

U.S. Nuclear Industry Participation in the Yucca Mountain Licensing Process - 10049

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ABSTRACT

In 1983, the Nuclear Waste Policy Act (NWPA) provided for the owners and operators of the United States' commercial nuclear power plants to enter into contracts with the federal government for disposal of the used nuclear fuel arising from the operation of these plants. In accordance with this law, contracts were established obligating the US Department of Energy (DOE) to provide disposal services to every one of the nation's commercial nuclear reactors and, even today, companies seeking to license new commercial nuclear plants are still entering into such agreements with DOE. In 1987, the NWPA was amended to focus DOE's disposal program solely on a proposed repository site at Yucca Mountain Nevada. Every since this time, the US nuclear industry has had a keen interest in the success of the Yucca Mountain repository. In 2002, the Yucca Mountain Development Act (YMDA) codified in federal law DOE's determination that the Yucca Mountain site was suitable for the development of a repository and directed the Department to proceed with the process outlined in the NWPA by which DOE would seek licenses from the US Nuclear Regulatory Commission. At this point, industry determined that it should formally participate in the licensing process in order to continue to pursue its interests in this project. This paper describes the basis for industry's participation, the contentions submitted in support of industry's petition to intervene in the Yucca Mountain licensing proceeding, the specific rulings by the NRC Licensing Boards and Commissioners on this petition, and the significance of the precedent set by industry's successful intervention in this first-of-a-kind adjudicatory proceeding.

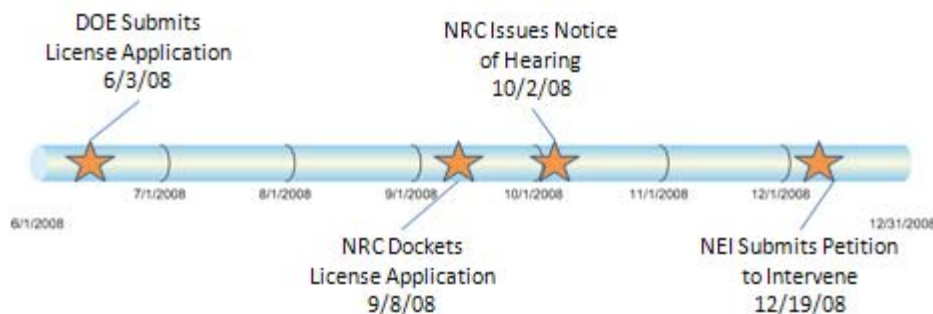
INTRODUCTION

The nuclear industry's decision to participate in the Yucca Mountain licensing process came against a backdrop of costly delays in the Federal Government's Civilian Radioactive Waste Management Program. By the time the YMDA was enacted, DOE was already 4 years in arrears on its obligation to begin removing used nuclear fuel from reactor sites – the NWPA mandated that this begin on January 31, 1998 – resulting in both a significant number of lawsuits over DOE's partial breach of the contracts and a growing inventory of used nuclear fuel at reactor sites.

At this point, in addition to seeking damages through the courts, the US nuclear industry determined that it would be in its best interests to work constructively towards the licensing of Yucca Mountain. The industry decided it would pursue this objective by tasking its primary trade association, the Nuclear Energy Institute (NEI) to seek to formally participate in the Yucca Mountain licensing proceeding as a full party. NEI is the organization responsible for establishing unified nuclear industry policy on matters affecting the nuclear energy industry. NEI's members include all utilities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, nuclear material licensees, labor unions and other organizations and individuals involved in the nuclear energy industry.

Following enactment of the YMDA, DOE moved slowly to the development and submittal to NRC of the required license application. The Department experienced a number of internal delays and missed a promised December 2004 License Application submittal date by nearly 4 years. During this time DOE continued to engage NRC in pre-application dialogue. NEI, as well as other potentially interested parties, followed this process closely in anticipation of eventual participation. Once the application [1] was filed, the process began moving forward on a much brisker schedule. Figure 1 below depicts the timeline over which the Yucca Mountain licensing process proceeded up to NEI's December 2008 filing of a petition [2] to intervene in the process on behalf of its members.

