10 C.F.R. § 63.304, which recognizes that determining that there is a "reasonable expectation": (1) requires less than absolute proof, (2) accounts for the inherently greater uncertainties in making long-term projections of disposal system performance, (3) does not exclude important parameters from assessments and analyses due to the difficulty in quantifying with a high degree of confidence, and (4) focuses on performance assessments and analyses on the full range of defensible and reasonable parameter distributions rather than only upon extreme physical situations and parameter values.

However, Clark County fails to demonstrate that resolution of the contention would make a difference in the proceeding. As stated in Section IV.A.3, *supra*, Part 63 permits DOE to use

probabilistic analyses to calculate potential post-closure radiation doses, 10 C.F.R. § 63.102(j), and to report those doses as *mean* doses. *See* 10 C.F.R. § 63.303. Therefore, contentions that either independently or cumulatively, fail to demonstrate an increase in the mean dose *above regulatory limits* are immaterial and inadmissible because they would not "make a difference in the outcome of the licensing proceeding." *Duke Energy Corp*., CLI-99-11, 49 NRC at 333-34.

Clark County asserts that it "is inadequate" that DOE did not consider high-quality geophysical data. Petition at 76. However, Clark County does not explain how considering these data would increase the probability of an igneous event affecting a repository drift. Clark County is equally silent, and fails to demonstrate, that any increase in probability of an igneous event would increase dose, let alone cause the repository performance standards to be exceeded. Therefore, Clark County's claims are immaterial and inadmissible.

e. Statement of Alleged Facts or Expert Opinion Supporting Petitioner's Position and Supporting References

The contention does not reference any supporting expert opinion. However, one of the affidavits attached to the Petition state that the affiant "adopts" the discussion in this contention. Affidavit of Dr. Eugene Smith (Petition Attach. 3) at 1. As discussed in more detail in Section IV.A.3 of this Answer, such affidavits are not sufficient to satisfy the requirements of § 2.309(f)(1)(v).

f. Existence of a Genuine Dispute on a Material Issue of Law or Fact, With Supporting References to the License Application

The contention does not raise a genuine dispute because Clark County misreads the SAR and its supporting documents.

For background, DOE estimates that the mean probability of igneous activity disrupting a repository drift is 1.7×10^{-8} events/year. SAR at 2.3.11-21. This probability "was developed

from the results of an expert elicitation that was completed in 1996." SAR at 2.3.11-9. This expert elicitation process was the basis for DOE's Probabilistic Volcanic Hazards Assessment (PVHA) which culminated in a publicly-available PVHA Report. SAR at 2.3.11-14 (referencing CRWMS M&O 1996 (LSN# DEN000861156)). The PVHA Report documents the judgments of the ten experts who participated in the elicitation process on various aspects of the PVHA, including the volcanic/tectonic setting, event definition, region of interest, and event counts. PVHA Report, Appendix E (Elicitation Interview Summaries).

(1) Use of Geophysical Data in the Igneous Hazard Assessment

Although the contention asserts that "the fundamental question as to whether volcanoes are primarily controlled by upper crustal structure or mantle" must be addressed with high-quality geophysical data (Petition at 76), no clear definition is given for what "high-quality" geophysical data is, nor is a connection made between these data and the associated implications to the PVHA that might result, the associated implications to the TSPA, and compliance with regulatory dose limits. Nor does Clark County explain where in the regulations DOE is required to generate "high-quality geophysical data" to "confirm or rule out" Clark County's controversial theory[27] "that the primary control of the location of a basaltic field near Yucca Mountain is asthenospheric mantle." Petition at 76. These flaws in Clark County's argument fail to create a genuine dispute.

Also, Clark County states that "Without geophysical data to determine the subsurface geometry of faults, the thickness and geometry of the crust and lithospheric mantle, and the identification of low velocity zones (hot areas) in the crust and mantle, conclusions that relate

[27] Clark County's expert acknowledges that his own interpretation is controversial: "We realize that our observations and conclusions are controversial and anticipate that many questions will be asked about both temporal and mantle melting models." Smith, E.I., Keenan, D.L., and Plank, T., 2002, Episodic Volcanism and Hot Mantle: Implications for Volcanic Hazard Studies at the Proposed Nuclear Waste Repository at Yucca Mountain, Nevada: GSA Today, v. 12, no. 4, at 7.

volcano location to upper crustal structure and the local stress state are not supportable." Petition at 80. The implication is that the PVHA experts were not provided with, and/or did not consider, high-quality geophysical data. This is not true. A simple review of the list of references distributed to the PVHA expert panel members indicates the following types of geophysical data were provided to them:

- Paleomagnetic data
- Seismic tomography
- Teleseismic tomography
- Ground magnetic
- Geochronologic data
- Seismic reflection profiles
- Bouguer gravity map
- Total intensity gravity
- Aeromagnetic data
- Isostatic gravity map

PVHA Report, Appendix B, at B-1 to B-7. This list indicates that the expert panel was provided with a significant quantity of geophysical data and these data were evaluated, along with other types of data such as geologic and geochemical data, to develop their interpretations for the PVHA.

(2) No Reliance on Assumptions

Clark County also states that "DOE relies heavily on an *assumption* of control exerted by upper crustal structures and the local stress field to predict the location of future eruptions." Petition at 78 (referencing SAR at 2.2-97) (emphasis added). An assumption is something that is taken for granted as true or a supposition arrived at without the benefit of due consideration or evaluation. *See generally* American Heritage Dictionary (2nd ed.). Clark County implies that

DOE (or the experts on the PVHA panel) began their assessments with a supposition of upper crustal structures and the local stress field controlling the location of future eruptions.

But no such assumption was made by the PVHA experts nor was it imposed by DOE: consistent with an expert elicitation process, all experts were exposed through workshops and field trips to a wide range of technical viewpoints and alternative conceptual models. PVHA Report at 2-25 to -29. In making their technical evaluations, they were encouraged to act as evaluators and consider all viewpoints as well as their own experience in making their assessments and in quantifying their uncertainties. *Id*. at 2-10 to -12 (describing roles of the PVHA participants).

Because Clark County has failed to controvert a position taken by DOE in the Application, the contention must be dismissed. *See Tennessee Valley Auth.* (Bellefonte Nuclear Power Plants Units 3 and 4), LBP-08-16, 68 NRC __ (slip op. at 18, 29, 39-40, 42) (Sept. 12, 2008); *Tex. Utils. Elec. Co.* (Comanche Peak Steam Electric Station, Unit 2), LBP-92-37, 36 NRC 370, 384 (1992).

12. CLK-SAFETY-012—The DOE's Prior Institutional Failures Render It Unfit to be Licensee

The DOE lacks the requisite institutional integrity to be granted a license to construct and operate a repository in a safe and secure manner for high level radioactive waste and spent nuclear fuel at Yucca Mountain.

RESPONSE

In this contention, Clark County claims that "DOE lacks the requisite institutional integrity to be granted a license" for Yucca Mountain, allegedly due to a history of "failures to meet procedural, legal and contractual obligations." Petition at 85. Clark County goes on to complain about DOE's alleged "demonstrate[d] lack of capacity and competency to effectively manage large, complex, and long-term projects in a safe manner." *Id*. Thus, this contention raises both management competence *and* integrity issues.

Ultimately, this contention is an attempt to manufacture a management competence or integrity issue out of documents unrelated to the Yucca Mountain Project, the blatant misreading of a seven year-old DOE Inspector General report, and the apparent existence of a narrow legal dispute over the interpretation of the NWPA. None of Clark County's allegations are specific, credible, or sufficiently connected to this project to show a systemic, ongoing management or integrity breakdown across DOE, OCRWM, or the Yucca Mountain Project, as required. *See*, *e.g*., *USEC, Inc*. (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 464-65 (2006).

In addition, this contention fails to meet all six criteria in 10 C.F.R. § 2.309(f)(1), and is therefore inadmissible. The allegations Clark County proffers are, in large part unrelated to the statement of its contention. Thus, this contention fails to provide an adequate statement of the issues and lacks adequate basis. Clark County also impermissibly challenges the NWPA and Commission regulations, and therefore raises issues outside the scope of this proceeding and

immaterial to any findings the NRC must make. The contention also lacks an adequate support in facts or expert opinion and fails to raise a genuine dispute.

Finally, DOE is committed to having personnel with the requisite knowledge and experience in charge of the construction and operation of the Yucca Mountain repository and will comply with all NRC requirements in this regard. Clark County, however, seeks to go beyond those requirements and initiate an open-ended inquiry into DOE's management record. Such an inquiry is unauthorized.

a. Statement of Issue of Law or Fact to be Controverted

The statement of this contention alleges deficiencies in DOE's integrity. Petition at 85. But the basis statement and, as explained in detail in Section f. below, most of Clark County's factual allegations relate to management competence-related issues.[28] For example, the basis statement alleges a "lack of capacity and competency to effectively manage large, complex, and long-term projects." *Id*. In other words, Clark County raises a host of claims unrelated to the statement of its contention, and therefore the scope of legal issues Clark County seeks to litigate is not limited by the statement of its contention.[29] As a result, Clark County fails to explain, with specificity, the particular legal or factual issues it seeks to litigate, *Dominion Nuclear Conn., Inc*., CLI-01-24, 54 NRC at 359-60, so this contention fails to provide an adequate statement of issues and must be dismissed.

