

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**ATOMIC SAFETY AND LICENSING BOARD  
Before Administrative Judges:**

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

|   |   |                    |
|---|---|--------------------|
| In the Matter of:                       | ) | September 18, 2009 |
|   | ) |                    |
| U.S. Department of Energy               | ) |                    |
|   | ) | Docket No. 63-001  |
| (High Level Waste Repository            | ) |                    |
| Construction Authorization Application) | ) |                    |

**U.S. DEPARTMENT OF ENERGY’S ANSWER OPPOSING  
STATE OF NEVADA’S MOTION  
FOR LEAVE TO FILE A NEW CORROSION CONTENTION**

The U.S. Department of Energy (DOE) opposes the State of Nevada’s Motion of August 24, 2009<sup>1</sup> to file a new corrosion-related contention entitled “NEV-SAFETY-206-Inadequate DOE Weight Loss Measurements for General Corrosion Testing of Alloy-22.”<sup>2</sup> Nevada’s Motion is based on information that was publicly available long ago. Therefore, Nevada’s Motion is neither timely, nor made with the requisite “good cause” for a non-timely filing, contrary to 10 C.F.R. §§ 2.309(f)(2) and (c)(1).

---

<sup>1</sup> State of Nevada’s Motion for Leave to File a New Contention Based on Newly Available Information (“Motion”).

<sup>2</sup> The Advisory PAPO Board’s Case Management Order provides that contentions and related pleadings should be submitted in a uniform format, and employ a uniform protocol for addressing compliance with the criteria for admissibility related to the six requirements for contentions set forth in 10 C.F.R. § 2.309(f)(1)(i)-(vi). *U.S. Dep’t of Energy* (High-Level Waste Repository: Pre-Application Matters, Advisory PAPO Board), LBP-08-10, 67 NRC 450, 453 (June 20, 2008). Because this Answer objects to Nevada’s Motion and new contention only on the basis of timeliness, DOE is not addressing the Section 2.309(f)(1) factors.

**I. APPLICABLE LEGAL STANDARDS**

The standards governing the timeliness of Nevada’s Motion are set forth in 10 C.F.R. § 2.309(f)(2) and (c)(1), the Commission’s Notice of Hearing and Opportunity for Permission for Leave to Intervene on an Application for Authority to Construct a Geologic Repository at a Geologic Repository Operations Area at Yucca Mountain, 73 Fed. Reg. 63,029, 63,030 (Oct. 22, 2008) (Hearing Notice), and Construction Authorization Board Case Management Order #1, dated January 29, 2009 (CMO #1) (unpublished). A petitioner may submit a new contention only if:

- (i) The information upon which the amended or new contention is based *was not previously available* [i.e., is new];
- (ii) The information upon which the amended or new contention is based is *materially different* than information previously available; and
- (iii) The amended or new contention has been submitted in a *timely fashion* based on the availability of the subsequent information.

10 C.F.R. § 2.309(f)(2)(i)-(iii) (emphasis added).

CMO #1 provides that “[n]otwithstanding the time period specified in 10 C.F.R. § 2.323(a), such motion and proposed contention [*i.e.*, motion for leave to file new or amended contention] shall be deemed timely under 10 C.F.R. § 2.309(f)(2) if filed within 30 days of the date when the new and material information on which it is based first became available.” CMO #1 at 3-4.

If a new contention meets these requirements, then it is considered “timely” and the intervenor is not required to satisfy the additional requirements of 10 C.F.R. § 2.309(c)(1) for “non-timely” filings. If, however, the information underlying the new contention is not “new,” “materially different,” and filed in a “timely fashion,” then to be admitted, the new contention must also satisfy the eight factor balancing test for non-timely filings in

10 C.F.R. § 2.309(c)(1). *See* Hearing Notice, 73 Fed. Reg. at 63,030 (“A *non-timely* petition or contention will not be entertained unless . . . the late petition or contention meets the late-filed requirements of a 10 C.F.R. § 2.309(c)(1)(i)-(viii).”).

As described below, Nevada’s new contention fails to meet the timeliness requirements.