FIGURE 1



OBJECTIVES OF INDUSTRY PARTICIPATION

NEI's petition [2] maintained that industry was entitled to intervene both as a matter of right and by applying NRC's principles for discretionary intervention. This petition contained nine contentions addressing detailed technical safety and environmental compliance matters in DOE's license application. While the overall tone of the petition was supportive of the Yucca Mountain project, the contentions were designed to both protect industry's interests in areas where commercial nuclear plant operations would be directly affected by the Yucca Mountain license and to drive improvements in the repository design that would enhance the licensability of the proposed repository.

In seeking to protect industry interests, NEI's goal was to assure that the potential consequences that the design and operation of the repository could impose upon the commercial reactors owned and operated by NEI's member companies were appropriately considered and managed. Disposing of used nuclear fuel would, in a manner not previously encountered, require facilities operated by two different NRC licensees to function as a closely coupled system – as used fuel would have to be prepared at the reactor sites for receipt at the repository. Clearly requirements imposed on the license at the receiving entity had the potential to affect conditions on the preparations that would be required at the originating site.

Industry had already gained significant experience in the evaluation of many of these interface issues by working with DOE on the Transportation, Aging, and Disposal (TAD) Canister program. The TAD was designed to facilitate the transfer of used fuel from reactors to repository by having the capability to be loaded in reactor storage pools (primarily under 10 CFR Part 50), stored in reactor site dry cask storage facilities (primarily under 10 CFR Part 72), transported from reactor sites to the repository (primarily under 10 CFR Part 71), and disposed of in the repository (primarily under 10 CFR Part 63). Industry had worked closely with DOE to develop the TAD and was largely pleased with the result. However, the licensing process would be a test of the effectiveness of DOE's implementation of this concept, and NEI strongly believed that industry had a role to play in being part of this test.

Whether it be through the implementation of the TAD or in other ways, the Yucca Mountain licensing process would be reaching conclusions that would affect not only the repository to which used fuel was being sent, but also the nuclear reactor sites from which it was being sent. NEI had been examining the possibility of such effects for

several years during the pre-application phase of the process and most specifically through the initial development and conceptualization of the TADs. Continuing this examination formally through the licensing process was seen as a logical extension of industry's appropriate role with respect to the Yucca Mountain project.

In seeking to drive improvements to the repository, industry was looking at the relationship between repository and reactors in a much more general sense. One of the most significant potential affects that the repository could have on the reactor sites would occur if delays in repository operations would cause fuel to have to be stored at reactor sites for longer periods of time. In this regard, industry was looking to assure that the repository would be able to proceed to initial operation without experiencing delays that could have been prevented at the licensing stage. Industry had become aware, through the extensive pre-licensing phase of the process, that DOE was pursuing a highly conservative approach to developing the license application (overestimating potential adverse effects and underestimating the ability of the repository's natural and engineered features to protect against these effects). While this conservative approach would provide DOE with an additional amount of confidence in the ability of the repository to provide the required level of protection (by showing that it meets the standard even with a number of onerous assumptions involved) it could also result in a repository that would be significantly more difficult to license, build, or operate (due to lower margin between regulatory requirements and pessimistically calculated analytical results or increased complexity needed to design against the onerous assumptions). Such increased difficulties in bringing the repository on line could translate directly into additional delay and corresponding adverse affects at reactor sites.

These dual objectives – protecting industry interests and driving improvements in the repository – were both viewed as being of sufficient significance to warrant an industry presence in the Yucca Mountain licensing process. Accordingly, from the time of enactment of the YMDA, industry began diligently assembling the scientific, technical, and legal expertise to establish this presence.