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[28] Any inquiry into an applicant's management competence is separate and distinct from an inquiry into its integrity. *See Metro. Edison Co*. (Three Mile Island Nuclear Station, Unit 1), CLI-85-9, 21 NRC 1118, 1136-37 (1985) (defining management competence as an inquiry into the "technical resources and capabilities" of an applicant, and integrity or character as an inquiry into characteristics such as "candor, truthfulness, willingness to abide by regulatory requirement, and acceptance of responsibility to protect public health and safety"). Clark County does not appear to recognize this important distinction.

[29] It also runs afoul of the Case Management Order, which specifies single-issue contentions, particularly for legal issues which "may be easier to parse into single-issue contentions." LBP-08-10, slip op. at 6.

b. Brief Explanation of Basis

As explained in Section a. above, there is a significant disconnect between the statement of Clark County's contention and the basis and factual information Clark County provides. Thus, because Clark County's basis statement is largely unconnected to the statement of its contention, this contention lacks sufficient foundation to warrant further exploration and must be dismissed. *See Pub. Serv. Co. of N.H.* (Seabrook Station, Units 1 and 2), ALAB-942, 32 NRC 395, 428 (1990).

c. Whether the Issue is Within the Scope of the Proceeding

As previously noted, the statement of the contention alleges issues with DOE's integrity, while the basis statement and evidence primarily set forth issues with competence of DOE's management. As a result, it is unclear whether Clark County is challenging DOE's integrity or management with this contention. Regardless of how this contention is interpreted, however, it is outside the scope of this proceeding. As explained below, this Board must reject Clark County's attempt to redirect this proceeding away from an adjudication of the technical adequacy of the *application*,[30] and towards an impermissible and wide-ranging inquiry into the general management competence of the *applicant*.

(1) Generalized Integrity Allegations Are Outside Scope

(a) The "Character" Requirement in Section 182a of the AEA Does Not Apply to DOE or to this Proceeding

Clark County declares that DOE's application should not be granted because DOE's "poor integrity poses a significant safety problem." *See* Petition at 86. Section 182a of the

[30] The Commission's Notice of Hearing, which defines the scope of this proceeding states, in pertinent part, that "The matters of fact and law to be considered are whether the *application* satisfies the applicable safety, security, and technical standards of the AEA and NWPA and the NRC's standards in 10 CFR Part 63 for construction authorization for a high-level waste repository . . . ." Hearing Notice, 73 Fed. Reg. at 63,029 (emphasis added).

Atomic Energy Act of 1954 (AEA) requires an NRC license application to provide, among other things, sufficient information for the NRC to determine the "character of the applicant" for a license. 42 U.S.C. § 2232a. This aspect of Section 182a, however, does not apply to DOE, nor does the character inquiry apply to this proceeding.

First, Clark County misconstrues the purpose of the "character of the applicant" inquiry, which was intended to provide the Atomic Energy Commission with the authority to ensure that *private* applicants possessed the requisite character to be licensed under the AEA. The Joint Committee on Atomic Energy's Report on Amending the Atomic Energy Act of 1946 states that the AEA would permit "the Commission to license private industry to possess and use special nuclear materials. . . . [It] also permits private persons . . . to own reactors intended to produce and utilize such materials." S. Rep. No. 1699-83 at 9 (1954). For security reasons, the Joint Committee was concerned, among other things, about retaining strict controls on access to information about nuclear power. *See id*. at 7 ("Clearance for access to restricted data has been contingent upon an investigation as to the *character*, associations, and loyalty of the individual.") (emphasis added). The same concerns motivated the previous "stringent prohibitions . . . against private participation in atomic energy." *Id*. at 7. Thus, Section 182a specified that Commission licensees should possess the requisite "character." 42 U.S.C. § 2232a.

Based on this provision, intended to safeguard the public from unfettered *private* access to restricted information concerning nuclear power, Clark County now asks one agency of the federal government—NRC—to adjudicate sweeping allegations against the *general* character and "integrity" of another federal agency—DOE; an agency that Congress, through the AEA, the Energy Reorganization Act, the DOE Organization Act and other statutes, has assigned substantial national security responsibilities in this country and around the world. This is not

what Congress had in mind when it determined that DOE "shall" apply for this license. 42 U.S.C. § 10134(b). Clark County's effort to redirect this proceeding away from the technical validity of the Application towards this type of wide-ranging and unauthorized inquiry is wholly unwarranted.

Moreover, in addition to the general provisions of AEA Section 182a, Section 121(b) of the NWPA provides more specific requirements for this license application proceeding. NWPA § 121(b) authorizes the Commission to "promulgate technical requirements and criteria that it will apply . . . in approving or disapproving *applications* for authorization to construct repositories . . . ." 42 U.S.C. § 10141(b) (emphasis added). This provision, unlike AEA Section 182a, omits any reference to an evaluation of character qualifications of the *applicant*, confirming that this proceeding is limited to an inquiry into the technical adequacy of the application, not the *general* character or integrity of the applicant.

(b) Clark County Also Impermissibly Challenges the NWPA With Respect To Character Qualifications

In enacting the NWPA, Congress determined that DOE is the appropriate applicant for the license at issue in this proceeding and excluded from this proceeding any wide-ranging inquiry into the technical qualifications of DOE. It is well established that a petitioner may not challenge applicable statutes as part of an adjudicatory proceeding. *Carolina Power &* Light (Shearon Harris Nuclear Power Plant), LBP-07-11, 65 NRC 41, 57-58 (2007) (citing *Phila. Elec. Co*. (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20 (1974)) (stating that any contention that collaterally attacks applicable statutory requirements must be rejected by the Board as outside the scope of the proceeding).

As explained in Section (a), above, NWPA Section 121(b) specifies an inquiry into the technical adequacy of the LA, but not into the general qualifications of DOE. *See* 42 U.S.C.

§ 10141(b). Further, NWPA Section 114(b) directs DOE to construct and operate a geologic repository for the disposal of HLW. 42 U.S.C. § 10134(b) ("If the President recommends to Congress the Yucca Mountain Site . . . the Secretary [of Energy] shall submit to the Commission an application for a construction authorization for a repository . . ."). In so doing, Congress concluded that DOE, as an agency of the federal government, not only possesses the requisite attributes of an applicant, but is the *only* appropriate applicant for this license. Clark County's contention is an impermissible challenge to Congress' specifications for this proceeding and choice of applicant and, as such, constitutes a collateral attack on the NWPA.

Clark County's contention, if admitted, could also place the NRC in the untenable position of potentially denying the Application not because of any identified technical inadequacy, but because of a dispute over the general qualifications of the applicant, an arm of the Executive Branch of the Federal Government. In that case, the NRC would be overruling Congress's choice of DOE as the applicant. *Cf. U.S. Dep't of Energy* (Plutonium Export License), CLI-04-17, 59 NRC 357, 375 (2004). In *U.S. Dep't of Energy*, the Commission held that, in the nuclear export arena, "the Executive Branch's noninimicality determinations involve 'strategic judgments' and foreign policy and national security expertise regarding the common defense and security of the United States, and the NRC may properly rely on those conclusions." *Id*. at 374. In this proceeding, the situation is even more compelling in that the determination that Clark County seeks to challenge—Congress' choice of DOE as the appropriate applicant for this license—has been made by the Legislative Branch and this decision carries with it the force of law.

(2) Generalized Management Competence Allegations Are Outside Scope

(a) Clark County Impermissibly Challenges the NWPA With Respect to Technical Qualifications

To the extent this contention raises management competence-related claims, it is similarly outside the scope of this proceeding because it impermissibly challenges Congress' determination, in the NWPA, that DOE is the appropriate applicant for the license at issue in this proceeding and that its general technical qualifications or management competence should not be further adjudicated. *See Carolina Power & Light*, LBP-07-11, 65 NRC at 57-58 (citing *Phila. Elec. Co.*, ALAB-216, 8 AEC at 20).

As explained in Section (b) above, Section 121(b) of the NWPA limits the NRC's inquiry to the technical adequacy of the license application, and forecloses a generalized inquiry into DOE's management competence or technical qualifications. 42 U.S.C. § 2232a. In addition, Section 114(b) of the NWPA, by directing only DOE to apply for a license to construct and operate a geological repository, shows that Congress concluded that DOE possesses the management competence required to build and operate a repository.

The legislative history of the NWPA confirms that Congress selected DOE because of its management and technical qualifications. During the debates on the NWPA in 1982, one of the key Senate sponsors of the bill explained the reason for the choice of DOE as the applicant for a high-level waste repository—and why no new independent agency was necessary:

> There is no doubt in my mind that the current structure of the Department of Energy as is now established by statute is capable of carrying out the responsibilities that will be imposed upon them under this legislation . . . . [Further, DOE has] the administrative capability and the structural capability to deal with the administration of this program under the existing administrative framework.

128 Cong. Rec. S4127 (daily ed. Apr. 28, 1992) (statements of Sen. McClure). Simply put, if Congress had doubts about DOE's ability to manage this project, it could have created an independent agency. *See id*. However, after considering this option, Congress chose DOE. *Id*. Thus, the legislative history of the NWPA confirms that Congress selected DOE as the *only* applicant for this license *because of its unique technical and management qualifications*. Clark County's contention directly and impermissibly attacks this Congressional judgment.

Clark County's contention is therefore a challenge to Congress' exclusion of generalized management inquiries from this proceeding and to its selection of DOE as the appropriately qualified applicant and, as such, constitutes an impermissible collateral attack on the NWPA. In addition, as explained above, litigation of this contention would place the NRC in the untenable position of potentially denying the Application not because of any identified technical inadequacy, but because of a dispute over the general qualifications of the applicant—an Executive Branch agency—that Congress identified as the appropriate applicant.