## **II. NEVADA’S NEW CONTENTION IS NOT TIMELY**

### **A. The Alleged “New” Information**

The basis for Nevada’s filing is “evidence of contamination” in the tanks in which DOE conducted its 5-year and 9.5-year duration corrosion testing at the Long Term Corrosion Testing Facility (LTCTF), as demonstrated by two Condition Reports (CR 12868 (LSN #DEN001614752) and CR 12799 (LSN #DEN001614731). Motion at 1-2; Contention at 1. Nevada asserts that, based on these CRs, “there is now strong evidence of contamination” such that “the general corrosion rates reported in SAR Subsection 2.3.6.2.2 and similar subsections are not supported by any data collected under adequately specified conditions.” Contention at 1; *see also id.* (similarly, “[t]he reacting fluids . . . have been modified at unknown times and degrees with contaminants...”). The contamination at issue is described as “organic residue” (Contention at 4) such as a “long-chain molecule consistent with a lubricant,” Contention at 4, and “inorganic” such as magnesium and silicon, which are not contained in Alloy-22. *Id.* at 5.

### **B. The Information Was Previously Available**

Nevada’s new contention is non-timely under 10 C.F.R. § 2.309(f)(2). The first requirement of 10 C.F.R. § 2.309(f)(2) requires Nevada to show that the new contention is based on information that was not previously available. Nevada claims that its new

contention is based on information that is new and materially different from information that was previously available. Motion at 1-2. Nevada reached this conclusion based on the fact that the two CRs it relies upon were posted on the LSN on July 31, 2009. Motion at 1, 3. DOE agrees that the CRs were posted on the LSN on July 31, 2009. However, information related to contamination of the Alloy-22 LTCTF solutions was publicly available on the LSN long before July 31 in multiple documents.

For example, Lawrence Livermore National Laboratory, where the LTCTF was located, prepared a report that documents the “oxide (passive film) formation on Alloy 22 surfaces” that was observed during the LTCTF experiments. LSN #DN2002213451 at 1. The report, entitled “The Passive Film on Alloy 22,” was available on the LSN on March 14, 2007, more than two years before Nevada filed its contention. This report describes both organic and inorganic contamination in the LTCTF tank solutions:

The objective of this study was to characterize the passive oxide composition and thickness after aging in solution. However, *all of the immersed samples had unintentional 100-5000nm deposits* on their surfaces that came from carbon that leached from the walls of the tanks and/or iron that leached from other metals in the tanks. This oxygen containing *contaminant* layer severely limited the characterization of the passive oxide film.

LSN #DN2002213451 at 20 (emphasis added).

With respect to a particular coupon that had been immersed for five years in the LTCTF, this report noted that:

Sample DUA114 was immersed for 5+ years in the LTCTF in 90°C SCW.... The surface has a 50-150nm thick “wavy” carbon film at the metal interface. The sample held in SDW at 90°C for over 5 years (DUA140) looks similar to the samples held in SCW, although the carbon deposit is somewhat thicker.... In both cases, it is likely that the carbon deposits are due to the *partial dissolution of the tank linings* in these basic solutions.

LSN #DN2002213451 at 23 (emphasis added). This 2007 report provided sufficient notice to Nevada that the LTCTF solutions for Alloy-22 were contaminated. Thus, Nevada could have included this contention with its Petition to Intervene. It did not do so then, and it cannot do so now.

Similarly, “A Review of the Long-Term Persistence of the Passive Film on Alloy 22 in Potential Yucca Mountain Repository Environments” (LSN #NRC000029382) discusses the passive oxide film observed during the LTCTF experiments. Nevada is no doubt aware of this document; Nevada cited to it in its December 19, 2008 Petition to Intervene as a Full Party (Nevada Petition). *See* Nevada Petition at Contention Nev-Safety – 103 at 554 and Nev-Safety – 104 at 559. In particular, this document noted that:

Alloy 22 exhibited a classical passive behavior in 1 M NaCl at pH 3 (buffered solutions). The oxide films were examined at 200 and 500 mV (with respect to saturated Ag/AgCl reference electrode) – two potentials on either side of the passive region. *The oxide grown in both potentials was thin, smooth, and conforming to the surface of the material.* At the lower potentials, the oxide film thickness was roughly  $4.0 \pm 0.5$  nm . . . while the film formed at the higher potential was  $2.4 \pm 0.3$  nm . . . . Electron energy loss spectroscopy images . . . indicated that both chromium and oxygen predominated in the oxide film. For the electron energy loss spectroscopy chromium map, there was a slightly dark line in the base metal right below the oxide. This may have indicated that there could be less chromium in that area, which is consistent with nickel enrichment.

. . .

In simulated acidic water at pH 3, the passive films were similar to those formed in the buffered NaCl solution. At a potential of 200 mV, the film was roughly 2.9 nm [ $1.14 \times 10^{-4}$  mil] thick, and the oxide was predominantly chromium. Nickel enrichment below the oxide film in the base metal was also observed.