BASIS FOR INDUSTRY STANDING

NEI's petition [2] set forth bases establishing its standing to participate in the proceeding as a matter of right or, in the alternative, as a matter of discretion. In ruling on the petition, the Licensing Board upheld NEI's position in both respects.

With respect to participation as a right, NEI maintained that it had a clear and direct interest in the proceeding based upon its representation of the interests of its members arising under the Atomic Energy Act, National Environmental Policy Act and Nuclear Waste Policy Act. In ruling on the petition, the NRC Licensing Board found in favor of NEI with respect to all three statutes. In fact, with reference to the NWPA, the Board noted that, "NEI represents those who are not only within the zone of interests of the NWPA but also are the intended beneficiaries of that Act." [4] Continuing, the Board stated, "Indeed, they can claim to be the real parties in interest in the success of DOE's Application, and have been supplying its financing through the targeted financial levy on their generation of power." [4] In considering NEI's arguments in support of discretionary intervention, the Board applied the factors prescribed in the Commission's relevant regulation, and concluded that there were compelling reasons supporting such intervention. Further, the Board forcefully stated:

"NEI's members are certainly among the intended beneficiaries of the NWPA, if not also the real parties in interest in its implementation through the construction and operation of the proposed repository. There is no other party that we are prepared to say can represent their interests. Although DOE claims to do so, DOE ignores the years of controversy and litigation between DOE and the nuclear industry over that agency's failure to take title and possession of spent nuclear fuel. The existence of that continuing controversy makes us hesitant to entrust NEI's members' interests entirely to DOE." [4]

INDUSTRY CONTENTIONS

With the dual objectives of protecting industry interests and driving improvements in the repository design in mind, and a firm basis for establishing standing in the proceeding, NEI reviewed the DOE license application and identified nine areas where it was determined that specific industry involvement would be warranted. In each of these areas, a contention was developed based on industry's experience and scientific and technical expertise.

These contentions fell into two distinct categories, Safety contentions and National Environmental Policy Act (NEPA) contentions. The reason for this is that, in accordance with NRC regulations, the Yucca Mountain licensing process would consider both the DOE Safety Analysis Report and the DOE Environmental Impact Statement (EIS) - or NRC Environmental Impact statement should NRC choose not to adopt any part of DOE's EIS. NEI perceived that potential impacts on industry and opportunities for industry to improve the repository could arise from either the Safety or NEPA sides of the process. Hence NEI proffered contentions in both areas.

Table 1 below summarizes each of the nine contentions and explains how they addressed industry's objectives. [2]

