

**REPORT AND RECOMMENDATIONS  
OF THE  
NEVADA COMMISSION ON  
NUCLEAR PROJECTS**



**Presented to  
The Governor and Legislature  
of the State of Nevada**

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## *PREFACE*

The fight to stop the dangerous, unnecessary, and ill-conceived Yucca Mountain repository project has been a long, frustrating, contentious process spanning two decades. For much of that time Nevada has been at logger heads with the federal government over the unscientific, unfair, and heavy-handed way the U.S. Department of Energy has gone about the implementation of the program.

Since its creation in 1985, the Nevada Commission on Nuclear Projects has observed and reported as the trickle of evidence suggesting that Yucca Mountain was incapable of isolating deadly radioactive waste became a deluge - to the point where even DOE could no longer deny that it had a serious problem on its hands. As commissioners we also watched incredulously as DOE, instead of acknowledging what its own scientists and research were showing, repeatedly set about changing and modifying the rules, regulations and guidelines - moving the goal posts, as it were - so as to mask site deficiencies and permit the program to go forward in spite of the overwhelming evidence that Yucca Mountain is an unacceptable place for disposing deadly spent nuclear fuel and high-level radioactive waste.

Nevertheless, DOE's problems, many of them the result of the Department's own politicized science and mismanagement, continue to mount. Today, almost twenty-two years since President Reagan signed the original Nuclear Waste Policy Act into law, there are strong indications that the accumulating weight of unavoidable scientific reality, the unraveling fabric of obfuscation and misrepresentation, and the years of deception are beginning to come home to roost.

When confronted with people who refused to acknowledge truth when it was right before their eyes, the great eighteenth century writer Samuel Johnson was said to have observed, "Truth, Sir, is a cow, which will yield such people no more milk, and so they are gone to milk the bull!" DOE and the federal government have been ignoring reality and attempting to milk the Yucca Mountain bull for the better part of twenty years, with predictable results.

Last July, the U.S. Circuit Court of Appeals for the District of Columbia handed the State of Nevada a major victory when it overturned the Environmental Protection Agency's repository health protection standards. That decision may well prove to be the catalyst that brings the Yucca Mountain house of cards down upon itself. As we point out in the report which follows, the burden of accumulated site and program defects and deficiencies is beginning to reach critical mass, with excessive and escalating program costs, debilitating budget problems, inept program management, major and growing health and safety issues (i.e., the silicosis debacle), pervasive quality assurance and licensing problems, and the albatross of a massive spent fuel shipping campaign about to break into the national consciousness - all combine to signal nothing but trouble for the program for years to come.

As stated in the introduction to the Recommendations section of this report, the Commission believes it is only a matter of time before Congress and even the nuclear industry recognize the futility of continuing to invest money and resources in a project that has no chance of succeeding and that has become a financial, technical, legal, and environmental black hole instead of a viable solution to the nuclear waste problem.

Brian McKay, Chairman  
January, 2005

**ONCE MORE INTO THE BREECH:  
OVERVIEW OF YUCCA MOUNTAIN DEVELOPMENTS FOLLOWING  
CONGRESS' OVERRIDE OF GOVERNOR GUINN'S VETO IN 2002**

*"You cannot acquire experience by making experiments.  
You cannot create experience. You must undergo it."*  
Albert Camus, existential philosopher (1913 - 1960)

**Introduction**

In its December 2002 report to the Governor and Legislature, the Nevada Commission on Nuclear Projects noted that when President George W. Bush formally recommended to Congress that a high-level radioactive waste repository be located at Yucca Mountain in southern Nevada and Congress voted to override the Notice Of Disapproval submitted by Governor Kenny Guinn, the President and Congress set in motion a chain of events that placed Nevada and the federal government squarely on a collision course before the federal courts and in the Nuclear Regulatory Commission's (NRC) licensing arena. In the two years since that observation was made, the State's legal and technical fight over the future of Yucca Mountain has been waged intensely and, so far, successfully in both venues.

On July 9, 2004, the U.S. Circuit Court of Appeals for the District of Columbia issued a landmark ruling on a complex set of legal cases brought by the State of Nevada, Clark County, the City of Las Vegas, and the Natural Resources Defense Council (NRDC), joined by other public interest groups, challenging the federal government's efforts to locate a high-level radioactive waste repository at Yucca Mountain.<sup>1</sup> While not all of the challenges raised by the parties were upheld, the Court nevertheless delivered a major and perhaps fatal blow to the federal program when it granted the plaintiffs' petition to vacate the U.S. Environmental Protection Agency's (EPA) radiation health protection standard for a Yucca Mountain repository. The Court went even further and voided NRC's licensing regulations to the extent that those regulations rely on the rejected EPA standard.

The court's ruling was a major victory for Nevada in its efforts to halt the Yucca Mountain project. By itself, however, the court decision is not sufficient to stop the program outright. While the proposed southern Nevada high-level nuclear waste repository may be in the category of a "dead man walking," much remains to be done in the next two years to assure that the State does, in fact, prevail.

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<sup>1</sup> The full text of the Court's decision is appended to this report as Attachment I. It is also available on Nevada Agency for Nuclear Projects' web site at <http://www.state.nv.us/nucwaste/news2004/pdf/usca040709.pdf>.

## **Nevada vs. the Federal Government: Overview of the Yucca Mountain Legal Fight**

Well before the Secretary of Energy recommended development of the Yucca Mountain site for a repository, the Nevada Agency for Nuclear Projects (Agency), in close collaboration with the Attorney General, took steps to position the State for the legal and technical battles that were to come. In early 2001, the Agency undertook a national search to identify a law firm with the requisite expertise and qualifications to handle the complex and highly specialized litigation required before the courts and the NRC. After an extensive search and contract solicitation process, the Agency selected the firm of Egan and Associates of McLean, Virginia, both for the legal challenges<sup>2</sup> and for participation in the NRC's licensing process.<sup>3</sup>

Nevada's legal challenge to Yucca Mountain involved six discrete yet closely inter-related actions.<sup>4</sup> Considerable thought and planning went into developing the State's legal strategy and preparing the petitions, which were filed with the U.S. Circuit Court of Appeals for the District of Columbia<sup>5</sup> over a period of more than a year. The cases are summarized below.

### *Challenge to the U.S. Environmental Protection Agency's Health Protection Standards for Yucca Mountain*

The case against the EPA's Yucca Mountain radiation standards argues that, in developing the radiation release standards for the Yucca Mountain repository, the EPA failed to follow the requirements of the Nuclear Waste Policy Act, the Energy Policy Act of 1992, and the Safe Drinking Water Act. The suit challenges EPA's radiation standard as not being protective enough of Nevada's groundwater and less stringent than the standard in place at the Waste

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<sup>2</sup> Despite mounting evidence that Yucca Mountain was incapable of isolating deadly spent fuel and high-level radioactive waste for the extraordinarily long time period required, and despite repeated requests from Nevada that the site be disqualified based on DOE's own siting guidelines, DOE insisted that it intended to recommend Yucca Mountain for development as a repository by the end of 2001. Anticipating such a recommendation and recognizing the political realities involved with - and the odds against - being able to successfully sustain the Governor's veto, the Agency moved expeditiously to assemble a high-quality legal team to challenge the President's and Congress' actions.

<sup>3</sup> NRC's licensing process is a complex, highly technical adjudicatory proceeding that requires specialized expertise and experience with NRC procedures, operations, legal framework, and regulations as well as a thorough familiarity with historical case law involving the NRC's activities and decisions.