(b) Clark County Impermissibly Challenges Commission Regulations

The contention is also outside the scope of this proceeding because it is an impermissible challenge to NRC's regulations implementing its statutory responsibilities. In implementing the provisions of AEA Section 182a and NWPA Section 121(b), the NRC promulgated Part 63 without any reference to an evaluation of management competence or the general technical qualifications of the applicant. Such an evaluation would be unauthorized and unnecessary because, as explained in Sections (1) and (2)(a), above, Congress already determined that DOE possesses the requisite technical and management qualifications.

In contrast to Part 63, Part 50 specifies that power reactor licensees must demonstrate their technical qualifications during the licensing process. *See* 10 C.F.R. § 50.34(a)(9) (requiring

a showing of the technical qualifications of an applicant for a construction permit); § 50.34(b)(7) (requiring a showing of the technical qualifications of an applicant for an operating license).[31] No such provisions appear in Part 63, however.

Thus, unlike proceedings under Part 50 or other NRC licensing regimes, in this proceeding there is no adjudication of the *general* technical and management qualifications of the applicant. The cases Clark County cites to purportedly show that management integrity is material to the NRC's findings in this proceeding, Petition at 86, are all therefore inapposite, because they address licensing actions under Part 50. *See Dominion Nuclear Conn., Inc*. (Millstone Nuclear Power Station, Units 2 & 3), CLI-01-24, 54 NRC 349, 365 (2001); *Duke Power Co*. (Catawba Nuclear Station, Units 1 & 2), LBP-82-116, 16 NRC 1937, 1946 (1982); *Metro. Edison Co*. (Three Mile Island Nuclear Station, Unit 1), CLI-85-9, 21 NRC 1118, 1136-37 (1985).[32]

Part 63 does specify, like other regulatory regimes, that the LA must include a description of the Yucca Mountain Project's "organizational structure," its "key positions" with responsibility for safety, personnel qualifications, and other programmatic issues. *See* 10 C.F.R. § 63.21(c)(22). As explained above, and in contrast to other NRC licensing regulations, Part 63 omits any more general inquiry into the applicant's technical qualifications. Thus, although certain narrow aspects of the Yucca Mountain Project's organizational structure and specified

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[31] Other NRC licensing regimes require a similar analysis of prospective licensees. *See* 10 C.F.R. § 30.33(a)(3) (requiring the Commission to find that a byproduct material license applicant "is qualified by training and experience"); § 70.23(a)(2) (specifying a similar required finding for special nuclear materials license applicants); § 40.32(b) (specifying a similar required finding for source material license applicants).

[32] Notably, Clark County does not specifically allege that management competence is within the scope of or material to the issues in this proceeding; nor does it cite any legal authority for such a claim.

other programmatic topics are within the scope of this proceeding, a wide-ranging inquiry into DOE's management competence is not.[33]

Thus, Clark County's contention impermissibly challenges Commission regulations, contrary to 10 C.F.R. § 2.335, and is outside the scope of this proceeding.

(c) Outside the Scope of the Notice of Hearing

The Commission's Notice of Hearing, which defines the scope of this proceeding states, in pertinent part, that "[t]he matters of fact and law to be considered are whether the *application* satisfies the applicable safety, security, and technical standards of the AEA and NWPA and the NRC's standards in 10 CFR Part 63 for construction authorization for a high-level waste . . . geological repository . . . ." Hearing Notice, 73 Fed. Reg. at 63,029 (emphasis added). Like the regulations in Part 63, the Notice of Hearing limits the scope of this proceeding to an adjudication of the technical adequacy of the license *application*, as opposed to a wide-ranging inquiry into the general management competence or technical qualifications of the *applicant*. Thus, this contention is also outside the scope of this proceeding as defined in the Notice of Hearing.

d. Whether the Issue is Material to the Findings that the NRC Must Make

As discussed above, Clark County's challenge to DOE's general integrity and management competence go beyond the information required by 10 C.F.R. § 63.21(c)(22) and, therefore, its fitness to hold the construction authorization is not material to the findings the NRC must make in this proceeding.

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[33] In any case, the LA provides the information required under 10 C.F.R. § 63.21(c)(22) in the programmatic sections of the LA, *i.e.*, Chapter 5 of the SAR. Clark County fails to identify this information, or raise any disputes with it. Indeed, Clark County's statement purportedly showing a genuine dispute does not identify or dispute any specific information in the Application. Petition at 90.

e. Statement of Alleged Facts or Expert Opinion Supporting Petitioner's Position and Supporting References

Even assuming that Clark County's "integrity" allegations or purportedly related management competence claims are cognizable in this proceeding, they are still unsupported by adequate facts or expert opinion. As explained in the Legal Standards section above, Boards must carefully scrutinize factual allegations and the documents cited in support of contentions. This includes a review of the cited documents to confirm that they support the proposed contention.

All of Clark County's allegations related to the Waste Isolation Pilot Plant (WIPP) facility in Carlsbad, New Mexico are supported by a single Clark County LSN document: Urban Environmental Research, LLC, "Lessons Learned from New Mexico's Experience with the Development of a Nuclear Waste Repository," (Jan. 2001) (LSN# CLK000000013) (WIPP Report). Clark County repeatedly cites to this document in support of various assertions of fact in its contention. *See*, *e.g*., Petition at 87-88 n.89-94. A review of this document, however, reveals that Clark County commissioned the WIPP Report to determine "lessons that can be learned" from the WIPP project, WIPP Report at 1, to "provide[] the basis for the development of strategies" for Clark County to respond to certain aspects of DOE's Yucca Mountain Project. *Id*. at 2. Among other things, based on their review of the "lessons" learned from the WIPP, the author or authors of this report express opinions about DOE's management "credibility" and "effectiveness." *See*, *e.g*., *id* at 3. Clark County's representations of management and integrity issues related to the WIPP rely *exclusively* on these opinions and conclusions, often disingenuously representing these opinions as if they were facts. *E.g*. Petition at 87 ("A cursory review of the history of WIPP reveals the DOE's track record of broken promises and the withholding of funds owed to local governments necessary to ensure public health and safety.")

(citing WIPP Report § 2.2.); *see also id*. ("The DOE there [at the WIPP] exerted its status as a federal agency to 'change the rules' well after it had achieved its objectives and obtained concessions from affected parties."); *id*. at 88 (entire first paragraph).

Clark County does not, however, identify the author or authors of the WIPP Report as expert[s] upon which it intends to rely, nor is this report submitted as an affidavit. Indeed, the WIPP Report does not even identify the name of any author or authors.[34] Thus, Clark County cannot rely upon any opinion evidence expressed in the WIPP Report.[35] As a result, the analogies Clark County makes between alleged events related to the WIPP project and this proceeding are unsupported.

In addition, Section f, below, discusses each of Clark County's documents in detail and explains why they fail, individually and collectively, to provide the requisite factual support for a contention challenging DOE or OCRWM's management competence or integrity. Thus, this contention is not supported by fact or expert opinion and must be dismissed.

f. Existence of a Genuine Dispute on a Material Issue of Law or Fact, With Supporting References to the License Application

Even if this contention were otherwise potentially admissible (which, as explained above, it is not), it still fails to raise a genuine dispute on a material issue of fact or law. In sum, Clark County provides no evidence of any ongoing pattern of management incompetence or lack of integrity.

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[34] This contention is supported by the "Declaration of Dr. Sheila Conway" (Att. 2 to the Clark County Petition) (Declaration). In this Declaration, Dr. Conway states that she is "managing partner in Urban Environmental Research, LLC." Declaration ¶ 1. She also states, oddly, that this contention was "prepared by me or under my supervision." *Id*. ¶ 7. Neither the Declaration, nor the attached CV, however, identifies Dr. Conway as the author of the WIPP Report, or otherwise associates her with the opinions expressed in that report.

[35] *See* Fed. R. Evid. 702 ("a *witness* qualified as an expert by knowledge, skill experience, training, or education, may testify thereto in the form of an opinion or otherwise") (emphasis added); *cf*. *Philadelphia Elec. Co.* (Limerick Generating Station, Units 1 & 2), ALAB-819, 22 NRC 681, 718 (1985) (holding hearsay admissible, because it was presented by identified, qualified experts who were subject to further examination).

(1) Legal Standards Governing Management Competence and Integrity-Related Allegations

A Commission inquiry into an applicant's management competence and its integrity are separate inquiries. Contentions raising either issue are evaluated under similar, but nevertheless distinct, analyses. As discussed below, in this contention, Clark County has failed to demonstrate a genuine dispute with respect to either inquiry. As a result, the contention must be denied.

As an initial matter, alleged errors—or even multiple violations of NRC requirements—are insufficient by themselves to raise a valid "management" or "integrity" contention. *Cf. USEC, Inc*. (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 465 (upholding the Board rejection of a management competence contention because intervenor's claims did not "present any *ongoing* pattern of violations or disregard for regulations that might be expected to occur in the future") (emphasis in original); *Union Elec. Co*. (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343, 346 (1983) (a contention alleging a systemic quality assurance breakdown must be "of sufficient dimensions to raise legitimate doubt as to the overall integrity of the facility and its safety-related structures"). The NRC recognizes that applicants may make errors, so evaluations of character and integrity must include an evaluation of corrective actions. *Houston Lighting & Power Co*. (South Texas Project, Units 1 & 2), ALAB-799, 21 NRC 360, 373-74 (1985).