TABLE 1

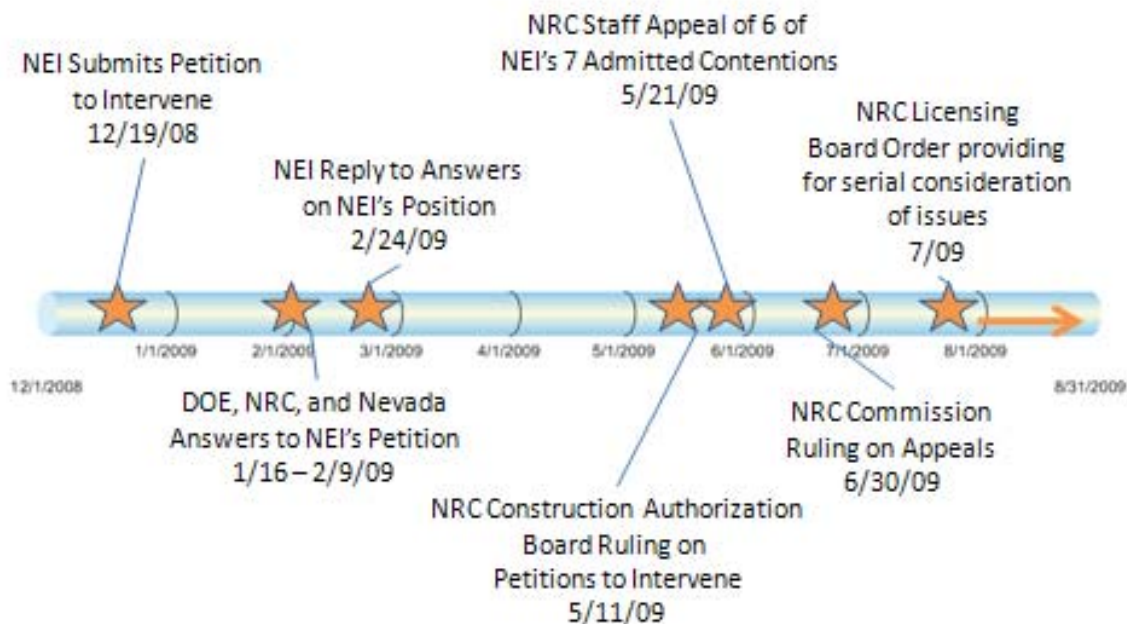
Contention	Description	Protecting Industry Interests	Improving the Repository
NEI-SAFETY-01	Spent fuel Disposal in Dual Purpose Canisters (DPCs) – seeking to compel DOE to permit direct disposal of DPCs to avoid additional radiation exposures and low level waste from unloading fuel at <u>Yucca Mountain</u> for emplacement into TADs and discarding DPCs, as well as to conserve limited resources	The workers who would incur the additional exposures will most likely be members of unions that are NEI members and employees of contractor companies that are NEI members.	Simplifies the design of repository surface facilities by eliminating the need to unload DPCs. This improves the safety and reduces the cost of operations.
NEI-SAFETY-02	Insufficient Number of Non-TAD Spent Fuel Shipments to Yucca Mountain – seeking to compel DOE to accept a greater percentage of DPCs (vs. TADs) to avoid additional radiation exposures and low level waste from unloading fuel at <u>reactor sites</u> for emplacement into TADs and discarding DPCs, as well as to conserve limited resources	The additional radiation exposure and low level waste burden would be incurred by NEI member utilities and their workers.	The unloading of DPC's can be more effectively conducted at the repository, in facilities specifically designed and operated for this purpose, than at reactor sites, where such operations are not a regular occurrence
NEI-SAFETY-03	Excessive Design of Aging Facility – seeking to compel DOE to revise its seismic design seismic for the used fuel aging facility to be consistent with design practices at comparable facilities to avoid the necessity to add design features which will cause workers to incur additional radiation exposures when emplacing used fuel casks in the facility	The workers who would incur the additional exposures will most likely be members of unions that are NEI members and employees of contractor companies that are NEI members. Furthermore, establishing unnecessarily excessive seismic design criteria sets a precedent which could be applied elsewhere with similar consequences.	Simplifies the design of repository surface facilities by bringing the design back into line with established engineering practices and eliminating the need for a first-of-its-kind facility. This allows the repository to benefit from experience at comparable facilities, improving the safety and reducing the cost of operations.