<sup>4</sup> During the course of the court's review and management of the litigation, the six cases originally filed as discrete actions were consolidated, with Nevada's full consent, into a single case. Oral arguments on the consolidated case were heard during an extended court session in January 2004, and the court's final ruling addressed each of the issues raised in the various cases in the context of the single consolidated case.

<sup>5</sup> The choice of the D.C. Circuit Court of Appeals was a strategic one. The Nuclear Waste Policy Act of 1982, as amended, requires that any legal challenges under the Act be brought in either the Court of Appeals for the region in which the petitioner is located (in the case of Nevada that would be the 9<sup>th</sup> Circuit in San Francisco) or the Circuit for the District of Columbia. After considerable research and discussion, the Nevada legal team recommended that the State's lawsuits be filed with the D.C. Court because of the court's long familiarity with and expertise in nuclear litigation.

Isolation Pilot Plant (WIPP) in New Mexico. Nevada contended that the 10,000-year regulatory time period is contrary to the recommendation of the National Academy of Sciences (NAS)<sup>6</sup>. The suit also argued that EPA, in collusion with DOE, grossly gerrymandered the site boundary for measuring doses to the public so radionuclides could first be diluted in regional groundwater prior to measurement.

The Nevada Attorney General asked the court to have the EPA's Yucca Mountain rules set aside and remanded to the agency for redevelopment consistent with law. The NRC's Yucca Mountain licensing regulations, which incorporate the EPA standards, would also have to be redone.

### *Challenge to the NRC's Yucca Mountain Licensing Regulations*

In this case, Nevada contended that the NRC's licensing regulations, which were developed specifically and solely for the Yucca Mountain site, depart from the Nuclear Waste Policy Act by (a) allowing the Nevada site to be licensed even though geology is not the primary isolation barrier, (b) allowing the project to be licensed without DOE ever having to put forward an affirmative safety case for the repository, (c) failing to establish disqualifying criteria for the repository and its waste isolation barriers, and (d) creating one set of watered-down standards for licensing Yucca Mountain and a separate, stricter set of standards for licensing future repositories.

Specifically, the Nevada lawsuit contended that NRC's repository licensing rules for Yucca Mountain violate the Nuclear Waste Policy Act and the Atomic Energy Act in six fundamental ways:

- The regulations arbitrarily cut off all regulatory compliance regardless of when Nevadans would experience Yucca Mountain's peak radiation hazard by limiting the compliance period to 10,000 years;
- The regulations set no minimum requirements for the geology or the geologic fitness of the Yucca Mountain site;
- The NRC rules fail to require defense-in-depth through application of "multiple barriers" (both natural geologic barriers and man-made barriers), as required by the NWPA;
- The regulations, as written, do not specifically require DOE to demonstrate compliance with EPA's Yucca radiation protection standards;

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<sup>6</sup> The Energy Policy Act of 1992 required the EPA to establish public health protection standards for Yucca Mountain that were consistent with recommendations put forth by the National Academy of Sciences. That same legislation required the NAS to establish a committee to study the matter and report its findings and recommendations to EPA. The NAS committee, in its final report, specifically rejected limiting the period of compliance to the first 10,000 years, noting that greater potential radiation exposures from the repository could be expected to occur beyond the arbitrary 10,000 year cut-off.

- NRC’s regulations permit DOE to demonstrate compliance with a watered-down “reasonable expectation of safety” standard in the NRC rule rather than the higher “reasonable assurance of safety” standard applied to other NRC licensees;
- The NRC regulations did not permit Nevada to litigate the issue of DOE’s failure to demonstrate repository safety after 10,000 years in the Yucca Mountain license proceeding; and
- The regulations apply only to Yucca Mountain, while the existing, stricter set of licensing regulations would apply to future repositories.

By way of remedy, the Nevada case sought to have NRC’s Yucca Mountain licensing rules set aside and remanded to the agency for redevelopment consistent with law.

### *Challenge to DOE Yucca Mountain Siting Guidelines*

The original NWPA required DOE to develop and promulgate a set of guidelines by which the repository site would be evaluated and determined to be suitable geologically. The law specified detailed criteria, including qualifying and disqualifying conditions, that had to be incorporated in DOE’s guidelines. In 1985, after extensive public comment and input, DOE issued its siting guidelines, which DOE used as the basis for site evaluation until 2001. The 1987 amendments to the NWPA retained the guidelines requirement unchanged, even though it limited site evaluation and characterization to Nevada’s Yucca Mountain.

In late 2001, just weeks before the Secretary of Energy recommended to the President that Yucca Mountain be developed as a repository pursuant to the NWPA, the Energy Department abruptly discarded the original guidelines that had been in place since 1985 and promulgated new site suitability regulations, applicable only to Yucca Mountain,<sup>7</sup> that eviscerated requirements for geologic qualifying and disqualifying criteria required by the NWPA. In so doing, DOE abandoned fundamental geologic requirements for the Yucca Mountain site, in particular those troublesome disqualifying criteria that would have had to have been applied to conditions clearly present at the site.<sup>8</sup>

The Nevada case argued that, for 17 years, DOE’s siting rules were based on geologic isolation, consistent with the Nuclear Waste Policy Act. However, when information emerged showing that the site could not meet the burden imposed by such criteria, DOE arbitrarily

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<sup>7</sup> As was the case with the NRC’s licensing regulations, DOE’s new site evaluation guidelines apply solely to Yucca Mountain. Any future repositories would be evaluated using the original siting guidelines, creating a situation where repositories in other states would be held to much stricter standards of suitability than Yucca Mountain..

<sup>8</sup> The most problematic of these was the disqualifying condition involving the rapidity of groundwater movement from the repository to the accessible environment. The original siting guidelines contained a disqualifying condition that required Yucca Mountain to be disqualified if the travel time for water to move from the waste location to the “accessible environment” is less than 1,000 years. Information developed by DOE’s own scientists during characterization clearly demonstrated that the groundwater travel time at Yucca Mountain is as little as several hundred years at best, and quite possibly as short as 50 years.

changed the siting rules. Less than three months later, using the new criteria, DOE declared the site suitable by relying almost exclusively on man-made waste disposal containers to isolate wastes.

The Nevada petition sought to have the Energy Department's siting rules set aside and remanded to the agency for redevelopment consistent with the requirements of law.

*Challenge to DOE's Yucca Mountain Environmental Impact Statement (EIS) and Other Activities Required Under the National Environmental Policy Act (NEPA)*

In this case, the State contended that the Energy Department committed numerous egregious procedural violations of NEPA and that DOE failed to evaluate the impacts of the project in accordance with NEPA and the Nuclear Waste Policy Act. Specifically, the lawsuit argued, among other things, that:

- DOE unlawfully concealed significant portions of its impact analyses from the State of Nevada as well as from the Death Valley National Park Administrators;
- the Secretary of Energy took final agency action on a major federal project (i.e., recommending Yucca Mountain for development as a repository) without first issuing a Record of Decision (ROD) as required by NEPA;
- DOE failed to consider that its project would violate Nevada's hazardous waste laws, would unlawfully site an above-ground interim waste storage facility in Nevada, and would expose tens of thousands of waste shipments to sabotage and terrorism dangers, including the danger of nuclear "criticality;" and
- DOE failed to adequately define the project in the context of the EIS, including such basic aspects as whether it would operate in a "hot" or "cold" temperature mode, whether it would require centuries of ventilation, how much land it would use, and whether waste transportation to the repository would be by rail or truck.

The State's litigation sought to have the Energy Department's environmental impact statement for Yucca set aside and remanded to the agency for redevelopment consistent with law.