Furthermore, historical actions by an entity are not relevant to its current management competence or integrity unless "there [is] some direct and obvious relationship between the [alleged] character [or management] issues and the licensing action in dispute." *Dominion Nuclear Conn*. (Millstone Nuclear Power Station, Units 2 and 3), CLI-01-24, 54 NRC 349, 365 (2001); *see also Ga. Inst. of Tech*. (Georgia Tech Research Reactor), CLI-95-12, 42 NRC 111, 120 (1995) (stating that "[a]llegations of management improprieties or poor 'integrity,' of

course, must be of more than historical interest: they must relate directly to the proposed licensing action").

With respect to integrity, a petitioner may not use allegations of historical DOE deficiencies or alleged management improprieties as a basis for an integrity-based contention. This is because "this proceeding cannot be a forum to litigate whether [the applicant] made mistakes in the past, but must focus on whether [the applicant] as presently organized and staffed can provide reasonable assurance of candor and willingness to follow NRC regulations." *Ga. Inst. of Tech*, 42 NRC at 120-21 (*citing Metro. Edison Co*. (Three Mile Island Nuclear Station, Unit No. 1), CLI-85-9, 21 NRC 1118, 1139 (1985)); *see also Metro. Edison Co.*, CLI-85-9, 21 NRC at 1137 ("It is the qualifications of this management, not the management of 6 years ago, that the Commission is now evaluating."). As the Commission has noted, the reason for the limitation is that,

> To accept the Petitioners' reasoning [regarding alleged historical management deficiencies] would potentially insert management integrity issues into virtually all [licensing] proceedings at facilities with prior violations . . . . We cannot allow admission of contentions premised on a general fear that a licensee cannot be trusted to follow regulations of any kind . . . . [W]hen 'character' or 'integrity' issues are raised, we expect them to be directly germane to the challenged licensing action.

Dominion Nuclear Conn., CLI-01-24, 54 NRC at 366-67.

The Commission has consistently followed the principle that historical information about an applicant without more is not sufficient for an integrity-based contention. For example, in *La. Energy Servs., Inc*., the Commission upheld the Board's rejection of a contention alleging historical management improprieties because the intervenors "nowhere linked these individuals [who were involved in past deficiencies] to [the applicant's] *current* management personnel or practices, and thus they have not shown how these long-ago alleged historical events pertain to

the proposed . . . facility." *La. Energy Servs., Inc.* (National Enrichment Facility), CLI-05-28, 62 NRC 721, 724 (2005) (emphasis in original). Thus, "the board correctly found that [the intervenors] did not demonstrate a 'direct and obvious relationship' between the alleged management 'character' issues and the licensing action at issue." *Id*. at 725 (citations and quotations omitted); *see also USEC, Inc.*, CLI-06-10, 63 NRC at 464-65 (upholding the Board's rejection of a similar contention alleging management incompetence and improprieties).

The Commission has likewise excluded historical allegations of lack of management competence or technical qualifications. For example, in *USEC, Inc*., the Commission upheld the Board's rejection of a management contention because the intervenors failed to show that their allegations of improprieties were anything more than of historical interest, and because most of the intervenors' allegations related to events at other facilities "5 to 8 years ago." *USEC, Inc.* CLI-06-10, 63 NRC at 464; *see also La. Energy Servs., Inc*., CLI-06-22, 64 NRC at 46 n.38.

Finally, when evaluating integrity, an applicant's corrective actions alone are evidence of good character, even without evidence that those corrective actions were effective. *Houston Lighting & Power Co*. (South Texas Project, Units 1 & 2), LBP-84-13, 19 NRC 659, 688 (1984), *aff'd* ALAB-799, 21 NRC at 360 ("An applicant's sincere attempts to correct deficiencies may be viewed as favorable from a character standpoint irrespective of success").

(2) Petitioners Face An Elevated Burden to Raise Integrity-Related Allegations In This Proceeding

Even if this Board were to find that an integrity claim could conceivably be made in this proceeding, Clark County would face an elevated burden of demonstrating its allegations through "clear evidence" that must be sufficient to rebut the presumption that DOE and its officials act with integrity.

DOE (and the specific organization responsible for this Application, OCRWM) is an agency of the United States government, and so therefore can be presumed to possess the requisite integrity to hold a license from another agency of the United States government. It is well-established that a "presumption of regularity attaches to the actions of Government agencies . . . ." *U.S. Postal Serv. v. Gregory*, 534 U.S. 1, 10 (2001) (citation omitted); *see also U.S. Dep't of Energy* (High-Level Waste Repository: Pre-Application Matters), CLI-08-11, 68 NRC __ (slip op. at 8) (June 5, 2008). As the Commission has recognized in these proceedings, "[a]bsent clear evidence to the contrary, we presume that public officers will properly discharge their official duties." *U.S. Dep't of Energy*, CLI-08-11, 68 NRC ___, (slip op. at 8) (internal quotations, brackets and citation omitted). Thus, petitioners in this proceeding face an elevated burden, beyond that in the caselaw described above, of demonstrating their integrity-related allegations through clear evidence.

It should also be noted that DOE is already an NRC licensee, and that Clark County fails to raise any specific integrity-related issues with respect to DOE's existing NRC licenses. For example, since 1999 DOE has held an independent spent fuel storage installation ("ISFSI") license for the Three Mile Island-2 ISFSI (Materials License SNM-2508). *See also U.S. Dep't of Energy*, CLI-04-14, 59 NRC at 375 (rejecting an intervention petition and authorizing issuance of a license to DOE to export 140 kg of plutonium oxide to France). Clark County fails to identify any inspection report documenting any integrity concerns from an NRC inspector, much less does Clark County provide evidence of such integrity concerns that are sufficiently linked, in time and subject matter, to the instant proceeding.

Most importantly, in its claim that DOE lacks integrity and management competence, Clark County fails to address the fact that DOE is also the agency that Congress has entrusted to

undertake an enormous range of activities related to energy, the environment and the national defense, not the least of which is its charter "[t]o maintain the safety, reliability, and security of the United States nuclear weapons stockpile." 50 U.S.C. § 2534(a)(1). It is therefore unreasonable to suggest that DOE does not have the character or integrity—or management competence—to build and operate this repository.

(3) None of Clark County's Allegations Raise a Genuine Dispute

As noted above, the management competence and integrity claims in this contention rely upon documents unrelated to the Yucca Mountain Project, the blatant misreading of a seven year-old DOE Inspector General report, and the apparent existence of a narrow legal dispute over the interpretation of the NWPA. Under the legal standards described in Sections (f)(1) and (2), above, none of Clark County's allegations are specific, credible, or sufficiently connected to this project to show a systemic, ongoing management or integrity breakdown across DOE, OCRWM, or the Yucca Mountain Project. *See USEC, Inc.*, CLI-06-10, 63 NRC at 465.

(a) WIPP Related Allegations

As explained in Section e. above, Clark County's WIPP-related allegations are unsupported by facts or expert opinion. In addition, Clark County fails to show the requisite nexus, in time or subject matter, between its WIPP-related claims and this proceeding. As described above, for an integrity or character-related contention to be admissible, there must be a "direct and obvious relationship between the [alleged] character issues and the licensing action in dispute." *Dominion Nuclear Conn.*, CLI-01-24, 54 NRC at 365.

Clark County fails to show the requisite direct and obvious relationship between its WIPP-related allegations and this proceeding. The WIPP facility is operated by the DOE's Environmental Management Program through its Carlsbad Field Office. Clark County provides

no evidence of a connection between individuals associated with WIPP, who were involved in past alleged deficiencies, to the current management personnel or practices of the DOE office responsible for the Yucca Mountain Project. This lack of a direct and obvious connection renders Clark County's WIPP-related claims deficient. *La. Energy Servs., Inc*., CLI-05-28, 62 NRC at 724.

These WIPP-related allegations are also, as Clark County admits, merely of "histor[ical]" interest. Petition at 87; *see also id*. at 88. The WIPP Report is dated January 2001, so all of its information is at least eight years old. Accordingly, Clark County's own pleading shows no evidence of any ongoing management competence or integrity issues, at the WIPP facility or elsewhere. *See Houston Lighting & Power Co.*, LBP-84-13, 19 NRC at 688, *aff'd* ALAB-799, 21 NRC at 360, 373-74 (evaluations of character and integrity must include an evaluation of corrective actions).

Thus, Clark County's allegations related to the WIPP Project fail to raise a genuine dispute on a material issue of law or fact.

(b) 2008 GAO Report

Clark County next asserts that a 2008 Government Accountability Office Report provides "ample evidence that the DOE failed to effectively manage other critical projects." Petition at 88. Purportedly, this report shows that DOE "ineffectiveness" has led to budget increases and delays in certain nuclear waste cleanup projects. *See id*. n.95-98 (*citing* United States Government Accountability Office, "Nuclear Waste: Action Needed to Improve Accountability and Management of DOE's Major Clean-up Projects," Report to the Subcommittee on Energy and Water Development, Committee on Appropriations, House of Representatives, GAO-08-1081, Att. 7 to Clark County Petition, at 14 (September 2008) (2008 GAO Report)). This report,

however, does not even mention, much less analyze the Yucca Mountain Project. Indeed, Clark County acknowledges that this report is not "specific to this proceeding." Petition at 88. So Clark County again fails to establish the requisite nexus between its allegations and this licensing proceeding.