Contention	Description	Protecting Industry Interests	Improving the Repository
NEI-SAFETY-04	Low Igneous Event Impact – seeking to compel DOE to remove unreasonable assumptions from its analysis of a potential volcano scenario at Yucca Mountain	A more reasonable analysis of a potential volcano scenario would simplify the licensing process, increasing the chances of success and eliminating potential for delay.	A more reasonable volcano scenario would make DOE less likely to add unnecessary design features to protect against it.
NEI-SAFETY-05	Excessive Conservatism in the Post-closure Criticality Analysis – seeking to compel DOE to remove unnecessary conservatism from its post-closure criticality analysis. This over-conservatism will most likely cause workers to install unnecessary disposal control rod assemblies in used fuel containers	The additional radiation exposure burden would be incurred by NEI member utilities and their workers in cases where the unnecessary control rod assemblies would be installed at reactor sites. When installed at Yucca, workers will most likely be members of unions that are NEI members and employees of contractor companies that are NEI members.	Elimination of an unnecessary design feature would simplify repository design improving the safety and reducing the cost of operations.
NEI-SAFETY-06	Drip Shields are Not Necessary – seeking to compel DOE to remove the drip shields from the repository design to avoid the additional radiation exposure incurred during their installation	The workers who would incur the additional exposures will most likely be members of unions that are NEI members and employees of contractor companies that are NEI members.	Elimination of an unnecessary design feature would simplify repository design improving the safety and reducing the cost of operations.
NEI-NEPA-01	Inadequate NEPA Analysis for the 90% Canister Receipt Design – seeking to compel DOE to consider the environmental impacts of the low level waste generated by discarding DPCs at reactor sites to reload fuel into TADs	The additional environmental impacts would be incurred at NEI member utility sites.	A more adequate NEPA analysis would allow for a better evaluation of actual environmental impacts.
NEI-NEPA-02	Overestimate of Number of Truck Shipments – seeking to compel DOE to remove unreasonable assumptions about the number of NEI member utilities that would ship used fuel by Truck	NEI member utilities are highly unlikely to ship by truck and incur the environmental impacts of doing so.	A more reasonable NEPA analysis would allow for a better evaluation of actual environmental impacts.
NEI-NEPA-03	Over-conservatism in Sabotage Analysis – seeking to compel DOE to remove unreasonably conservative assumptions from their sabotage analysis	Highly unrealistic and speculative assumptions over-state sabotage consequences, which provides the public with a false view of the threat.	A more reasonable NEPA analysis would allow for a better evaluation of actual environmental impacts.

INDUSTRY'S ADMITTANCE TO THE PROCEEDING

In May 2009, the three specially assigned Construction Authorization Boards (CABs) empanelled by NRC to conduct hearings on requests to participate in the process granted NEI intervention both as a matter of right and based on the discretionary principles [4]. Issues concerning NEI's participation were mostly addressed by CAB-03. Seven of NEI's contentions were also admitted by CAB-03, although one was subsequently denied by the Commission [5] on appeal by the NRC staff [8]. This decision was the culmination of an eight month deliberative process. Figure 2 below depicts a timeline of this process.

FIGURE 2



In admitting NEI to the proceeding, CAB-03 found NEI's argument for standing to be compelling. The Board's ruling, with respect to participation as a matter of right, recognized the unique and important position that industry held with respect to the proceeding by stating:

“Rather than constituting a competitor or merely a ‘concerned bystander’ NEI represents those who are not only within the zone of interests but also are the intended beneficiaries of that act.” [4]

“Indeed, they can claim to be the real parties in interest in the success of DOE's Application, and have been supplying its financing through the targeted financial levy on their generation of power. ... And NEI's taking of a position in favor of the repository is not disqualifying, for there is precedent for the principle that intervention is allowable to those who wish to support a proposal that will affect their interests if the proceeding ‘has one outcome rather than another’.” [4]

Further, with respect to discretionary intervention, CAB-03 also recognized the positive value that industry would bring to the proceeding by stating

“In short, NEI’s reliance upon the general expertise of its members and their employees and the fact that its members have extensive experience in the handling and storage of spent fuel is sufficient. . . .we find that NEI’s ability to enhance the record, particularly as to TSPA¹ matters, far outweighs any delay its participation might cause.”
[4]

Finally, in addition to the traditional measures of merit for participation in an NRC licensing process, there was one specific pre-requisite, unique to the Yucca Mountain proceeding, that all parties had to meet – compliance with NRC’s Licensing Support Network (LSN) requirements of 10 CFR Part 2, Subpart J. In anticipation of the high complexity that this proceeding was likely to have, NRC designed the LSN to eliminate the need for much time consuming discovery by requiring parties to make publicly available all of their relevant documentary material on the internet based LSN. Parties were required to begin posting their materials 90 days after DOE began posting its materials (which DOE was required to do not less than 6 months before submitting its license application) and to update their on-line document collections on a monthly basis. CAB-03 also ruled that NEI was in compliance with these LSN requirements. NEI uploaded its initial document collection on January 11, 2008 [6] and to date has posted over 700 documents.