*Challenge to the President's and Secretary's Site Recommendations*

In this case, the State and other petitioners argued that the Energy Secretary failed to disqualify the site when it was found unsuitable under DOE's original siting guidelines, and that the Secretary then unlawfully recommended the site to the President without first completing Yucca Mountain's required site characterization. The suit also charged that, by relying on the Energy Department's legally deficient siting analysis and flawed environmental impact statement for Yucca Mountain, the entire site approval process was deficient, since the Energy Secretary's site recommendation and the President's recommendation of the site to Congress (made a mere 24 hours later) were legally void.

By way of remedy, the litigation sought to have the Yucca Mountain site recommendations declared null and void, requiring that the entire site approval process be redone in a manner consistent with law, including the Secretary's recommendation to the President, the President's recommendation to Congress, and the congressional review process for the Yucca Mountain site.

### *Challenge to the Constitutionality of the Yucca Mountain Program*

Nevada's legal team argued that the federal government's actions in singling out the State of Nevada as the only state to bear the burden for disposal of the commercial spent nuclear fuel and high-level radioactive waste from other states, absent specific and compelling attributes that made Nevada the only place available for such disposal, was unconstitutional. The suit contended that under the U.S. Constitution, forty-nine states may not, in essence, "gang up" on a single, politically isolated state to impose an unwanted burden without a compelling rational basis. With the abandonment of any geologic isolation criteria for the site (which meant that waste could be stored almost anywhere using the manmade container DOE was proposing that accounted for almost all of the waste isolation capacity of the proposed facility), such a basis no longer exists at Yucca Mountain.

The case challenged the government's application of one set of site suitability rules for the Yucca Mountain site while applying a completely different (and more stringent) set of rules for any other repository site in America. The suit invoked the principles of federalism in the Tenth Amendment and inherent in other constitutional provisions.

As a remedy, the litigation asked the court to declare the July 2002 Congressional Joint Resolution approving the Yucca Mountain site unconstitutional.

### **The Decision of the D.C. Circuit Court of Appeals and its Implications**

While the Court of Appeals did not uphold all of the challenges brought by the State of Nevada and the other plaintiffs, the court's July 9, 2004 decision nevertheless represents a significant victory in the State's fight against the Yucca Mountain project.<sup>9</sup>

First, the court vacated the primary EPA rule governing the project, holding that not only was EPA's rule inconsistent with the congressionally-mandated recommendations of the National Academy of Sciences, but EPA deliberately rejected the sound advice of the scientific community and adopted a standard that is not protective of health and safety. EPA would now have to promulgate a new rule (which could take years). That new rule would have to extend the regulatory compliance period out to at least the time of the peak radiation hazard for the

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<sup>9</sup> It was widely understood when Nevada and the other petitioners filed the litigation that was the subject of the July 9<sup>th</sup> ruling that the State only had to win one of the major challenges to inflict major, and likely fatal, damage on the federal program. In fact, the court's decision provided Nevada with several major victories.

repository. There is strong evidence that DOE cannot satisfy this requirement, given Yucca Mountain's porous geology. The court, anticipating this eventuality in its ruling, quoted the former head of the DOE's Office of Civilian Radioactive Waste Management as acknowledging Yucca Mountain's inability to meet this more stringent requirement.

Second, the court vacated the NRC rule governing repository licensing. This means there is currently no rule against which to license the project. NRC would have to wait until EPA promulgates a new rule, at which time NRC would have to issue new licensing regulations. As a practical matter, the NRC licensing proceeding is on hold. If it is ever re-instituted, DOE would have to prove what Nevada has long contended must be proven - that the geology of the mountain is sufficient to retard radiation hazards to a safe level for all, not just a small fraction, of the time period required.

Third, while finding that Nevada's challenge to DOE's Yucca Mountain Environmental Impact Statement (EIS) was not yet ripe, the court preserved Nevada's ability to fully litigate the numerous defects in the EIS during the NRC licensing proceeding and in the future when and if DOE relies on the EIS to make program decisions. This means issues such as DOE's rejection of the "no-action" alternative (continued on-site storage), its transportation plan (or lack thereof), and its violation of Nevada's hazardous waste laws are now fully litigable. DOE had argued that these issues were moot, but the court ruled otherwise.

Fourth, the court rejected every one of the Nuclear Energy Institute's (NEI) challenges to the groundwater safety standards that were imposed on the repository by EPA. NEI had sought to diminish the stringency of EPA's rules.

Fifth, the court affirmed that the higher standard of "reasonable assurance of safety" must be used to judge the repository in licensing, not the watered-down "reasonable expectation of safety" that NRC had required. In fact, NRC earlier had conceded to the court that the two terms have the same meaning and "reasonable assurance" is the customary term.

In a nod to a 'Catch-22' that would have made Joseph Heller proud, the court dismissed Nevada's challenges to DOE's siting guidelines and to the Secretary of Energy's and the President's actions recommending Yucca Mountain for development of a repository, ruling that these challenges were moot since the resolution passed by Congress overriding Governor Guinn's 2002 notice of disapproval constituted a new law and, as such, superceded the entire process for site approval set forth in the NWPA. In essence, the court said that the detailed, step-wise framework established in the original Act requiring DOE to identify, characterize and recommend a repository site for further development, including the application of the siting guidelines and all of the other actions leading up to the final agency action of recommending the site, became null and void upon Congress' passage of the "resolution of repository siting"- the final step in the siting process spelled out in the NWPA.

The irony of the court's embrace of DOE's "mootness" argument is reflected in the fact that, in earlier litigation when Nevada sought to challenge DOE's interim actions related to the Yucca Mountain project (i.e., prior challenges to the siting guidelines, DOE's failure to adequately characterize the site, and other issues), the courts had ruled Nevada's contentions to be premature and unripe for decision, since no final decisions had yet been made. However, when *the* final decision under the NWPAA was rendered (i.e., the ultimate decision, based on the process set forth in the NWPAA, to recommend Yucca Mountain as a repository), the court found that decision to be non-reviewable because Congress followed the process it had previously set forth in the original NWPAA and passed a resolution overriding Nevada's veto.

In addition to dismissing Nevada's challenges to the illegal way in which DOE implemented the NWPAA, the court also ruled against the State in the constitutional case. In that case, the court held that the property clause of the Constitution provides DOE all with of the authority needed to locate a repository on federal land.

After considering the overall implications of the Court's decision and the major victory it represented for Nevada in striking down the illegal health protection standards for Yucca Mountain, the Attorney General and the State's legal team decided not to appeal aspects of the Court's ruling that were not as favorable to Nevada. Likewise, recognizing that the chances of overturning the court's decision on the EPA radiation standard were remote, both DOE and the Nuclear Energy Institute (NEI)<sup>10</sup> also decided not to appeal. As a result, the ruling stands.

### **What's Next: How the Playing Field Has Changed**

In a press statement following the July 9<sup>th</sup>, 2004 U.S. Circuit Court of Appeals decision striking down the EPA radiation protection standards for Yucca Mountain, Governor Guinn called the ruling "a major setback for the Department of Energy's (DOE) effort to place nuclear waste in our state." In retrospect, the Commission believes the Governor may have actually understated the potential impact of the court's action for the federal nuclear waste program.