LSN #NRC000029382 at 3-7 (emphasis added).

Furthermore, there are other documents posted on the LSN earlier this year that raise the same issue. For example, the Management Review Committee Meeting Minutes

of December 10, 2008 (LSN #DEN001609312) discussed the contamination of the Alloy-22 test coupons. This document was available on the LSN on February 24, 2009. In a section of this document annotated with the heading, “Concur with the Cause Analysis CR Plan for 12868 ‘Unexpected Test Results – Residue on Subset of Alloy 22 Coupons,’” this document noted that:

*The issue identified in CR 12868 was related to unidentified test results. While the materials are still unknown, early test results determined that they are organic in nature. Based [on] available information, the apparent cause analysis determined the cause to be less than adequate planning, potential oil leak in tanks, potential degradation, and hydrocarbon residue potentially produced by biofilm. It was noted that no additional testing will be done until the substance and its origin has been identified.*

LSN #DEN001609312 at 3 (emphasis added).

The Management Review Committee Meeting Minutes of March 25, 2009 (LSN #DEN001611920) also discussed the contamination of the Alloy-22 test coupons. This document was available on the LSN on May 29, 2009. This document, in pertinent part, noted that:

As a result of MRC [Management Review Committee] discussion on December 10, 2008 relative to CR 12868 “Unexpected Test Results – Residue on Subset of Alloy 22 Coupons”, SNL was assigned an action to report back to the MRC on the final evaluation and any necessary re-planning for CR 12868. The apparent cause for CR 12868 was approved by the MRC in December 2008 with four corrective actions. The primary analysis is complete and is being written. *The residue in question was determined to be a long chained molecule introduced via the stirring motors over the tanks.* Further evaluation determined that the residue did not impact degradation. It was not felt that the apparent cause needed to be redone and the CR may not necessarily need to be re-planned; additional documentation of this analysis will be added to the CR. Due to test planning activities, the responsible organization does not feel an effectiveness review would be feasible.

...

*C. Kouts – Questioned how the responsible organization came to the conclusion that there would not be corrosion if the residue was a lubricant*

*(typically an oily substance)? In response, M. Russell clarified that a comparison was done to ones that had heavy contamination and that it is believed that the residue was introduced as the motors were brought up out of the tank.*

LSN #DEN001611920 at 8-9 (emphasis added).

The Quality Assurance Surveillance Report of January 14, 2009 (LSN #DEN001609264) similarly discussed in detail the contamination of the Alloy-22 test coupons that was the subject of CR 12868. This document was available on the LSN on February 24, 2009. In particular, this document noted that:

*CR 12868 (open at the time of the surveillance), written by the responsible organization, documented that an inspection of Alloy 22 coupons exposed for 9.5 years in the Long Term Corrosion Test Facility revealed that a subset of the coupons had a visually observable residue on the sample surfaces and adhered to the inside of the plastic bags used for sample storage. This may be an unexpected organic compound. The objective of CR 12868 is to ensure that the 9.5 year Alloy 22 coupons having the residue are appropriately identified and tracked such that any influence on the weight-loss measurements and derived corrosion rates can be properly documented. According to one of the experiments, a new technical procedure will be developed for cleaning the 9.5 year samples.*

LSN #DEN001609264 at 2 (emphasis added).

Similarly, the Quality Assurance Internal Audit IA-09-02 Checklist of May 21, 2009 (LSN #DEN001614123) also discussed the contamination of the Alloy-22 test coupons. This document was available on the LSN on June 26, 2009. This document noted that:

*CR 12868 dealt with unexpected residue on the subset of Alloy 22 coupons that were in storage. The ACA identified four causes: 1) crofilm produced the hydrocarbon residue, 2) the test solution degraded the test equipment, 3) oil lubricant leaked into the test solution, and 4) less than adequate planning. The last cause would appear to be the most likely with the previous three being the result. The corrective actions parallel the four causes; however, for lack of planning, the proposed action is a lesson learned. The lack of planning focuses on what went wrong. The lessons*

learned has not been issued and is suppose[d] to address the human performance cause.

LSN #DEN001614123 at 5-6 (emphasis added).

The “Long-Term Corrosion Testing Plan” (LSN # DEN001611086) “describes the testing and facility requirements to support the Yucca Mountain Project long-term corrosion testing program.” LSN #DEN001611086 at 3. This document was available on the LSN on April 27, 2009. This document also describes the corrosion of the Alloy-22 test coupons discussed in CR 12868. One of the “Lessons Learned” described in this document noted that:

As described in CR 12868, an unexpected organic residue was found on samples from the LTCTF. Future test planning should consider CR 12868 and the resulting analyses prior to test initiation.