(c) 2001 Inspector General's Report

Clark County also cites to certain statements in a DOE Inspector General's Report from 2001. According to Clark County, this report concludes that "certain DOE evaluation documents '*suggest* a premature conclusion regarding the suitability of Yucca Mountain.'" Petition at 88 (citing U.S. Dep't of Energy, Office of Inspector General, "Memorandum for the Secretary," Att. 8 to Clark County Petition, at 1 (Apr. 23, 2001) ("2001 OIG Report") (emphasis added). Clark County ignores the next sentence of this document, which states that, "[w]e could not substantiate the concern that bias compromised the integrity of the site evaluation process, or that the Department or its contractors considered a formal or informal strategy for supporting the site characterization recommendation in violation of the law." 2001 OIG Report at 1. Thus, contrary to Clark County's selective quotation, the 2001 OIG Report did not identify any integrity or management competence issues.

(d) Lack of Emergency Management Plan Prior to Licensing Decision

Third, Clark County points to DOE's alleged failure to address emergency management systems in its Application as an instance of DOE's allegedly poor management practices. DOE responds to Clark County's claims that DOE failed to evaluate impacts of emergency management and safety in its response to CLK-NEPA-001, in this Answer. In any event, Clark County's apparent disagreement with DOE's interpretation of NWPA § 180(c) does not legitimately raise a management competence or "integrity" issue.

For all these reasons, this contention fails to raise a genuine dispute on a material issue of law or fact and must be dismissed.

13. CLK-NEPA-001—The DOE Ignores Impacts on Emergency Management and Public Safety

The DOE's Final Supplemental Environmental Impact Statement ("FSEIS") fails to provide meaningful analyses concerning the effects on emergency management and public safety impacts on Clark County associated with the siting of a high level radioactive waste and spent nuclear fuel repository, in violation of the NWPA and NEPA and their respective implementing regulations.

RESPONSE

In this contention, Clark County alleges that DOE has failed to provide meaningful analyses concerning the effects on emergency management and public safety systems in Clark County associated with the siting of a SNF and HLW repository at Yucca Mountain.

All NEPA contentions must demonstrate that they meet the criteria of 10 C.F.R § 51.109 and 10 C.F.R. § 2.326, as well as the standards for contentions of 10 C.F.R. § 2.309. Clark County fails to meet the express requirements of 10 C.F.R. §§ 2.326 and 51.109 in requesting that its contention be admitted in this proceeding. Specifically, as set forth in Section IV.A.4, Clark County must (1) raise a significant environmental issue; and (2) demonstrate that its contention, if proven to be true, would or would likely result in a materially different outcome in this proceeding. Moreover, its environmental contention must be supported by the affidavit of a qualified witness that sets forth the factual and/or technical basis supporting the claim that these two criteria have been met, including a "specific explanation of why it has been met." As noted in Section IV.A.4 above, "the Commission expects its adjudicatory boards to enforce the [Section 2.326] requirements rigorously – *i.e.,* to reject out-of-hand reopening motions that do not meet those requirements within their four corners." *Pub. Serv. Co. of N.H.* (Seabrook Station, Units 1 and 2) ALAB-915, 29 NRC 427, 432 (1989).

Clark County fails to address any of the mandatory requirements of §§ 51.109 and 2.326. No demonstration or even claim is made in this contention or in its expert's affidavit that the contention raises a significant environmental issue. With regard to the most difficult and important showing—a demonstration that a "materially different result would be or would have been likely" if the contention were proven to be true—Clark County's contention and the affidavit of its expert, Dr. Alvin Mushkatel, are silent. Equally important, Dr. Mushkatel never provides the analysis that is explicitly called for by the terms of §§ 2.326(b) and 51.109(a)(2). Those regulations require Clark County's expert to "set forth the factual and/or technical bases for the movant's claim that the criteria of paragraph (a) of this section have been satisfied." Section 2.326(b) goes on to state "[e]ach of the criteria must be separately addressed, with a specific explanation of why it has been met." Dr. Mushkatel never performed that analysis. As noted earlier, "the Commission expects its adjudicatory boards to enforce the [Section 2.326] requirements rigorously *–i.e., to reject out-of-hand* [] *motions that do not meet those requirements within their four corners." Pub. Serv. Co. of N.H.*, ALAB-915, 29 NRC at 432 (emphasis added). Clark County ignored all of these requirements and its contention must, therefore, be rejected.

Apart from the failure to meet the requirements of §§ 51.109 and 2.326, Dr. Mushkatel's affidavit is flawed in other respects as well. Dr. Mushkatel simply adopts the language in the contention. For the most part, this contention and thus Dr. Mushkatel's affidavit deals with a description of what Dr. Mushkatel believes are the legal requirements imposed on DOE by NEPA. In particular, Dr. Mushkatel discusses his erroneous view with regard to when the DOE is legally required to prepare emergency plans. There is nothing in Dr. Mushkatel's background

or training that would allow him to reach any credible, valid legal opinions about DOE's NEPA obligations.

Moreover, Dr. Mushkatel's affidavit is fundamentally inaccurate when he states that DOE "admit[s] that the undertaking will have a significant impact on Clark County's emergency management and safety systems." Petition at 93. Dr. Mushkatel cites no support for this proposition and the facts are to the contrary. DOE did evaluate the potential impacts to public services from the repository and concluded these would be small. *See* Repository SEIS, Vol. I at Section 4-51; 2002 FEIS, Vol. I at 4-48. For example, Section 4.1.6.1.5 of the Repository SEIS states:

> Repository-generated impacts to public services such as schools, public safety, and medical services in the region of influence from population changes attributable to construction and operation of the repository would be small. Population changes from repository-related employment would be a small fraction of the anticipated population growth in the region. Even without the additional repository jobs, the annual regional growth rate would increase by an estimated 1.4 percent through 2050, which would minimize the need to alter plans already in place to accommodate projected growth.

Repository SEIS, Vol. I at 4-51; *see also* Rail Alignment EIS, Vol. III at 4-300 to -301 (regarding the public services impacts of constructing the railroad). Dr. Mushkatel's affidavit does not present admissible evidence and cannot be used to support the contention. The contention should, therefore, be rejected.

a. Statement of Issue of Law or Fact to be Controverted

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

b. Brief Explanation of Basis

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

c. Whether the Issue is Within the Scope of the Proceeding

Contentions challenging DOE's transportation decisions, and the environmental impact statements upon which those decisions are based, are beyond the scope of this proceeding and may also be barred under res judicata or finality principles as well as jurisdictional grounds. Clark County's contention is objectionable on jurisdictional and finality grounds.

First, as addressed in Section IV.A.5(a)(1) above, under the Atomic Energy Act and the Energy Reorganization Act (ERA), NRC does not have regulatory authority over DOE's transportation facilities and activities and thus has no direct NEPA responsibilities with respect to those facilities and activities. To the extent such facilities and activities may contribute to the cumulative impacts of the proposed Yucca Mountain repository, NRC must take DOE's decisions concerning transportation facilities and activities as a given in considering the cumulative impacts of the proposed repository. *See, e.g., Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752 (2004).

Second, in addition to the NRC's lack of regulatory authority over transportation of SNF and HLW, as addressed in Section IV.A.5(a)(2) above, any challenges to the analysis of environmental impacts arising from DOE transportation decisions, to the extent reviewable, are within the original and exclusive jurisdiction of the federal courts of appeals. In particular, challenges to the April 2004 ROD and the transportation related portions of the 2002 FEIS on which it was based, are no longer subject to review in any forum, as a result of the expiration of the 180 day period to challenge that ROD set forth in Section 119 of the NWPA. Any challenges

to DOE's transportation decisions set forth in the October 10, 2008 ROD and the Rail Alignment EIS on which it was based, are also are not appropriately a part of this proceeding; such challenges may be pursued only through a petition for review to a federal court of appeals. Clark County has failed to identify any issue for which the approach specified in Section 119 was or is not available or that meets the threshold established by NRC's regulations. Thus, DOE's analysis in the 2002 FEIS and Repository SEIS of emergency planning matters relating to transporting SNF and HLW is not subject to challenge in this proceeding

d. Whether the Issue is Material to the Findings that the NRC Must Make

For the reasons discussed in section c. above, this issue is not material to the findings NRC must make because challenges to DOE's transportation decisions are outside the scope of this proceeding, and because the contention is barred under jurisdiction and finality grounds. In addition, this contention does not present a material issue because DOE's NEPA documents adequately address issues of emergency management.

As a matter of law, 10 C.F.R. § 63.21 does not require that emergency plans be completed at this stage of the proceeding. Rather, 10 C.F.R § 63.21(c)(21) only requires that DOE contain a "description" of the plan for responding to, and recovering from, radiological emergencies that may occur at any time before permanent closure, and not the detailed plan itself. Moreover, NRC regulations only require that the DOE Application be as complete as possible in light of information that is reasonably available at the time of docketing. 10 C.F.R. § 63.21(a). As SAR § 5.7 notes, DOE will submit its emergency plan no later than six months before submitting the updated application for a license to receive and possess HLW and SNF.