The decision strikes at the heart of DOE's strategy to overcome fundamental deficiencies of the Yucca Mountain site by using manmade barriers (i.e., waste disposal containers assumed to remain intact for 10,000 years or more) as a substitute for geologic containment of spent fuel and high-level waste. The attractiveness of this strategy, for DOE, was that it allowed DOE's performance assessment modelers to ignore troublesome physical characteristics of the site itself. As long as it could be assumed (however unrealistically) that the waste containers would last for 10,000 years, and that the maximum period of time for which DOE was required to demonstrate waste isolation was 10,000 years, the fact that Yucca Mountain itself contributes almost nothing to waste isolation became irrelevant.

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<sup>10</sup> NEI had filed its own lawsuit contending that the EPA health protection standard was, essentially, too stringent. The NEI suit was consolidated with the other Yucca Mountain litigation and became part of the single consolidated case that was decided on July 9, 2004.

When the court decreed that any health protection standards for Yucca Mountain must encompass not just the first 10,000 year, but rather the period of maximum releases from the repository, it effectively obligated DOE to do what the law requires and what the State of Nevada has been demanding for years - demonstrate that the geology at the Yucca Mountain site is, in fact, capable of isolating waste for the full length of time required. No longer can engineered barriers, concocted to mask fundamental and disqualifying site deficiencies, be used as a substitute for geologic waste isolation.

Just as important, the court ruled that NRC's regulations for licensing any Yucca Mountain repository are invalid to the extent they rely on the inadequate and vacated EPA health protection standards. Because the NWPA requires NRC to incorporate the EPA standards into its licensing regulations, the court decision effectively restrains NRC from moving ahead with a licensing proceeding should DOE seek to submit a license application for Yucca Mountain in advance of a re-promulgated EPA standard. Once a new EPA standard has been adopted, a process that can take years, NRC would be have to issue new licensing regulations that incorporate the EPA requirements. As a result, NRC would be required to evaluate DOE's license application in light of the greatly expanded compliance period and the need for DOE to demonstrate geologic isolation of the waste for the period of time required.

The decision of the D.C. Circuit Court of Appeals, in effect, drives a stake through the heart of DOE's Yucca Mountain program by, first, removing the ability to mask fundamental site deficiencies through the use of unrealistic and overvalued manmade barriers and, second, by making it difficult, if not impossible, for NRC to overlook those same site deficiencies in the licensing process.

## NRC LICENSING: THE NEW TECHNICAL BATTLEGROUND

*“Every truth passes through three stages before it is recognized.  
In the first it is ridiculed; in the second it is opposed;  
in the third it is regarded as self-evident.”*

Arthur Schopenhauer, German philosopher (1788–1860)

### Overview of the NRC Licensing Process

The NWPA mandates that DOE obtain a licence from the NRC to construct, operate and eventually close a repository at Yucca Mountain. NRC’s licensing process for such a repository requires DOE to demonstrate that the facility meets applicable health and safety standards; that the design of the facility is sound and defensible; that the facility can be constructed and operated safely and in accord with health and safety regulations; and that the long-term performance (i.e., waste isolation) of the facility meets the EPA’s radiation protection requirements.

In 1981, in advance of the NWPA, NRC first promulgated regulations designed to govern the licensing of any high-level radioactive waste repository. Those regulations closely paralleled the criteria set forth for site suitability in the NWPA and contained in DOE’s siting guidelines. In addition to requiring compliance with EPA’s health protection regulations, the NRC licensing regulations required DOE to demonstrate that the repository meet specific performance requirements for waste isolation based on site and design characteristics.

In 2001, NRC promulgated an entirely new set of regulations specifically and solely for licensing a repository at Yucca Mountain. NRC left the original regulations in place for use in licensing repositories elsewhere, thereby creating a licensing regime that had one set of standards for Yucca Mountain and another, more stringent, set of requirements for repositories that might be located in other states. The new Yucca Mountain-specific regulations did away with specific performance requirements and, instead, only required DOE to demonstrate, using computer modeling, that Yucca Mountain is capable of meeting EPA’s health protection standard.<sup>11</sup> Like EPA, NRC limited the period for which compliance must be demonstrated to just the first 10,000 years.

### The Implications of Nevada’s Court Victory for the Licensing Process

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<sup>11</sup> To demonstrate compliance, NRC requires DOE to perform a ‘performance assessment’ that accounts for all of the various factors relating to waste isolation and facility performance in a single integrated computer model. Both NRC and DOE have been roundly criticized for over-reliance on the performance assessment approach because it permits DOE to mask major site deficiencies, even disqualifying conditions, in the way the computer model is structured and how the various factors are accounted for and weighted. For example, where rapid groundwater travel time was considered a disqualifying factor in the old NRC regulations, under the performance-based system, rapid water movement through the repository is treated as only one of many factors, and DOE is able to disguise its importance by loading compensatory factors into the computer model (such as long-lived manmade containers and other engineered barriers).

The D.C. Circuit Court of Appeals did not vacate all of NRC's new Yucca Mountain licensing regulations. It let stand NRC's decision to rely solely on a performance-based approach as opposed to evaluating the site against specific technical criteria. However, the court invalidated the aspect of the regulations that limited the period of compliance to 10,000 years (i.e., the extent to which the NRC regulations rely on the vacated EPA standard). NRC would need to incorporate the new EPA standard into a revised set of licensing regulations before any Yucca Mountain licensing process can go forward.

Because the court specifically required EPA to develop a new health protection standard that is consistent with the National Academy of Sciences recommendations regarding the duration of the compliance period, NRC's revised regulations would mean that DOE would no longer be able to mask fundamental waste isolation deficiencies of Yucca Mountain by taking credit for various engineered barriers in its performance assessment calculations.<sup>12</sup> As a result, it is very unlikely that DOE would be able to show that Yucca Mountain came meet performance requirements for licensing. In short, the court's ruling that overturned EPA's radiation health protection standard also means that Yucca Mountain is likely un-licensable under revised NRC regulations that must incorporate a stricter EPA standard.

### **DOE's Approach to Licensing: A Path to Nowhere?**

Since well before Congress' override of Governor Guinn's Notice of Disapproval in 2002, DOE has indicated it would submit a license application for a Yucca Mountain repository to the NRC before the end of 2004. In late November 2004, DOE announced that it would not meet the self-imposed December 2004 deadline, and no new target date has been set as of the publication of this report. There are a number of factors that would influence (a) whether a license application can be completed and submitted to the NRC in the near future and (b) whether the NRC can legally and practically accept such an application or docket it if one is presented.

First, as discussed below, DOE has faced, and would continue to face, significant budgetary uncertainties that have implications for its licensing work. The Department, in the Administration's FY 2005 budget, had requested \$880 million for the Yucca Mountain program. That figure represents an increase of more than \$300 million over FY 2004. In the end, however, Congress appropriated the same amount of money for FY 2005 as it had for FY 2004 (\$577 million) for DOE's high-level radioactive waste program, with \$10 million of that amount

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<sup>12</sup> DOE's claim that waste disposal containers capable of remaining intact and functioning for even 10,000 years was, on its face, unrealistic and probably unachievable. In the case of a compliance period that must encompass the period of maximum releases from a repository, whenever that may occur (as recommended by the NAS), the notion of relying on manmade barriers becomes absurd, and the geology of the Yucca Mountain site emerges as the factor that determines whether waste can be isolated for the time necessary. And without the use of engineered barriers, Yucca Mountain cannot be shown capable of containing the waste over the compliance period required by the court.

earmarked for State and local oversight.<sup>13</sup> Ongoing budget battles in Congress can be expected to continue, especially with the election of Nevada's Senator Reid as the new Senate minority leader. Add to this the not insignificant impediment of the budget caps agreed to by the Administration and Congress, and it appears highly likely that DOE would continue to experience annual budget problems, with significant reductions from requested funding levels. DOE has indicated that its license application work would be adversely impacted if sufficient funds are not appropriated.