LSN #DEN001611086 at 128.

Furthermore, DOE's response to RAI: 3.2.2.1.3.1-2-003 (Response Tracking Number 00196-00-00) (RAI 196), dated April 13, 2009, described the contamination and its effects on the Alloy 22 coupons. Letter from J. Williams, DOE, to U.S. NRC, “Yucca Mountain - Request for Additional Information - Safety Evaluation Report, Volume 3 - Postclosure Chapter 2.2.1.3.1 - Degradation of Engineered Barriers 2nd Set - (U.S. DOE Safety Analysis Report Section 2.3.6.8) (Apr. 13, 2009), *available at* ADAMS Accession No. ML091100634. This document was delivered to Mr. Bruce Breslow, the Executive Director of the Nevada Agency for Nuclear Projects, in conjunction with its delivery to the NRC on April 18, 2009. In particular, RAI 196 noted that:

Alloy 22 crevice and weight-loss specimens were immersed for five years in the DOE Long-Term Corrosion Test Facility (LTCTF). After immersion, the specimens were removed, cleaned, and analyzed.

...

Additionally, *there is evidence of surface contamination (a matrix of Fe and O with particles rich in Si and O distributed throughout them) on some of the as-received crevice specimens*, which could also be totally or partially removed during cleaning. This surface contamination was not present on the as-received weight-loss specimens. Unlike the mill-annealed oxide, which was present only on the back side of the crevice specimens, *the surface contamination was found on both the front and back sides of the crevice specimens including under the crevice formers*. Thus, the initial weight of the crevice specimens was artificially high (due to the presence of mill-annealed oxide and surface contamination). Because there was at least partial removal of the mill-annealed oxide and surface contamination during specimen cleaning, this led to artificially high measured weight loss and calculated corrosion rates for the crevice specimens.

RAI 196 at 1-2 (emphasis added).

This document concluded that:

*Experimental artifacts on the crevice specimens* (e.g., mill-annealed oxides and *surface contamination*, which were not present on the weight-loss specimens) led to the calculation of an artificially high Alloy 22 general corrosion rate.

RAI 196 at 18 (emphasis added).

These documents demonstrate that DOE observed and documented, in various publicly available documents, the contamination of Alloy-22 test coupons and test solutions and made that information publicly available on the LSN. Together, all of these documents indicate that evidence of contamination of the Alloy-22 test coupons and test solutions was publicly available months and years prior to the filing of Nevada's Motion.

Furthermore, the second requirement of 10 C.F.R. § 2.309(f)(2) requires Nevada to show that its new contention is based on information that is "materially different" from any other previously available information. 10 C.F.R. § 2.309(f)(2)(ii). Because, as discussed above, the information that Nevada relies on to support the timeliness of NEV-SAFETY-206 was available well before Nevada filed its Motion, it cannot demonstrate that this information is "materially different."

Nevada also has failed to satisfy the third requirement of 10 C.F.R. § 2.309(f)(2). Nevada must show that its new contention was submitted in a “timely fashion,” based on the availability of the information upon which it now relies. 10 C.F.R. § 2.309(f)(2)(iii). But because Nevada had access to similar information well before it filed its Motion, it cannot make this showing.

Boards often have deemed it acceptable for a party to file a new or amended contention within 30 days of receiving new information. *See, e.g., Entergy Nuclear Vt. Yankee, LLC* (Vermont Yankee Nuclear Power Station), LBP-06-14, 63 NRC 568, 574 (2006); *Private Fuel Storage, L.L.C.* (Indep. Spent Fuel Storage Installation), LBP-00-28, 52 NRC 226, 231 (2000). Additionally, CMO #1 specifically applies this principle. CMO #1 at 3-4.

As noted above, however, the information upon which Nevada now relies to support its new contention was publicly available on the LSN between March 14, 2007 and June 26, 2009. Nevada’s Motion is therefore “non-timely,” and consequently, Nevada bears the additional burden of demonstrating that it meets the requirements for non-timely contentions in accordance with 10 C.F.R. § 2.309(c)(1).