This treatment of emergency planning in the NRC regulations is entirely consistent with the NRC and CEQ NEPA regulations and does not, as Clark County alleges, constitute

segmenting of the NEPA analysis. Segmentation occurs when an agency "avoid[s] the NEPA requirement that an EIS be prepared for all major federal action with significant environmental impacts by segmenting an overall plan into smaller parts involving action with less significant environmental effects." *West Chicago v. NRC*, 701 F.2d 632, 650 (7th Cir. 1983). That did not occur here. Segmentation may also occur when an agency fails to analyze "corrected actions." 40 C.F.R. § 1508.23. That did not occur here either. DOE has not sought to avoid NEPA's requirements by minimizing the effects of segmented portions of the project, nor has it sought to divide the project to avoid preparation of an EIS. Rather, DOE, in accordance with NRC regulations has appropriately submitted a description of the plan. As SAR § 5.7 provides, an Emergency Plan, fully compliant with 10 C.F.R. § 63.21 will be provided to the NRC when the information will be readily available no later than 6 months prior to the submittal of the updated application for a license to receive and possess spent nuclear fuel and high-level radioactive waste.

With regard to the transportation related emergency planning, as stated in its Notice of Revised Proposed Policy for Implementing Section 180(c) of the NWPA and Request for Comments, 73 Fed. Reg. 64,933 (Oct. 31, 2008), DOE expects to issue the first grants pursuant to § 180(c) of the NWPA approximately four years prior to the commencement of shipments through a State or Tribe's jurisdiction for training of local public safety officials of States and Tribes through whose jurisdictions the DOE plans to transport spent nuclear fuel or high-level waste to Yucca Mountain. The training of public safety officials would cover procedures required for safe routine transportation of those materials and for dealing with emergency response situations. 2002 FEIS, Vol. II, App. M at M-20; Repository SEIS, Vol. II, App. H at H-18. At this stage, without any actual routes chosen for shipments that will occur many years

from now, it is not possible to have a route specific analysis of transportation emergency planning impacts on the various states and, for the reasons discussed above, such an analysis is not required by NEPA.[36]

Finally, DOE has considered the potential impacts on counties in Nevada related to the transportation of SNF and HLW. 2002 FEIS, Vol. I at 6-54 to -232 (discussing environmental impacts resulting from transportation in Nevada); Repository SEIS, Vol. I at 6-32 to -60. As noted above, DOE has also considered emergency response and preparedness related to transportation in the 2002 FEIS. *See* 2002 FEIS, Vol. II, App.M at M-1 to -28. DOE also considered emergency planning matters in the Repository SEIS. Repository SEIS, Vol. I at 4-51; *id.,* Vol. II, App. H at H-16 to -18 (Emergency Response-Roles and Responsibilities and Federal Coordination) and H-18 to -19 (Technical Assistance and Funding for Training of State and American Indian Public Safety Officials). Clark County cannot demonstrate that DOE failed to take a "hard look" at the potential impacts on emergency services. *See Kleppe v. Sierra Club*, 427 U.S. 390, 410 n.21 (1976). An EIS is adequate under this standard if it "contains a reasonably thorough discussion of the significant impacts of the probable environmental consequences." *Churchill County v. Norton*, 276 F.3d 1060, 1071 (9th Cir. 2001); *Idaho Conservation League v. Mumma*, 956 F.2d 1508, 1519 (9th Cir. 1992).

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[36] DOE has considerable discretion in defining the scope of its NEPA review. "[F]ederal agencies are assigned the primary task of defining the scope of the NEPA review and their determination is given considerable discretion…." *Wetlands Action Network v. U.S. Army Corps of Eng'rs*, 222 F.3d 1105, 1118 (9th Cir. 2000); *see also Benton County v. DOE*, 256 F. Supp. 2d 1195, 1200 (E.D.Wa. 2003) ("DOE's determination of the appropriate scope of the environmental process . . . is entitled to deference, unless it is arbitrary and capricious"). Moreover, the policies and procedures of DOE and the CEQ that implement the requirements of NEPA call for agencies to integrate the NEPA process with other planning "at the earliest possible time" in the development of a proposed federal project. *See* 40 C.F.R. §§ 1500.5, 1501.2, 1502.5 and 1508.23. In situations in which only preliminary design plans had been prepared, courts have held that "the lack of final design plans does not excuse an agency from conducting the most thorough analysis possible of a proposed action. *Crounse Corp. v. ICC*, 781 F. 2d 1176, 1194 (6th Cir.1986).

DOE has provided sufficient analysis of the potential transportation impacts in Nevada to satisfy NEPA's procedural requirements. Accordingly, this contention does not present a material issue and should therefore be rejected.

e. Statement of Alleged Facts or Expert Opinion Supporting Petitioner's Position and Supporting References

For the reasons discussed above with respect to the requirements of 10 C.F.R. §§ 51.109 and 2.326, and as addressed in Section IV.A.3 regarding the legal standards under 10 C.F.R § 2.309(f)(1)(v), Clark County has failed to provide the requisite supporting facts, expert opinion and references.

f. Existence of a Genuine Dispute on a Material Issue of Law or Fact, With Supporting References to the License Application

For the reasons discussed in sections c. and d. above, there is no genuine issue on any material issue of law or fact because challenges to DOE's transportation decisions and supporting NEPA analyses are outside the scope of this proceeding, because the contention is barred under jurisdiction and finality grounds, and because the contention fails to demonstrate any inadequacy in DOE's NEPA analysis. The contention should therefore be rejected.

14. CLK-NEPA-002—The DOE Fails to Analyze Known and Feasible Rail Corridor Alternatives

The DOE's evaluation of rail corridors is patently deficient in its failure to evaluate known alternatives to the Caliente Rail Corridor. The Rail EIS evaluates only two of five feasible known rail corridors, The Caliente Corridor and The Mina Rail Corridor, ultimately coining the Caliente Corridor as the "preferred alternative" to the Mina Rail Corridor. The DOE's analysis sets up a false choice between a feasible and non-feasible corridor, and to the exclusion of the consideration of three additional feasible corridors.

RESPONSE

In this contention, Clark County alleges that the Carlin, Jean, and Valley Modified corridors were feasible alternatives to the Caliente rail corridor and that they should have been analyzed in the Rail Alignment EIS.

All NEPA contentions must demonstrate that they meet the criteria of 10 C.F.R § 51.109 and 10 C.F.R. § 2.326, as well as the standards for contentions of 10 C.F.R. § 2.309. Clark County fails to meet the express requirements of 10 C.F.R. §§ 2.326 and 51.109 in requesting that its contention be admitted in this proceeding. Specifically, as set forth in Section IV.A.4, Clark County must (1) raise a significant environmental issue; and (2) demonstrate that its contention, if proven to be true, would or would likely result in a materially different outcome in this proceeding. Moreover, its environmental contention must be supported by the affidavit of a qualified witness that sets forth the factual and/or technical basis supporting the claim that these two criteria have been met, including a "specific explanation of why it has been met." 10 C.F.R. § 2.326(b). As noted in Section IV.A.4 above, "the Commission expects its adjudicatory boards to enforce the [Section 2.326] requirements rigorously – *i.e.*, to reject out-of-hand reopening

motions that do not meet those requirements within their four corners." *Pub. Serv. Co. of N.H.* (Seabrook Station, Units 1 and 2) ALAB-915, 29 NRC 427, 432 (1989).

Clark County fails to address any of the mandatory requirements of §§ 51.109 and 2.326 in its contention or supporting expert affidavits. In particular, neither the contention nor the affidavit of Dr. Sheila Conway contains any analysis or other information to satisfy the requirements of demonstrating that these criteria have been met. In Dr. Conway's affidavit, she simply adopts the language in the contention as the substance of her affidavit. Nowhere in her affidavit is there a discussion of the technical basis for the contention nor a discussion of why this contention raises a significant environmental issue or why, if proven to be true, it would likely lead to a materially different outcome.

Neither the contention nor Dr. Conway's affidavit establishes the technical or factual basis for the contention. The contention asserts that DOE should have addressed additional rail corridors but provides no analysis, studies, calculations or any other reasoned basis for stating that the contention raises a significant environmental issue or would result in a materially different outcome to the proceeding. In fact, DOE did conduct a detailed analysis of the three corridors in the 2002 FEIS. 2002 FEIS, Vol. I at 6-103 to -156. DOE's selection of the Caliente corridor for further study was upheld by the D.C. Circuit in 2006. *Nevada v. DOE*, 457 F.3d 78, 93 (D.C. Cir. 2006). Neither the contention nor the affidavit explains why DOE's evaluation and update of information relating to these three corridors in the Rail Corridor SEIS was inadequate. Nor does the contention or affidavit describe any significant environmental issue raised, or explain why the contention, if proven, would result in a materially different outcome. The contention inaccurately alleges that DOE failed to analyze the three corridors and should therefore be rejected.

a. Statement of Issue of Law or Fact to be Controverted

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

b. Brief Explanation of Basis

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

c. Whether the Issue is Within the Scope of the Proceeding

This contention, which challenges DOE's transportation decisions and the environmental impact statements upon which those decisions are based, including DOE's discussion of alternative rail corridors, is beyond the scope of this proceeding.

First, as addressed in Section IV.A.5(a)(1) above, under the Atomic Energy Act and the Energy Reorganization Act (ERA), NRC does not have regulatory authority over DOE's transportation facilities and activities and thus has no direct NEPA responsibilities with respect to those facilities and activities. To the extent such facilities and activities may contribute to the cumulative impacts of the proposed Yucca Mountain repository, NRC must take DOE's decisions concerning transportation facilities and activities as a given in considering the cumulative impacts of the proposed repository. *See, e.g.*, *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752 (2004).