Having met the pre-requisites of standing and LSN compliance, the question of whether or not NEI would be able to participate in the Yucca Mountain licensing process would now hinge upon whether or not NEI was able to have at least one contention accepted by the Boards. NEI’s contentions will be discussed in the following section of this report, but first it is worth noting that NEI’s admittance to the proceeding was notable not just because it was precedent setting, but also because it was achieved over significant opposition. DOE, NRC staff, and the State of Nevada all filed briefs formally opposing NEI’s participation. CAB-03 rejected their objections. However, all three entities also submitted specific challenges to the admissibility of NEI’s contentions – the outcome of which is discussed below.

BOARD AND COMMISSION DECISIONS ON NEI CONTENTIONS

While NEI’s basis for standing turned out to be a fairly straightforward matter that drew clear support from the Boards, the admissibility of NEI’s contentions turned out to be more complicated. The traditional model of a contention in an NRC licensing proceeding was of an issue, typically alleging some significant flaw in a license application, raised by an opponent bent on stopping the applicant from obtaining a license. In this case, NEI desired to protect the interests of its member companies by while helping the applicant – DOE – obtain a license. This departure made crafting contentions that would meet NRC requirements for admissibility a significant challenge. In order to demonstrate that a contention met the materiality threshold, NEI would need to show in each case, that a repository it supported, in some area violated NRC or NEPA requirements.

In order to comply with NRC’s materiality requirements five of NEI’s six safety contentions (those identified in Table 1 above as seeking to reduce unnecessary radiation exposures to industry workers) cited a violation of NRC requirements that radiation exposures be maintained As Low As Reasonably Achievable (ALARA) as their basis for meeting the materiality standard. The one unique safety contention NEI-SAFETY-4 cited a violation of NRC’s specific repository performance assessment requirements (alleging the unreasonable assumptions in the DOE volcano scenario were inconsistent with the requirements governing how this scenario should be evaluated resulting in an unrealistically small amount of regulatory margin). And, obviously, each of the three NEPA contentions alleged some deficiency or inaccuracy in DOE’s EIS that represented a failure to comply with NEPA requirements. These arguments were challenged by DOE [7], NRC staff [8], and the State of Nevada [9] in briefs opposing the admission of all of NEI’s contentions.

CAB-03 [4] agreed with some but not all of NEI’s arguments, admitting all of the safety contentions but only one of the three NEPA contentions. NRC staff appealed the admission of all six NEI safety contentions, but not the one

¹ Total System Performance Assessment

admitted NEPA contention. The Commission [5] overturned CAB-03's decision on only one contention, the uniquely constructed NEI-SAFETY-04, essentially agreeing with NRC staff's position [8] that NEI's arguments on licensing uncertainty and possible delay were not material and within the scope of the proceeding. Table 2 below summarizes the disposition of each NEI contention.

TABLE 2

Contention	Description	Construction Authorization Board (CAB) Action	Commission Action on Appeal
NEI-SAFETY-01	Spent fuel Disposal in Dual Purpose Canisters (DPCs)	Admitted	Admission upheld
NEI-SAFETY-02	Insufficient Number of Non-TAD Spent Fuel Shipments to Yucca Mountain	Admitted	Admission upheld
NEI-SAFETY-03	Excessive Design of Aging Facility	Admitted	Admission upheld
NEI-SAFETY-04	Low Igneous Event Impact	Admitted	Admission overturned, contention denied
NEI-SAFETY-05	Excessive Conservatism in the Post-closure Criticality Analysis	Admitted	Admission upheld
NEI-SAFETY-06	Drip Shields are Not Necessary	Admitted	Admission upheld
NEI-NEPA-01	Inadequate NEPA Analysis for the 90% Canister Receipt Design	Admitted	Admission upheld
NEI-NEPA-02	Overestimate of Number of Truck Shipments	Denied	No appeal, denial stands
NEI-NEPA-03	Over-conservatism in Sabotage Analysis	Denied	No appeal, denial stands