**C. Nevada Has Not Met The Additional Requirements For Non-Timely Contentions**

Non-timely new contentions must pass the eight factor test contained in 10 C.F.R. § 2.309(c)(1). Nevada does not even attempt to meet this test because it mistakenly assumed that the information first became available on July 31, 2009. It therefore does not meet the requirements for the admission of a non-timely contention. Because Nevada has failed to address the requirements of 10 C.F.R. § 2.309(c)(1) in its Motion, it may not do so in its Reply brief. *See La. 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 should not 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.* (Palisades Nuclear Plant), CLI-06-17, 63 NRC 727, 732 (2006)(emphasis added).

### **III. CONCLUSION**

Nevada’s Motion and its proposed new contention are non-timely under 10 C.F.R. § 2.309(f)(2) and CMO #1, and fail to meet the requirements for non-timely contentions in 10 C.F.R. § 2.309(c)(1). For the reasons discussed above, Nevada’s Motion should be denied.

Respectfully submitted,

*Signed (electronically) by Donald J. Silverman*

Donald J. Silverman  
Alex S. Polonsky  
Joseph M. Catoe  
Counsel for the U.S. Department of Energy  
Morgan, Lewis & Bockius LLP  
1111 Pennsylvania Avenue, N.W.  
Washington, DC 20004

James Bennett McRae  
Martha S. Crosland  
U.S. Department of Energy  
Office of the General Counsel  
1000 Independence Avenue, SW  
Washington, DC 20585

Dated in Washington, DC  
this 18th day of September 2009

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

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

---

In the Matter of: )  
)  
U.S. Department of Energy ) September 18, 2009  
)  
(High Level Waste Repository ) Docket No. 63-001  
Construction Authorization Application) )  

---

**CERTIFICATE OF SERVICE**

I hereby certify that copies of the “U.S. DEPARTMENT OF ENERGY’S ANSWER OPPOSING STATE OF NEVADA’S MOTION FOR LEAVE TO FILE A NEW CORROSION CONTENTION)” have been served on the following persons on this 18th day of September 2009 through the Nuclear Regulatory Commission’s Electronic Information Exchange.

**CAB 01**  
Atomic Safety and Licensing Board Panel  
William J. Froehlich, Chair  
E-mail: [wjfl@nrc.gov](mailto:wjfl@nrc.gov)  
Thomas S. Moore  
E-mail: [tsm2@nrc.gov](mailto:tsm2@nrc.gov)  
Richard E. Wardwell  
E-mail: [rew@nrc.gov](mailto:rew@nrc.gov)

**CAB 02**  
Atomic Safety and Licensing Board Panel  
Michael M. Gibson, Chair  
E-mail: [mmg3@nrc.gov](mailto:mmg3@nrc.gov)  
Alan S. Rosenthal  
E-mail: [rsnthl@nrc.gov](mailto:rsnthl@nrc.gov); [axr@nrc.gov](mailto:axr@nrc.gov)  
Nicholas G. Trikouros  
E-mail: [ngt@nrc.gov](mailto:ngt@nrc.gov)

**CAB 04**  
Atomic Safety and Licensing Board Panel  
Thomas S. Moore, Chair  
E-mail: [tsm2@nrc.gov](mailto:tsm2@nrc.gov)  
Paul S. Ryerson  
E-mail: [psr1@nrc.gov](mailto:psr1@nrc.gov)  
Richard E. Wardwell  
E-mail: [rew@nrc.gov](mailto:rew@nrc.gov)

**CAB 03**  
Atomic Safety and Licensing Board Panel  
Paul S. Ryerson, Chair  
E-mail: [psr1@nrc.gov](mailto:psr1@nrc.gov)  
Michael C. Farrar  
E-mail: [mcf@nrc.gov](mailto:mcf@nrc.gov)  
Mark O. Barnett  
E-mail: [mob1@nrc.gov](mailto:mob1@nrc.gov); [mark.barnett@nrc.gov](mailto:mark.barnett@nrc.gov)