Second, DOE has encountered major problems in obtaining NRC certification for its internet-based document access system for NRC's Licensing Support Network (LSN).<sup>14</sup> In July, 2004, DOE announced that it had met NRC's criteria for document availability by launching a web-based document access system. Almost immediately, however, it became apparent that the database was seriously deficient, incomplete and replete with major technical and security-related problems. NRC has since rescinded its initial certification of the DOE system.

If DOE does, in fact, submit a license application to the NRC in 2005, NRC may not docket that application (i.e., set in motion the formal process by which the application is reviewed and evaluated) until six months after DOE's LSN system has been certified as complete and operational. As a practical matter, then, the earliest NRC would be able to begin the formal review process for a DOE application would be mid to late 2005.

Third, any application DOE is able to submit would almost certainly be seriously incomplete. A number of key technical issues remain unresolved, with significant gaps and deficiencies in the data and information required to adequately address those issues. DOE is contending that it can submit the formal application, have NRC accept and docket it, and then supplement it with new information at a later date. The State of Nevada contends that the application must be complete when submitted, as required by the NRC licensing rule.

Fourth, as discussed above, there is a serious question regarding NRC's ability to legally accept a license application in the absence of (1) a revised EPA standard that conforms with the July 2004 appeals court ruling, and (2) re-promulgated NRC licensing regulations incorporating the new EPA regulation. The Nevada Attorney General and the State's legal team contend that

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<sup>13</sup> In a lame duck session following the 2004 elections, Congress passed an omnibus spending bill that contained \$577 million for DOE's nuclear waste program. The bill earmarks \$8 million for oversight programs of affected units of local government (9 Nevada Counties and Inyo County, California) and \$2 million for the State of Nevada.

<sup>14</sup> The LSN is an internet-based system designed to contain all of the materials and documents DOE and other parties in the licensing proceeding rely on to support technical conclusions, contentions, etc. As part of its licensing regulations, NRC requires DOE to have all of its licensing-related documents on the LSN and certified as complete six months before a license application can be docketed. There are over 2 million documents DOE must have available on the LSN to support its license application. The requirement for access to supporting documents and materials also applies to the State of Nevada and interveners in the licensing proceeding. The State must make its licensing documents available not later than 90 days following certification of the DOE documents.

NRC is prohibited from accepting a license application and going forward with the licensing process until both EPA and NRC have fully complied with the court's directive.

### **Nevada's Role and Responsibilities in Licensing**

For over two decades, the State of Nevada has been preparing for the possibility that it would be required to participate in a Yucca Mountain licensing proceeding. The Agency for Nuclear Projects' extensive geotechnical research and its oversight of DOE's site characterization activities have been geared towards developing expertise and information needed to successfully challenge DOE's faulty technical conclusions and compiling independent data and information on key site suitability issues. The Agency has assembled teams of high quality legal and technical experts, undertaken scores of studies, and developed strong and compelling evidence to support Nevada's positions on those key issues.

By law, the State of Nevada is recognized as a full participant in the NRC licensing proceeding. Nevada's legal team and technical experts would be able to question and cross-examine DOE staff and scientists with respect to evidence presented in support of DOE's license application. Nevada would also be able to present its own data and information to challenge DOE's conclusions and also to support alternative conclusions and findings. As the Commission noted in its report to the Governor and Legislature two years ago, NRC licensing is an adjudicatory proceeding where DOE would be forced, for the first time, to defend its flawed and politically-driven science at Yucca Mountain in a forum where the State's first-rate team of licensing attorneys and technical experts are prepared to see to it that the real facts regarding Yucca Mountain's unsuitability as a geologic repository prevail.<sup>15</sup>

Key issues that would likely be raised during any licensing proceeding involve major technical deficiencies of Yucca Mountain that have been known and acknowledged for some time. They include:

- **Rapid water pathways:** While DOE's original siting guidelines required Yucca Mountain to be disqualified if the time it takes groundwater to migrate from the repository to the accessible environment, i.e., the compliance boundary, is less than 1,000 years, the acknowledged groundwater travel time at the site is as little as a few hundred years.
- **Seismicity:** There are at least 33 known geologic faults at or in the near vicinity of the Yucca Mountain site. In the past 20 years, there have been over 600 recorded seismic events of magnitude 2.5 or greater within 50 miles of the site, the largest of which was a Magnitude 5.6 earthquake in 1992, known as the Little Skull Mountain earthquake. It was centered about 8 miles from the site, causing damage to DOE's Yucca Mountain project

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<sup>15</sup> In its 2002 Report, the Commission noted that, "Defending its actions under oath and under cross examination by premier national and international legal and technical experts is, for DOE, a far cry from pulling the wool over the eyes of willing and complicit members of Congress."

office at the Nevada Test Site. The maximum probable earthquake for the site is estimated at magnitude 6.5 to 7.0. DOE's design for the Yucca Mountain repository calls for a large above-ground spent nuclear fuel storage installation and extensive waste handling facilities, all of which would be especially vulnerable to earthquakes. Likewise, the effects of future seismic activity on conditions in the subsurface at Yucca Mountain are poorly understood.

- **Renewed volcanic activity:** Relatively recent volcanism is evident in the area of the site. Volcanic cones, about 1 million years old, are adjacent to the site in Crater Flat, and a young cinder cone, active within the last 80,000 years, is located at the south end of Yucca Mountain. DOE's current performance assessment indicates that the "only credible event" that could affect waste isolation in the next ten thousand years is a volcanic event that intersects the repository area. A recent study of volcanic hazards at Yucca Mountain suggested that DOE has likely significantly underestimated the risk of recurrent volcanism at the site, as well as the consequences should such an event take place during the life of the repository.<sup>16</sup> Given the court ruling on extending the compliance period to include peak dose, the possibility of volcanic activity at Yucca Mountain greatly increases.
- **Hydrology:** The hydrologic picture at Yucca Mountain is complex and not well understood. The hydrology of Yucca Mountain consists of a thick, dry or unsaturated zone and a saturated zone (i.e., the water table below). The site was initially selected because, in part, the actual repository location would be in the dry, unsaturated zone<sup>17</sup>, well above the water table. This was thought to be an advantage over other sites as they were all located beneath the water table. Since water is the primary vehicle by which radionuclides would escape from a repository, the Yucca Mountain site appeared to be preferable. However, subsequent investigations at the site have demonstrated that this is not the case. DOE has determined that water moves rapidly through the dry, unsaturated zone by the discovery of an isotope of chlorine at the repository horizon that is a residue from the above-ground weapons testing program carried out in the Pacific Ocean in the 1950s. Chlorine-36 has traveled from the ground surface at Yucca Mountain to the repository horizon, some 800 feet, in less than 50 years. DOE had previously estimated that it would take many thousands of years for water to reach the repository horizon from the ground surface.

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<sup>16</sup> "Episodic Volcanism and Hot Mantle: Implications for Volcanic Hazard Studies at the Proposed Nuclear Waste Repository at Yucca Mountain, Nevada", by Eugene I. Smith, Deborah L. Keenan, (Department of Geoscience, University of Nevada, Las Vegas); and Terry Plank (Department of Earth Sciences, Boston University), published in the journal of the Geological Society of America, March 2002.

<sup>17</sup> The term "unsaturated zone" is somewhat misleading because the subsurface at Yucca Mountain where a repository would be located, while above the actual water table, is actually 90% saturated. There is a considerable amount of water in rock pores and fractures.