Of course NEI's nine contentions did not exist in a vacuum. The Boards [4] admitted, and Commission [5] upheld a total of 296 contentions. The relationships between these contentions would play a significant role in determining the impact that NEI would have on the proceeding. These interrelationships are described in the following section of this paper.

RELATIONSHIP OF NEI CONTENTIONS TO THOSE OF OTHER PARTIES

One of the most distinguishing features of the first-of-its-kind Yucca Mountain licensing process was the unusually high number of parties that would be represented in the proceeding. Twelve parties originally sought intervention and submitted contentions in support of their petitions, two other parties sought participation as interested government parties only and did not file contentions. Table 3 below contains a list of these parties, the number of contentions they filed, and how these contentions fared with the Boards [4] and Commission [5]. By the summer of 2009, when the adjudicatory proceedings began in earnest, it had been determined that ten parties had standing (Caliente Hot Springs Resort was not admitted and the two potential parties seeking to represent the Timbisha Shoshone agreed to combine and represent the tribe as one party). This meant that when, on September 14 and 15 of 2009, a fourth Construction Authorization Board (CAB-04) convened a prehearing conference in Las Vegas to begin organizing discovery and early briefings in the proceeding, 14 parties were seated before the Board – the ten intervening litigants, the two interested government parties, DOE, and NRC staff.

TABLE 3

Party	Contentions Submitted	Admitted by Boards	Appealed by NRC staff	Upheld by Commission	Late Filed Contentions
State of Nevada	229	222	22	220	4
State of California	24	22	2	22	
Clark County, NV	15	13	0	13	1
Inyo County, CA	12	11	0	11	
NEI	9	7	6	6	
Nye County, NV	7	6	1	6	
Churchill, Esmeralda, Lander & Mineral Counties, (Four Counties), NV	4	4	0	4	
White Pine County, NV	4	4	0	4	
Timbisha Shoshone (non-profit)*	9	8	0	8	
Timbisha Shoshone (Tribe)*	9	8	0	8	
Native Community Action Council	3	2	1	2	
Caliente Hot Springs Resort	1	0	0	0	
Lincoln County, NV	Lincoln and Eureka counties participated as interested government parties only and did not submit any contentions				
Eureka County, NV	Lincoln and Eureka counties participated as interested government parties only and did not submit any contentions				
TOTAL	317	299	32	296	5

*Although these entities initially filed separate petitions, they were eventually consolidated into one

While NEI was unique amongst the parties for taking a position in support of the repository, two of the other parties – Nye County and the combined Four Nevada Counties – entered the proceeding with an officially neutral position on the repository and contentions that addressed not only safety and environmental issues but, in a manner similar to NEI’s petition, addressed economic interests as well. The other seven intervening parties displayed a decidedly oppositional tone in their petitions.

In addition to pursuing its own contentions, NEI’s petition [2] was designed to facilitate broad participation in the proceeding. It was believed, by both NEI and the Boards (see ruling citations above) that industry’s experience and expertise would add value to the proceeding in a number of areas. NEI’s intent was to apply this experience and expertise to provide a balanced perspective on the full range of technical issues being litigated. This balancing capability was evident in independent TSPA work performed by NEI’s expert witnesses – published in reports they authored through the Electric Power Research Institute (EPRI) – that, when compared to DOE’s TSPA, indicated that DOE had been very conservative in its analysis – e.g. overstated risks. Many of the contentions proffered by the opposing parties alleged in some way that DOE was understating risks. Hence NEI’s participation would assure that the Board’s were provided with perspectives on the full range of possibilities concerning any of a number of scientific and technical issues.