## **Parties Served**

Adams, Marta  
Andersen, Robert M.  
Bailey, Annie  
Barlow, Gregory  
Barnett, Mark O.  
Baughman, Mike  
Bauser, Michael A.  
Belete, Elene  
Bell, Kevin W.  
Berger, Michael  
Berkey, Curtis  
Beutel, Theodore  
Bollwerk III, G. Paul  
Borella, Edward  
Borski, Laurie  
Brooks, Felicia M.  
Bupp, Margaret  
Carter, Lorraine  
Cereghino, Stephen  
Chandler, Christopher  
Choate, Zoie  
Colburn, Ross  
Cottingham, Anne  
Crosland, Martha S.  
Curran, Diane  
Damele, Ronald  
DiNunzio, Nicholas  
Dobie, Julie  
Dudley, Sherry  
Durbin, Susan  
Eredia, Sally  
Faglioni, Kelly L.  
Farrar, Michael C.  
Fitzpatrick, Charles J.  
Francis, Karin  
Fraser, Matthew  
Frishman, Steve  
Froehlich, William J.  
Gendelman, Adam S.  
Gibson, Michael M.  
Giitter, Rebecca  
Gilman, Joseph  
Ginsberg, Ellen C.  
Golshan, K. G.  
Gores, Jennifer A.  
Gutierrez, Jocelyn  
Hanna, Robert S.

## **E-mail Addresses**

[madams@ag.nv.gov](mailto:madams@ag.nv.gov)  
[robert.andersen@akerman.com](mailto:robert.andersen@akerman.com)  
[baileys@lcturbonet.com](mailto:baileys@lcturbonet.com)  
[lcda@lcturbonet.com](mailto:lcda@lcturbonet.com)  
[mob1@nrc.gov](mailto:mob1@nrc.gov); [mark.barnett@nrc.gov](mailto:mark.barnett@nrc.gov)  
[bigboff@aol.com](mailto:bigboff@aol.com)  
[mab@nei.org](mailto:mab@nei.org)  
[ebelete@jsslaw.com](mailto:ebelete@jsslaw.com)  
[kwbell@energy.state.ca.us](mailto:kwbell@energy.state.ca.us)  
[mberger@bsglaw.net](mailto:mberger@bsglaw.net)  
[curtis.berkey@abwwlaw.com](mailto:curtis.berkey@abwwlaw.com)  
[tbeutel@eurekanv.org](mailto:tbeutel@eurekanv.org)  
[gpb@nrc.gov](mailto:gpb@nrc.gov)  
[edward\\_borella@ymp.gov](mailto:edward_borella@ymp.gov)  
[lborski@nuclearlawyer.com](mailto:lborski@nuclearlawyer.com)  
[fbrooks@ndnlaw.com](mailto:fbrooks@ndnlaw.com)  
[mjb5@nrc.gov](mailto:mjb5@nrc.gov)  
[lcarter@captionreporters.com](mailto:lcarter@captionreporters.com)  
[stephen\\_cereghino@ymp.gov](mailto:stephen_cereghino@ymp.gov)  
[ccc1@nrc.gov](mailto:ccc1@nrc.gov)  
[zchoate@co.nye.nv.us](mailto:zchoate@co.nye.nv.us)  
[rcolburn@ndnlaw.com](mailto:rcolburn@ndnlaw.com)  
[awc@nei.org](mailto:awc@nei.org)  
[Martha.Crosland@hq.doe.gov](mailto:Martha.Crosland@hq.doe.gov)  
[dcurran@harmoncurran.com](mailto:dcurran@harmoncurran.com)  
[rdamele@eurekanv.org](mailto:rdamele@eurekanv.org)  
[Nicholas.DiNunzio@hq.doe.gov](mailto:Nicholas.DiNunzio@hq.doe.gov)  
[jdobie@gklaw.com](mailto:jdobie@gklaw.com)  
[sdudley@co.nye.nv.us](mailto:sdudley@co.nye.nv.us)  
[susan.durbin@doj.ca.gov](mailto:susan.durbin@doj.ca.gov)  
[seredia@ndnlaw.com](mailto:seredia@ndnlaw.com)  
[kfaglioni@hunton.com](mailto:kfaglioni@hunton.com)  
[mcf@nrc.gov](mailto:mcf@nrc.gov)  
[cfitzpatrick@nuclearlawyer.com](mailto:cfitzpatrick@nuclearlawyer.com)  
[kxf4@nrc.gov](mailto:kxf4@nrc.gov)  
[mfraser@harmoncurran.com](mailto:mfraser@harmoncurran.com)  
[steve.frishman@gmail.com](mailto:steve.frishman@gmail.com)  
[wjfl@nrc.gov](mailto:wjfl@nrc.gov)  
[Adam.Gendelman@nrc.gov](mailto:Adam.Gendelman@nrc.gov)  
[mmg3@nrc.gov](mailto:mmg3@nrc.gov)  
[rl@nrc.gov](mailto:rl@nrc.gov)  
[jsg1@nrc.gov](mailto:jsg1@nrc.gov)  
[ecg@nei.org](mailto:ecg@nei.org)  
[kg.golshan@nrc.gov](mailto:kg.golshan@nrc.gov)  
[jgores@armstrongteasdale.com](mailto:jgores@armstrongteasdale.com)  
[Jocelyn.Gutierrez@ymp.gov](mailto:Jocelyn.Gutierrez@ymp.gov)  
[rshanna@bsglaw.net](mailto:rshanna@bsglaw.net)