- The myth of “geologic disposal”: Because the geologic and hydrologic characteristics of the site are so poor, DOE has had to resort to increasingly exotic and highly questionable measures in order to assert that radioactive waste can be isolated for tens of thousands of years at Yucca Mountain. Instead of primary reliance on the physical properties of the site, as required by the NWPA, DOE has instead devised a ‘Rube Goldberg’ system of exotic manmade barriers, combined with radionuclide dilution in the groundwater, as a means of reducing potential doses to individuals in Amargosa Valley.

In place of geologic isolation, DOE’s repository program calls for the majority of the isolation capabilities of the site to be provided by an engineered barrier system (primarily the waste disposal package and the drip shield). The current design of the waste package uses a high nickel alloy, known as Alloy 22, and a titanium drip shield that would be placed over the waste packages at the time of closure of the repository (at a current cost of over \$8 billion for the drip shields alone). DOE initially claimed that Alloy-22 was so corrosion resistant that waste packages would last 750,000 years. Those claims were subsequently dropped to "at least 10,000 years," conveniently synchronous with the regulatory period that was applicable at the time. However, State researchers have developed compelling evidence indicating that Alloy-22 would not perform as claimed by DOE. Preliminary research indicates that the waste packages could corrode in less than 500 years. Likewise, the titanium drip shield proposed for the system was recently critiqued by DOE’s own Waste Package Materials Performance Peer Review Panel, which issued a report containing the astonishing revelation that, unless the proposed titanium drip shields somehow perform better in the ground than they have in laboratory tests, they should not be used at Yucca Mountain.

A principal concern for Nevada is assuring that the NRC licensing proceeding is fair, objective, and unbiased. As the Commission’s 2002 report noted, there has been a history of inappropriate contacts by NRC staff and DOE in the pre-licensing phase of the project.<sup>18</sup> NRC, very early on, adopted the view that it has a responsibility to assist DOE and assure that the Department is able to produce an acceptable license application for Yucca Mountain. Over the years, the two agencies have interacted repeatedly in subtle and not-so-subtle ways to assure smooth sailing for DOE’s increasingly troubled repository program. In the past year, representatives of the State of Nevada and affected units of local government have been excluded from some important meetings between DOE and NRC staff where DOE’s license application, support documents and key technical issues have been discussed.

While there are serious and potentially debilitating problems and uncertainties inherent in both DOE’s approach to the licensing process and in NRC’s ability to legally and procedurally act on a Yucca Mountain license application, the Commission believes it is incumbent upon the State of Nevada to be fully prepared to deal with a license application submittal sometime in

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<sup>18</sup> Report and Recommendations of the Nevada Commission on Nuclear Projects (December, 2002), p. 15 - 17.

2005. The Commission believes the State is well positioned to successfully oppose DOE's application on numerous technical grounds, but it must be equally prepared to confront the legal and procedural impediments DOE and NRC are likely to employ in the course of pressing ahead with an incomplete and deficient application.

## THE COMMISSION'S VIEW ON THE FUTURE OF YUCCA MOUNTAIN: DEAD MAN WALKING?

*"The mystery of government is not how Washington works but how to make it stop."*

P. J. O'Rourke - US humorist & political commentator (1947 - )

### **Prospects for a Congressional Fix for the EPA Standard**

One way for DOE to circumvent the appeals court's ruling that overturned EPA's Yucca Mountain radiation health protection standards would be for the Administration to ask Congress to either exempt Yucca Mountain from the EPA regulations altogether or enact legislation arbitrarily setting the standards at a level DOE felt it could meet.<sup>19</sup> During the 2004 presidential campaign, President Bush, in numerous press statements and at appearances in Nevada, repeatedly pledged that his Administration would not interfere with the court's decision and would, instead, allow EPA and the court system to arrive at health and safety protections that were scientifically and legally defensible. Nevertheless, the commercial nuclear industry, its lobbyists, and its allies in Congress and the Administration can be expected to put pressure on Congress to eviscerate the appeals court ruling through a legislative 'fix.'

Such a strategy is certainly not unprecedented. In 1992, when it became apparent that Yucca Mountain would not be able to meet EPA health and safety requirements governing radioactive carbon-14 emissions, DOE and the nuclear industry persuaded Congress to insert a provision in the Energy Policy Act of 1992 exempting a Yucca Mountain repository from the regulation.

Given the commitments made to Nevada by the President during the 2004 campaign and the influence of Senator Reid as the new Senate minority leader, it would be difficult for the industry and its allies to succeed in circumventing Nevada's court victory through congressional action. Nevertheless, it is incumbent upon Nevada's congressional delegation to remain vigilant and to strongly oppose any legislative attempt to bypass the courts and EPA.

### **Prospects for Licensing**

The notion of the NRC as a fair and impartial adjudicatory and regulatory body, whose sole concern is the safety of the repository and the health of citizens appears, in the case of Yucca Mountain, to be a dangerous and misleading myth. In its 2002 report, the Commission on Nuclear Projects found that "the history of NRC's dealings with DOE, the documented collusion and behind-the-scenes dealings between the two agencies with respect to the regulatory changes

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<sup>19</sup> Given the serious fundamental problems inherent in the geologic, hydrologic, and geochemical environment at Yucca Mountain, it is doubtful that the site is capable of meeting even the watered down EPA radiation protection standards that were vacated by the court.

and other matters needed to support the DOE's program, and the obvious advocacy for the project on the part of NRC staff call into serious question NRC's ability and legitimacy as judge and jury to determine the safety and suitability of a Yucca Mountain repository."<sup>20</sup> In an early test of NRC's ability to objectively adjudicate issues of importance for licensing, Nevada filed a petition that challenged the validity of DOE's certification of its web-based documents system. At a pre-licensing panel of the NRC Atomic Safety Licensing Board in September 2004, the Board found the system inadequate and struck down DOE's certification that is required for the system to be part of the NRC's Licensing Support Network. As discussed above, such certification is required before a license application can be docketed.

The next test of the NRC's ability to perform in an objective and unbiased manner would come if DOE does, in fact, submit a license application in 2005. Such an application would unavoidably be incomplete, since numerous technical issues remain unresolved, and there would be no revised EPA health protection standard (and no revised NRC licensing regulations incorporating the EPA standard) against which a license application can be reviewed. Considerable pressure can be expected to be brought upon NRC to accept and docket the DOE application and begin the review process, with the understanding that DOE would supplement the application later. Nevada's legal experts contend that such action by NRC would be in violation of the NRC's own procedures and historical operating practices. NRC's willingness to hold DOE's feet to the fire and require a *complete* license application, one that can only be submitted after EPA has re-issued its health protection regulations and after DOE has conducted the necessary analyses to evaluate Yucca Mountain against the new standard, would be a reliable indicator of the NRC's independence.

### **Budget Problems and Constraints Continue to Impact the Program**

As discussed above, funding for the Yucca Mountain program is inextricably intertwined with the give and take of the federal budget/appropriations process. Each year, Congress must appropriate funds, and those monies must be reconciled within the overall budget caps agreed to by the Administration and Congress. Even though there is a large balance remaining in the Nuclear Waste Fund<sup>21</sup>, those funds are factored in as offsets to the budget. As a result, DOE's high-level nuclear waste program must compete with other Energy and Water Development programs annually for funding.

Secretary of Energy Spenser Abraham has tried unsuccessfully to have Congress enact legislation that would, in effect, allow DOE access to Nuclear Waste Fund revenues without

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<sup>20</sup> "Report and Recommendations of the Nevada Commission on Nuclear Projects," December 2002, p. 17.