In addition to the broad balancing role provided by NEI’s participation, it was evident early on that there were specific areas where the interests reflected in NEI’s petition related directly to the interests reflected in the petitions of other parties. In some cases, these interests were convergent. For example Nye County filed supportive briefs adopting NEI contentions SAFETY-03 & - 04, the 4 Nevada Counties adopted NEI contentions SAFETY-01 and NEPA-01, and NEI, in turn, adopted two Nye County contentions (seeking to compel DOE to conduct additional performance confirmation activities to address uncertainties in natural barrier flow modeling, which was consistent with industry’s long standing support for a robust performance confirmation program). In other cases, the interests that brought related contentions together were divergent, such as when NEI’s contention SAFETY-06, arguing that drip shields were unnecessary was grouped with more than a dozen State of Nevada contentions arguing that the drip shields would be unable to perform their intended design function.

Unfortunately, the opportunity to fully explore the balancing role that NEI’s participation would have on the proceeding was thrown into question when, just as the Boards were beginning to prioritize and group the contentions, the Obama Administration signaled its intent to terminate Yucca Mountain licensing activities. Nevertheless, the significant role that NEI was able to play by participating in the pre-hearing phase of the

proceedings indicated that the counterbalancing effect of NEI's contentions and expertise would be given strong consideration.

CONCLUSION

NEI's successful admittance into the Yucca Mountain licensing process was significant. Historically, parties have typically intervened in US nuclear licensing processes because they sought to stop the project in question from being licensed. Never before had a party intervened in such substantive detail *in support* of a proposed nuclear facility.

Despite the Obama Administrations plans to terminate the Yucca Mountain licensing process, it has proceeded to the point where the roadmap was drawn. The process demonstrated that the logistical challenges presented by a large number of participants bringing hundreds of contentions can be met. The early pre-hearing conferences, in which more than a dozen parties came together and constructively addressed the issues before them and successfully reached consensus on a path forward, demonstrated that the wide and divergent interests bound to be involved in the licensing of a geologic repository can be effectively coordinated – and that the interests of the US nuclear industry have a legitimate place among them.

REFERENCES

1. U.S. NUCLEAR REGULATORY COMMISSION “Yucca Mountain: Notice of Receipt and Availability of Application, 73 Federal Register 34348 (June 17, 2008)
2. U.S. NUCLEAR REGULATORY COMMISSION “The Nuclear Energy Institute’s Petition to Intervene”, Docket 63-001 (December 19, 2008)
3. U.S. DEPARTMENT OF ENERGY “Transportation, Aging, and Disposal Canister System Performance Specification” WMO-TADCS-000001 Rev. 1 DOE/RW-0585 (March 25, 2008)
4. U.S. NUCLEAR REGULATORY COMMISSION, ATOMIC SAFETY AND LICENSING BOARDS “Memorandum and Order (Identifying Participants and Admitted Contentions), LBP-09-06, Docket 63-001-HLW (May 11, 2009)
5. U.S. NUCLEAR REGULATORY COMMISSION, “CLI-09-04, Memorandum and Order”, Docket 63-001-HLW (June 30, 2009)
6. U.S. NUCLEAR REGULATORY COMMISSION, “Nuclear Energy Institute Certification of Licensing Support Network Compliance”, Docket 63-001 (January 11, 2008)
7. U.S. NUCLEAR REGULATORY COMMISSION “Answer of the U.S. Department of Energy to the Nuclear Energy Institute’s Petition to Intervene”, Docket 63-001 (January 16, 2009)
8. U.S. NUCLEAR REGULATORY COMMISSION “NRC Staff Answer to Intervention Petitions”, Docket 63-001 (February 9, 2009)
9. U.S. NUCLEAR REGULATORY COMMISSION, “Answer of the State of Nevada to the Nuclear Energy Institute’s Petition to Intervene”, Docket 63-001 (February 9, 2009)