Second, in addition to the NRC's lack of regulatory authority over transportation of SNF and HLW, as addressed in Section IV.A.5(a)(2) above, any challenges to the analysis of environmental impacts arising from DOE transportation decisions, to the extent reviewable, are within the original and exclusive jurisdiction of the federal courts of appeals. In particular, challenges to the April 2004 ROD and the transportation related portions of the 2002 FEIS on

which it was based, are no longer subject to review in any forum, as a result of the expiration of the 180 day period to challenge that ROD set forth in Section 119 of the NWPA. Any challenges to DOE's transportation decisions set forth in the October 10, 2008 ROD and the Rail Alignment EIS on which it was based, are also not appropriately a part of this proceeding; such challenges may be pursued only through a petition for review to a federal court of appeals. Clark County has failed to identify any issue for which the approach specified in Section 119 was or is not available.

d. Whether the Issue is Material to the Findings that the NRC Must Make

For the reasons discussed in section c. above, this issue is not material to the findings NRC must make because challenges to DOE's transportation decisions are outside the scope of this proceeding, and because the contention is barred under jurisdiction and finality grounds. In addition, this contention does not present a material issue because DOE's NEPA documents adequately analyze alternative corridors.

Under CEQ regulations implementing NEPA, government agencies need only evaluate "reasonable alternatives" to a proposed action. 40 C.F.R. § 1502.14(a). The "rule of reason" governs which alternatives the agency needs to discuss as well as the extent to which it needs to evaluate them. *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 195 (D.C. Cir. 1991). As the Supreme Court has held, "the concept of alternatives must be bounded by some notion of feasibility." *Vt. Yankee Nuclear Power Corp. v. Natural Res. Def. Council, Inc*., 435 U.S. 519, 551 (1978). "An agency is required to examine only those alternatives necessary to permit a reasoned choice." *Assn. of Pub. Agency Customers, Inc. v. Bonneville Power Admin*., 126 F.3d 1158, 1185 (9th Cir. 1997).

DOE did analyze the Carlin, Jean and Valley Modified rail corridors in the 2002 FEIS. 2002 FEIS, Vol. I at 6-103 to -156. DOE announced its preference for the Caliente corridor in 2003 in the Federal Register. *Notice of Preferred Nevada Rail Corridor*, 68 Fed. Reg. 74,951 (Dec. 29, 2003). DOE's rationale for selecting the Caliente corridor and rejecting the corridors Clark County identifies was articulated again in the 2004 ROD. *See* ROD: Mode of Transportation and Nevada Rail Corridor for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada, 69 Fed. Reg. 18,557, 18,564 (Apr. 8, 2004). DOE explained that it selected Caliente based on several factors, including its more remote location, the diminished likelihood of land use conflicts, including plans for development in the greater Las Vegas metropolitan area, and national security issues raised by the U.S. Air Force. *Id*. DOE's selection of the Caliente rail corridor in the April 8, 2004 ROD was upheld by the D.C. Circuit in *Nevada v. DOE*, 457 F.3d at 93.

The Nevada Rail Corridor SEIS supplements the rail corridor analysis in the 2002 FEIS and analyzed the potential environmental impacts associated with constructing and operating a railroad within the Mina corridor. With respect to the Mina rail corridor, in the 2002 FEIS, DOE had considered but eliminated the Mina route from detailed study because of the objections of the Walker River Paiute Tribe, whose consent would be required under relevant Bureau of Indian Affairs regulations. The Tribe subsequently informed DOE that it would allow DOE to consider the potential impacts of transporting SNF and HLW across its reservation, and DOE accordingly included an analysis of the Mina route in the Rail Alignment EIS. The Tribe, however, subsequently withdrew its support for the EIS process. Repository SEIS, Summary at S-vi to -vii. As set forth in DOE's October 10, 2008 ROD, if DOE were to select an alignment in the Mina rail corridor, DOE would need to obtain a right-of-way from the Bureau of Indian Affairs,

which could not be obtained because it would not be issued absent written consent of the Tribe. *See* ROD: Nevada Rail Alignment for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, 73 Fed. Reg. 60,247, 60,255 (Oct. 10, 2008) (citing 25 C.F.R. § 169.3(a)).

The Nevada Rail Corridor SEIS also updated the environmental information for the Carlin, Jean, and Valley Modified corridors that were previously analyzed in detail in the 2002 FEIS, concluding that there were no significant new circumstances or information relevant to environmental concerns associated with these three rail corridors, and that they did not warrant further consideration in the Rail Alignment EIS. Rail Corridor SEIS 5-15 to -61, 6-1. DOE reasonably concluded that:

> For the most part, the environmental conditions and associated potential environmental impacts for each rail corridor remain unchanged from, or are substantially similar to, those reported in the Yucca Mountain FEIS. Notably, however, land-use and ownership conflicts in the Jean and Valley Modified corridors have increased, and, although the amount of private land within the Carlin rail corridor appears to have decreased (based on more refined analysis using land-ownership databases) since DOE completed the Yucca Mountain FEIS, the complex land-ownership pattern resulting from the mix of private and public lands the corridor would cross remains unchanged. Such land-use and ownership conflicts and complexity increase the potential to adversely affect construction of a railroad, and to increase the potential for delays that could affect the availability of a railroad in these corridors. Moreover, air quality management goals in the Jean corridor increase the potential conflicts with these goals. For these reasons, there is no significant new circumstance or information relevant to environmental concerns that would warrant further consideration of these three rail corridors at the alignment level.

Rail Corridor SEIS at 6-1.

Under NEPA, agencies can identify appropriate parameters in determining which alternatives they will consider. *See Idaho Conservation League v. Mumma*, 956 F.2d 1508, 1522

(9th Cir. 1992) (noting that "[w]ithout such criteria, an agency could generate countless alternatives"). NEPA does not require an agency to analyze "the environmental consequences of alternatives it has in good faith rejected as . . . impractical or ineffective." *Lee v. U.S. Air Force*, 354 F.3d 1229 (10th Cir. 2004) (internal citations and quotations omitted). DOE has appropriately narrowed its focus to eliminate impractical options from the time-intensive rail alignment analysis. "The resources of energy and research – and time – available to meet the Nation's needs are not infinite." *Natural Res. Def. Council, Inc. v. Morton*, 458 F.2d 827, 837 (D.C. Cir. 1972).

Accordingly, Clark County cannot demonstrate that DOE failed to take a "hard look" at alternative rail corridors. *See Kleppe v. Sierra Club*, 427 U.S. 390, 410 n.21 (1976). This contention does not present a material issue and should therefore be rejected.

e. Statement of Alleged Facts or Expert Opinion Supporting Petitioner's Position and Supporting References

For the reasons discussed above with respect to the requirements of 10 C.F.R. §§ 51.109 and 2.326, and as addressed in Section IV.A.3 regarding the legal standards under 10 C.F.R § 2.309(f)(1)(v), Clark County has failed to provide the requisite supporting facts, expert opinion and references.

f. Existence of a Genuine Dispute on a Material Issue of Law or Fact, With Supporting References to the License Application

For the reasons discussed in sections c. and d. above, there is no genuine issue on any material issue of law or fact because challenges to DOE's transportation decisions and supporting NEPA analyses are outside the scope of this proceeding, because the contention is barred under jurisdiction and finality grounds, and because the contention fails to demonstrate any inadequacy in DOE's NEPA analysis. The contention should therefore be rejected.

15. CLK-NEPA-003—The DOE Ignores Socio-Economic Impacts

The DOE ignored data and wrongly dismissed analyses of stigma related socioeconomic impacts resulting from the perceived and actual risks associated with potential accidents during the course of transporting high level nuclear waste. The DOE's assertion in the EIS that the relevant impacts of the Caliente Rail Corridor as the "preferred alternative" on property values and tourism cannot be measured and thus are irreducible ignores evidence and data proffered by Clark County.

RESPONSE

In this contention, Clark County alleges that DOE's NEPA analysis of the impacts of transporting SNF and HLW was inadequate because it ignored data and wrongly dismissed analyses of stigma-related socio-economic impacts resulting from the perceived and actual risks associated with potential accidents during the course of transporting high-level nuclear waste. All NEPA contentions must demonstrate that they meet the criteria of 10 C.F.R §§ 51.109 and 2.326, as well as the standards for contentions of 10 C.F.R. § 2.309. Clark County fails to meet the express requirements of 10 C.F.R. §§ 2.326 and 51.109 in requesting that its contention be admitted in this proceeding. Specifically, as set forth in Section IV.A.4, Clark County must (1) raise a significant environmental issue; and (2) demonstrate that its contention, if proven to be true, would or would likely result in a materially different outcome in this proceeding. Moreover, its environmental contention must be supported by the affidavit of a qualified witness that sets forth the factual and/or technical basis supporting the claim that these two criteria have been met, including a "specific explanation of why it has been met." 10 C.F.R. § 2.326(b). As noted in Section IV.A.4 above, "the Commission expects its adjudicatory boards to enforce the [Section 2.326] requirements rigorously – *i.e.*, to reject out-of-hand reopening motions that do

not meet those requirements within their four corners." *Pub. Serv. Co. of N.H.* (Seabrook Station, Units 1 and 2) ALAB-915, 29 NRC 427, 432 (1989).