<sup>21</sup> The Nuclear Waste Fund is comprised of monies collected by the federal government from a fee (1 mil per kilowatt hour - or one tenth of a cent per kilowatt hour) levied on electricity produced and sold by nuclear power plants. The Fund currently has a balance of about \$12 billion, and approximately \$650 million in new fees and interest is added annually into the fund.

having to go through the appropriations process.<sup>22</sup> In 2004, DOE relied on the passage of such legislation for a significant portion of the Yucca Mountain budget. However, the bill providing DOE access to Waste Fund revenues never moved out of committee, and the Department found itself faced with the possibility of a major budgetary shortfall, since the FY 2005 Energy and Water Development Appropriations bill passed by the House of Representatives contained only \$131 million for the Yucca Mountain program, a far cry from the Administration's request of \$880 million. It was only a last minute 'fix' instituted by the lame duck session of the Congress in November 2004 that provided DOE with the same level of funding for the nuclear waste program in FY 2005 as it received in FY 2004.

Given federal budgetary realities and the continued controversial nature of the Yucca Mountain program, complicated for DOE by the prominence of Nevada's Senator Reid in the federal appropriations process, it appears likely that DOE will continue to experience annual budget allocations for Yucca Mountain that are substantially less than the amounts DOE asserts are needed to keep the program viable and on schedule.

### **The Transportation Debacle - Intractable Problems in Nevada and the Nation**

In its February 2002 report on the impacts of the proposed Yucca Mountain project, the Agency for Nuclear Projects noted that the transportation of spent nuclear fuel and high-level radioactive waste to the proposed Nevada repository site has the potential to dramatically and significantly impact communities throughout the State and across the nation.<sup>23</sup> Depending on assumptions about the mix of shipping modes, handling and shipping capabilities at points of origin (e.g., reactor sites), size of the shipping canister or cask, and other factors, a Yucca Mountain repository, if constructed and opened, would receive between 23,500 and 96,300 shipments of spent nuclear fuel from civilian nuclear power plants and high-level radioactive waste from DOE weapons facilities. The repository would also receive an unknown number of shipments of so-called "miscellaneous wastes requiring geologic disposal," adding to the overall number of radioactive waste shipments that would be required.

The Impact Report went on to point out that, despite the major significance of the transportation issue, DOE had done very little to actually address or plan for shipments:

“Transportation issues are critically important to the State and local Nevada communities. Nuclear waste transportation would be the most visible and dramatic "driver" of potential repository impacts. Despite this fact, DOE has done almost nothing to evaluate impacts, either in Nevada or nationally. The few feeble attempts DOE has made to address the

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<sup>22</sup> The DOE proposal would have permitted DOE to have access to the full amount of new Fund revenues each year (approximately \$650 million) over and above any amount of money Congress might appropriate.

<sup>23</sup> “A Mountain of Trouble: A Nation at Risk - Report on Impacts of the Proposed Yucca Mountain High-Level Nuclear Waste Program,” prepared by the Nevada Agency for Nuclear Projects, February, 2002, p. 100 - 144.

transportation issue, as in the Yucca Mountain DEIS [Draft Environmental Impact Statement], have been wholly inadequate and designed to obfuscate risks and impacts rather than deal with them forthrightly.”<sup>24</sup>

In the almost three years since publication of the Impact Report, nothing has changed. DOE still has no comprehensive transportation plan, despite assurances made to Congress in 2002 that such a plan would be forthcoming. If anything, DOE’s decisions and actions in the intervening three years have exacerbated the already crippling problems and uncertainties affecting the nascent spent fuel and high-level waste transportation system.

What work DOE has done with respect to spent fuel and high-level waste transportation has increased the level of uncertainty about the nature, extent, and operational characteristics of a Yucca Mountain shipping system rather than reduced it. In the Final Environmental Impact Statement (FEIS) for Yucca Mountain that was issued on February 14, 2002, DOE made no final decisions about the transportation option. Instead, the FEIS stated that "DOE would use both legal-weight truck and rail transportation, and would determine the number of shipments by either mode as part of future transportation planning efforts." [FEIS, p. 2-13] The document went on to say that "DOE could use one of three options or modes of transportation in Nevada to reach the Yucca Mountain site: legal-weight trucks, rail, or heavy haul trucks." [FEIS, p. 2-48]

In the FEIS, DOE evaluated a "mostly legal-weight truck" national scenario that would result, over 24 years, in more than 53,000 shipments, or about 2,200 per year. DOE also evaluated a "mostly rail" national scenario that would result in 10,700 cross-country shipments, or about 450 per year. When barge and heavy haul truck shipments are included, DOE's "mostly rail" total for 24 years could be more than 22,500 shipments, or about 935 per year.

In the Final EIS, DOE also systematically underestimated the risks of transporting spent nuclear fuel and high-level nuclear waste to Yucca Mountain. However, DOE acknowledged that a very severe highway or rail accident, or a successful terrorist attack using high energy explosives, could release radioactive materials from a shipping cask, resulting in radiation exposures to members of the public and latent cancer fatalities (LCFs) among the exposed population. The FEIS also acknowledged that clean-up costs following a severe transportation accident could range from \$300,000 to \$10 billion. [FEIS, p. J-73]

#### *DOE’s Selection of a National Transportation Mode*

In April 2004, DOE issued a Record of Decision (ROD) for the Yucca Mountain Final Environmental Impact Statement (FEIS)<sup>25</sup> that formally selected rail as the preferred mode of

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<sup>24</sup> Ibid, p. 100.

<sup>25</sup> “Record of Decision on 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,” Federal Register, April 8, 2004 (Vol. 69, Number 68, p. 18557 - 18565).

transport for spent fuel and high-level waste to the proposed repository. Instead of clarifying the transportation aspects of the program and reducing uncertainties, DOE's decision added new levels of inconsistency and uncertainty. The ROD specified that DOE would use rail transportation as the primary mode of shipment for moving waste from reactors and generator sites to Yucca Mountain, but it ignored the fact that up to forty percent of reactor sites lack the capability to ship spent fuel by rail. It also failed to take into account that Yucca Mountain is not currently accessible by rail, and serious questions remain about the feasibility of constructing rail access to the site.

To further complicate matters, in a "supplemental analysis" to the FEIS issued just weeks before the ROD, DOE announced that it was resurrecting a transportation mode alternative that had been rejected in the FEIS as infeasible and excessively risky.<sup>26</sup> This transportation alternative involved shipping spent fuel by rail using legal weight truck casks and then off-loading the casks onto trucks somewhere in Nevada for transshipment to Yucca Mountain. The ROD incorporated this supplemental mode of transport, despite analyses in the FEIS showing this alternative would have the "highest estimates of occupational health and public health and safety impacts" as well as being "impractical" and more costly than all the other alternatives by "more than \$1 billion." The option was eliminated from further consideration by DOE years before the FEIS was completed, and it was not even considered in the FEIS's balancing of the alternatives required by National Environmental Policy Act.<sup>27</sup>

In the FEIS, DOE had recognized the disadvantages of mounting much smaller legal-weight truck casks onto railcars, and therefore every rail option it actually considered in the FEIS involved the use of far more robust and larger rail casks to minimize the risks of collision, fire, or penetration in rail accidents or terrorist incidents. DOE had also recognized that use of legal-weight truck casks instead of newly designed, large-capacity rail casks in the "mostly rail" shipping option would sharply increase the number of shipments and casks required. In summarily eliminating this option from further study in the FEIS, DOE had also estimated that "radiological impacts from truck casks on rail cars would increase by approximately a factor of five, and the non-radiological impacts would increase by approximately a factor of three."<sup>28</sup>

In September 2004, Attorney General Brian Sandoval filed suit in the D.C Circuit Court of Appeals challenging that DOE's ROD failed to provide adequate justification for selecting rail transportation as the preferred national transportation mode, resurrected and incorporated a previously rejected modal alternative (i.e., shipping lighter, less robust legal weight truck casks on rail cars), failed to perform legally required environmental impact analyses in identifying a

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<sup>26</sup> "Supplemental Analysis" (DOE/EIS-0250/SA-1), prepared by the Office of Civilian Radioactive Waste Management, U.S. Department of Energy, March 2004.