Harrington, Arthur J. [aharring@gklaw.com](mailto:aharring@gklaw.com)  
Hawkins, E. Roy [erh@nrc.gov](mailto:erh@nrc.gov)  
Hearing Docket [hearingdocket@nrc.gov](mailto:hearingdocket@nrc.gov)  
Heinzen, Steven A. [sheinzen@gklaw.com](mailto:sheinzen@gklaw.com)  
Hellstrom, George W. [George.Hellstrom@ymp.gov](mailto:George.Hellstrom@ymp.gov)  
Hembacher, Brian [brian.hembacher@doj.ca.gov](mailto:brian.hembacher@doj.ca.gov)  
Horin, William [whorin@winston.com](mailto:whorin@winston.com)  
Houck, Darcie L. [dhouck@ndnlaw.com](mailto:dhouck@ndnlaw.com)  
Irwin, Donald P. [dirwin@hunton.com](mailto:dirwin@hunton.com)  
James, Gregory L. Esq. [gljames@earthlink.net](mailto:gljames@earthlink.net)  
Johnson, Abigail [eurekanrc@gmail.com](mailto:eurekanrc@gmail.com)  
Kahn, Zachary [zxk1@nrc.gov](mailto:zxk1@nrc.gov)  
Klevorick, Phil [klevorick@co.clark.nv.us](mailto:klevorick@co.clark.nv.us)  
Kriner, Jeffrey [jeffrey\\_kriner@ymp.gov](mailto:jeffrey_kriner@ymp.gov)  
LaPlante, Erica [eal1@nrc.gov](mailto:eal1@nrc.gov)  
Larimore, Patricia [plarimore@talisman-intl.com](mailto:plarimore@talisman-intl.com)  
Lawrence, John W. [jlawrence@nuclearlawyer.com](mailto:jlawrence@nuclearlawyer.com)  
Leigh, Rovianne [rleigh@abbwlaw.com](mailto:rleigh@abbwlaw.com)  
Lembke, Alisa [alembke@inyocounty.us](mailto:alembke@inyocounty.us)  
Lenehan, Daniel W. [dwl2@nrc.gov](mailto:dwl2@nrc.gov)  
Lewis, Linda [linda.lewis@nrc.gov](mailto:linda.lewis@nrc.gov)  
List, Robert F. [rlist@armstrongteasdale.com](mailto:rlist@armstrongteasdale.com)  
Loveland, Bryce [bloveland@jsslaw.com](mailto:bloveland@jsslaw.com)  
Lynch, Susan [slynch1761@gmail.com](mailto:slynch1761@gmail.com)  
Maerten, Daniel [Daniel.Maerten@caci.com](mailto:Daniel.Maerten@caci.com)  
Malsch, Martin G. [mmalsch@nuclearlawyer.com](mailto:mmalsch@nuclearlawyer.com)  
Martin, Circe [ogcmailcenter@nrc.gov](mailto:ogcmailcenter@nrc.gov)  
Mathias, Linda [yuccainfo@mineralcountynv.org](mailto:yuccainfo@mineralcountynv.org)  
McRae, Ben [Ben.McRae@hq.doe.gov](mailto:Ben.McRae@hq.doe.gov)  
Meharg, Stephanie [smeharg@hunton.com](mailto:smeharg@hunton.com)  
Mercado, Michele [michele.mercado@doj.ca.gov](mailto:michele.mercado@doj.ca.gov)  
Miras-Wilson, Rachel [rwilson@winston.com](mailto:rwilson@winston.com)  
Montesi, Susan [smontesi@nuclearlawyer.com](mailto:smontesi@nuclearlawyer.com)  
Moore, Thomas S. [tsm2@nrc.gov](mailto:tsm2@nrc.gov)  
Mueller, Edwin [muellered@msn.com](mailto:muellered@msn.com)  
Murphy, Malachy [mrmurphy@chamberscable.com](mailto:mrmurphy@chamberscable.com)  
Nezhad, Cyrus [Cyrus.Nezhad@hq.doe.gov](mailto:Cyrus.Nezhad@hq.doe.gov)  
Niegemann, Brian [bniegemann@ndnlaw.com](mailto:bniegemann@ndnlaw.com)  
OCAA Mail Center [OCAAEMAIL@nrc.gov](mailto:OCAAEMAIL@nrc.gov)  
Pak, Christina [Christina.Pak@hq.doe.gov](mailto:Christina.Pak@hq.doe.gov)  
Peebles, John M. [jpeebles@ndnlaw.com](mailto:jpeebles@ndnlaw.com)  
Pitchford, Loreen, LSN Coordinator [lpitchford@comcast.net](mailto:lpitchford@comcast.net)  
Pitts, Jason [jayson@idtservices.com](mailto:jayson@idtservices.com)  
Poland, Douglas M. [dpoland@gklaw.com](mailto:dpoland@gklaw.com)  
Putzu, Frank [frank.putzu@navy.mil](mailto:frank.putzu@navy.mil)  
Renfro, Hanna [hrenfro@gklaw.com](mailto:hrenfro@gklaw.com)  
Repka, David A. [drepka@winston.com](mailto:drepka@winston.com)  
Rhoan, Robert [rrhoan@ndnlaw.com](mailto:rrhoan@ndnlaw.com)  
Robbins, Alan [arobbins@jsslaw.com](mailto:arobbins@jsslaw.com)