Clark County fails to address any of the mandatory requirements of §§ 51.109 and 2.326 in its contention or supporting expert affidavit. In particular, the affidavit of Dr. Sheila Conway contains no analysis or other information to satisfy the requirements of demonstrating that these criteria have been met. Dr. Conway's affidavit merely states that the contention was prepared under her supervision, but it is devoid of any analysis or factual underpinnings. The contention itself is limited to a series of conclusory statements. The contention asserts, for example, that DOE should have considered certain unidentified "mechanisms for measuring and mitigating stigma-related impacts resulting from the transportation of spent nuclear fuel." Petition at 103. Nowhere does Dr. Conway or the contention demonstrate that this contention raises a significant environmental issue or that, had DOE used any of these mechanisms to quantify perceived stigma-related impacts, it would make a material difference in the analysis of the perceived stigma-related impacts or in DOE's conclusion that any such impacts would be small.

In imposing the requirements of 10 C.F.R. §§ 2.326 and 51.109 on all NEPA contentions, the NRC has demanded that intervenors meet a very high threshold burden of showing that the proffered contention presents a "seriously different picture of the environmental landscape," such that it would "be likely to change the outcome of the proceeding of affect the licensing decision in a material way." *Private Fuel Storage, LLC* (Independent Spent Fuel Storage Installation), CLI-06-3, 63 NRC 19, 23 (2006). That showing cannot be made with the kind of vague and conclusory statements made in Clark County's Petition and its expert affidavit, and this contention should therefore be rejected.

a. Statement of Issue of Law or Fact to be Controverted

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

b. Brief Explanation of Basis

Without prejudice to other positions taken by DOE, DOE expresses no legal objection based upon this requirement.

c. Whether the Issue is Within the Scope of the Proceeding

This contention, which challenges DOE's transportation decisions and the environmental impact statements upon which those decisions are based, including DOE's discussion of risk perception and stigma, is beyond the scope of this proceeding.

First, as addressed in Section IV.A.5(a)(1) above, under the Atomic Energy Act and the Energy Reorganization Act (ERA), NRC does not have regulatory authority over DOE's transportation facilities and activities and thus has no direct NEPA responsibilities with respect to those facilities and activities. To the extent such facilities and activities may contribute to the cumulative impacts of the proposed Yucca Mountain repository, NRC must take DOE's decisions concerning transportation facilities and activities as a given in considering the cumulative impacts of the proposed repository. *See, e.g., Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752 (2004).

Second, in addition to the NRC's lack of regulatory authority over transportation of SNF and HLW, as addressed in Section IV.A.5(a)(2) above, any challenges to the analysis of environmental impacts arising from DOE transportation decisions, to the extent reviewable, are within the original and exclusive jurisdiction of the federal courts of appeals. In particular, challenges to the April 2004 ROD and the transportation related portions of the 2002 FEIS on

which it was based, are no longer subject to review in any forum, as a result of the expiration of the 180 day period to challenge that ROD set forth in § 119 of the NWPA. Any challenges to DOE's transportation decisions set forth in the October 10, 2008 ROD and the Rail Alignment EIS on which it was based, are also not appropriately a part of this proceeding; such challenges may be pursued only through a petition for review to a federal court of appeals. Clark County has failed to identify any issue for which the approach specified in § 119 was or is not available. Thus, DOE's analysis in the 2002 FEIS and Repository SEIS of the perceived stigma of transporting SNF and HLW is not subject to challenge in this proceeding.

d. Whether the Issue is Material to the Findings that the NRC Must Make

For the reasons discussed in section c. above, this issue is not material to the findings NRC must make because challenges to DOE's transportation decisions are outside the scope of this proceeding, and because the contention is barred under jurisdiction and finality grounds. In addition, this contention does not present a material issue because risk perception and stigma are not effects on the physical environment and therefore do not need to be considered under NEPA. As the Supreme Court held in *Metropolitan Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 772 (1983), "NEPA does not require the agency to assess *every* impact or effect of its proposed action, but only the impact or effect on the environment." The plaintiffs in *Metropolitan Edison* argued that the NRC had to consider under NEPA the prospect that psychological health damage would flow directly from the risk of a nuclear accident. The Supreme Court rejected the argument on the ground that "a *risk* of an accident is not an effect on the physical environment." *Id*. at 775. Here, the contention similarly argues that the risk of an accident will create a stigma in areas through which SNF and HLW will be transported, and is thus not subject to review under NEPA.

Socioeconomic effects only need to be analyzed when they are interrelated with a project's environmental impacts. *See* 40 C.F.R. § 1508.14. When the socioeconomic effect at issue does not result from the project's environmental impacts, it need not be considered further. *See Ass'n of Pub. Agency Customers v. Bonneville Power Admin*., 126 F.3d 1158, 1186 (9th Cir. 1997); *Hammond v. Norton*, 370 F.Supp.2d 226, 243 (D.D.C. 2005). As DOE discussed in its 2002 FEIS and in the Repository SEIS, "nuclear facilities can be perceived to be either positive or negative, depending on the underlying value systems of the individual forming the perception. Thus, perception-based impacts would not necessarily depend on the actual physical impacts or risk of repository operations, including transportation. A further complication is that people do not consistently act in accordance with negative perceptions, and thus the connection between public perception of risk and future behavior would be uncertain or speculative at best." Repository SEIS § 2-88 to -89.

Further, even if risk perception and stigma were cognizable effects under NEPA, the contention would still not raise a litigable issue under NEPA. In its NEPA documents, DOE adequately analyzed perceived risk and stigma associated with construction and operation of a repository at Yucca Mountain and from the transportation of SNF and HLW. *See* 2002 FEIS 2-95 to -96 and Appendix N; see also Repository SEIS, Vol. I at 2-88 to -89 and Vol. III, CR-191 to -192. DOE concluded that while in some instances risk perceptions could result in adverse impacts on portions of a local economy, there are no reliable methods whereby such impacts could be quantified with any degree of certainty, much of the uncertainty is irreducible, and based on a qualitative analysis, adverse impacts from perceptions of risk would be unlikely or relatively small. Repository SEIS, Vol. I at 2-88 to -89. In *Price Road Neighborhood Ass'n,*

Inc. v. Dep't of Transp., 113 F. 3d 1505 (9th Cir. 1997), the Court of Appeals stated that the appellant had:

> sought to engage in a battle of the experts with regard to several impacts, including air quality and noise, offering their own studies to contradict those of the agencies. We have consistently rejected such attempts, noting that "when specialists express conflicting views, an agency must have discretion to rely on the reasonable opinions of its own qualified experts.

Id. at 1511, *citing Greenpeace Action v. Franklin*, 14 F.3d 1324, 1332 (*quoting Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 378 (1989). Here, there has been no challenge to the qualifications of the researchers who performed the studies upon which DOE relied in addressing the issue of risk perception and stigma. *See* 2002 FEIS 2-95 to -96, App. N; Repository SEIS, Vol. I at 2-88 to -89. It is not availing for Clark County to merely cite to its own opinions or those of the National Research Council to attempt to contradict DOE's research-based conclusion that much of the uncertainty regarding the potential response to perceived stigma is irreducible. *See* 2002 FEIS 2-95 to -96.

Finally, a monitoring program for stigma effects, as suggested by Clark County, is not required under NEPA. It is well established that NEPA "does not impose any substantive requirements on federal agencies – it exists to ensure a process." *The Lands Council v. McNair*, 537 F.3d 981, 1000 (9th Cir. 2008). As discussed above, DOE has fully met NEPA's requirements to evaluate perceived risk and stigma. DOE has also provided a "reasonably complete discussion of possible mitigation measures" related to stigma. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989). DOE explained that based on its analysis "social costs could be mitigated by reducing the risk people perceive from transport through information and education programs that are well researched and effectively presented." Repository SEIS, Vol. I at 2-89. Thus, even if such a discussion were required, Clark County

can point to no inadequacy under NEPA regarding DOE's discussion of perceived risk and stigma.

e. Statement of Alleged Facts or Expert Opinion Supporting Petitioner's Position and Supporting References

For the reasons discussed above with respect to the requirements of 10 C.F.R. §§ 51.109 and 2.326, and as addressed in Section IV.A.3 regarding the legal standards under 10 C.F.R § 2.309(f)(1)(v), Clark County has failed to provide the requisite supporting facts, expert opinion and references.

f. Existence of a Genuine Dispute on a Material Issue of Law or Fact, With Supporting References to the License Application

For the reasons discussed in sections c. and d. above, there is no genuine issue on any material issue of law or fact because challenges to DOE's transportation decisions and supporting NEPA analyses are outside the scope of this proceeding, because the contention is barred under jurisdiction and finality grounds, and because the contention fails to demonstrate any inadequacy in DOE's NEPA analysis. The contention should therefore be rejected.

V. CONCLUSION

As discussed above, Clark County has failed to meet its LSN obligations. DOE does not object to Clark County's legal standing as an AULG under the NWPA. However, Clark County has submitted no admissible contentions. Accordingly, its Petition should be denied.

Respectfully submitted,

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Dated in Washington, D.C.
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	
	)	January 15, 2009
U.S. Department of Energy	)	
	)	
(License Application for Geologic Repository at Yucca Mountain)	)	Docket No. 63-001

CERTIFICATE OF SERVICE

I hereby certify that copies of the "**ANSWER OF THE U.S. DEPARTMENT OF ENERGY TO CLARK COUNTY, NEVADA'S REQUEST FOR HEARING, PETITION TO INTERVENE AND FILING OF CONTENTIONS"** have been served on the following persons this 15th day of January, 2009 by the Nuclear Regulatory Commission's Electronic Information Exchange.

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