Roby, Debra [droby@jsslw.com](mailto:droby@jsslw.com)  
Rosenthal, Alan S. [rsnthl@nrc.gov](mailto:rsnthl@nrc.gov); [axr@nrc.gov](mailto:axr@nrc.gov)  
Rotman, Matthew [matthew.rotman@nrc.gov](mailto:matthew.rotman@nrc.gov)  
Ryan, Tom [Tom.Ryan@nrc.gov](mailto:Tom.Ryan@nrc.gov)  
Ryerson, Paul S. [psr1@nrc.gov](mailto:psr1@nrc.gov)  
Schwartz, Jacqueline [jschwartz@gklaw.com](mailto:jschwartz@gklaw.com)  
Sears, Richard [rwsears@wpcda.org](mailto:rwsears@wpcda.org)  
Shebelskie, Michael R. [mshebelskie@hunton.com](mailto:mshebelskie@hunton.com)  
Silberg, Jay E. [jay.silberg@pillsburylaw.com](mailto:jay.silberg@pillsburylaw.com)  
Silvia, Andrea L. [alc1@nrc.gov](mailto:alc1@nrc.gov)  
Simkins, Connie [jcciac@co.lincoln.nv.us](mailto:jcciac@co.lincoln.nv.us)  
Simon, Mike [wpnucast1@mwpower.net](mailto:wpnucast1@mwpower.net)  
Sisco, Carlos L. [csisco@winston.com](mailto:csisco@winston.com)  
Sommer, Josephine [Josephine.Sommer@ymp.gov](mailto:Josephine.Sommer@ymp.gov)  
Sullivan, Timothy E. [timothy.sullivan@doj.ca.gov](mailto:timothy.sullivan@doj.ca.gov)  
Trikouros, Nicholas G. [ngt@nrc.gov](mailto:ngt@nrc.gov)  
VanNiel, Jeffrey D. [nbrjdn@gmail.com](mailto:nbrjdn@gmail.com)  
Vazquez, Tameka [purpose\\_driven@yahoo.com](mailto:purpose_driven@yahoo.com)  
Vibert, Elizabeth A. [VibertE@co.clark.nv.us](mailto:VibertE@co.clark.nv.us)  
Walsh, Timothy J. [timothy.walsh@pillsburylaw.com](mailto:timothy.walsh@pillsburylaw.com)  
Wardwell, Richard E. [rew@nrc.gov](mailto:rew@nrc.gov)  
Webb, Maria [maria.webb@pillsburylaw.com](mailto:maria.webb@pillsburylaw.com)  
Whipple, Bret [bretwhipple@lcturbonet.com](mailto:bretwhipple@lcturbonet.com)  
Williams, Scott [swilliams@abbwlaw.com](mailto:swilliams@abbwlaw.com)  
Wright, Belinda A. [bwright@hunton.com](mailto:bwright@hunton.com)  
Young, Mitzi A. [may@nrc.gov](mailto:may@nrc.gov)  
Zabarte, Ian [mrizabarte@gmail.com](mailto:mrizabarte@gmail.com)  
Zobler, Marian L. [mlz@nrc.gov](mailto:mlz@nrc.gov)

*(electronically signed by) Donald J. Silverman*  
Donald J. Silverman