<sup>27</sup> 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, Appendix J, p. 75.

<sup>28</sup> Ibid, Appendix J.

preferred rail corridor in Nevada for nuclear waste shipments to the proposed Yucca Mountain facility, and usurped the role and responsibilities of the Surface Transportation Board in the siting and construction of rail infrastructure. The suit contends the ROD violates the National Environmental Policy Act, the Interstate Commerce Act, and regulations set by the Council on Environmental Quality, the Surface Transportation Board, and DOE itself.

### *Selection of the Caliente Alternative as the Preferred Rail Corridor to Yucca Mountain*

The same ROD that selected rail as the preferred mode of transportation also formally designated the Caliente rail corridor as the preferred alternative for constructing a rail spur to Yucca Mountain. Even before the issuance of the formal ROD, DOE had requested that the Bureau of Land Management (BLM) immediately segregate land within a one-mile-wide corridor (approximately 308,600 acres) running the length of the Caliente route from mining and other uses for a period of two years. BLM granted DOE's request, and although BLM held a series of public meetings on the land withdrawal after the fact, neither BLM nor DOE has assessed the impacts of this action on ranchers and other users of the land being withdrawn.

The selection of the Caliente rail spur alternative in Nevada does almost nothing to further transportation planning nationally or to reduce the uncertainties plaguing any attempt to provide a rational framework for a comprehensive transportation program. In fact, selection of the Caliente alternative further complicates planning in a number of important ways.

The Caliente route is by far the most difficult and challenging alternative from an engineering and construction perspective, casting further doubt on the feasibility of rail access to Yucca Mountain.

The Caliente alternative also dramatically complicates routing of rail shipments nationally. State of Nevada studies have shown that railroad companies, who in practice select what route to use, are likely to route Yucca Mountain shipments so as to avoid adverse weather conditions and high volume/heavily congested rail lines along northern transcontinental routes. This would result in a significant percentage of shipments from the eastern part of the country being routed along the Burlington Northern Santa Fe rail line through Arizona and California, accessing the rail spur via the Union Pacific line through Las Vegas. Such a scenario contradicts DOE's assertion that the Caliente option would minimize shipments through the heavily populated Las Vegas metropolitan area. It also creates considerable uncertainty regarding national transportation routes, since states and communities would be differentially affected by northern vs. southern routing strategies.

### **Other Problems Plaguing the Program: The Silicosis Debacle**

In March 2004, a class action lawsuit was filed in federal district court in Las Vegas involving exposure of workers, support personnel, visitors, and others to potentially harmful levels of silica particles and other fibrous minerals in dust from construction/excavation

operations at the site from 1992 through 2003.<sup>29</sup> Inhalation of even small amounts of silica and certain other finely ground minerals can result in serious and potentially life-threatening lung disorders. To date, thirty-four Yucca Mountain workers have been diagnosed with the lung disease, silicosis, and more cases are expected.

The suit accuses DOE contractors of "willful and wanton disregard" in the exposure of workers and others to "known, highly carcinogenic hazards inside miles of exploratory tunnels dug at Yucca Mountain." A number of workers at the Yucca Mountain site have, in fact, been diagnosed with silicosis, chronic obstructive pulmonary disease, and related disorders directly linked to their exposure to dust in and/or near the tunnel. Other workers, support personnel, and visitors may have been likewise exposed but have not sought screening or treatment.

The lawsuit stems from whistle blower and worker complaints about the failure of DOE contractors to take readily available, common industry precautions for protecting tunnel workers and others from exposures to dangerous dust generated by the tunnel boring process. This, despite the fact that DOE had received numerous prior warnings about the danger of silicosis from the Occupational Safety and Health Administration, the Mine Safety and Health Administration, and DOE's own national laboratories.

In fact, information reported in the media indicated that DOE officials were aware of the risks for several years prior to instituting protective requirements, but chose not to take corrective actions or warn workers about the risks. DOE's failure to acknowledge the risk can be traced to concerns over the political fallout that would ensue, and the Department's failure to act sooner to mitigate the problem was directly related to costs and schedule implications inherent in making protective practices and equipment mandatory.

Responding to the risk, the Nevada State Health Division issued a health advisory, warning anyone who has worked in or near the tunnel at the Yucca Mountain site or who has spent appreciable amounts of time in or near the tunnel during active drilling and tunneling operations (from 1992 through 2003) to be screened for possible silicosis and other lung disorders associated with the inhalation of finely ground particles of fibrous minerals. Following worker complaints and adverse new stories, DOE established a screening program through the University of Cincinnati to detect silicosis and related disorders.

The Commission believes that the silicosis incident is reflective of ongoing intrinsic problems with a Yucca Mountain program that is driven by political, cost, and schedule considerations rather than scientific and technical realities.

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<sup>29</sup> Ref. Case # A481996, District Court of Nevada, Clark County: Gene Griego, individually and on behalf of all others similarly situated, Plaintiffs v. Bechtel Corporation, et.al, filed March 11, 2004.

## Conclusion

The myriad problems afflicting DOE's Yucca Mountain program reflect, in the Commission's view, a program that is on the verge of collapse. The program remains plagued with severe budget shortfalls; DOE was handed a major setback when the federal appeals court vacated EPA's Yucca Mountain health protection standard - a standard that had been hand-crafted for the Nevada site; and, without a congressional bailout in the form of a legislatively mandated standard that the site is capable of meeting - something the Commission believes is unlikely - there is little chance Yucca Mountain can be licensed, since the site is incapable of meeting regulations that conform to the recommendations of the National Academy of Sciences.

DOE's approach to NRC licensing appears to be fundamentally deficient as well. Already, the Department has had to abandon its December 31, 2004 target date for submitting a license application - a very significant action given DOE oft-repeated insistence that the 2004 license application deadline was inviolable. DOE's attempt to have an incomplete and inadequate licensing information system certified likewise met with failure and rejection. Barring outright collusion on the part of DOE and NRC, it is difficult to see how DOE can have a complete and adequate license application ready for submittal anytime in the near future. And if a substantially complete application is submitted, the likelihood that DOE can demonstrate compliance with an EPA health protection standard developed in compliance with the recommendation of the NAS appears remote at best.

The Yucca Mountain program in general remains mired in mismanagement and politically-motivated decision-making. Actions on the part of DOE and its contractors that resulted in the silicosis debacle are characteristic of the type of schedule, cost, and politics-driven culture that has characterized DOE's civilian radioactive waste program from the beginning. The same approach to decision-making can be seen in the politically-motivated decisions regarding a preferred national transportation mode and the Caliente rail spur alternative.

DOE's transportation program remains in shambles, with no coherent, comprehensive plan. DOE still refuses to identify national transportation routes - a fundamental first step in any coherent planning process - so other states and communities can begin to understand how Yucca Mountain would impact them and their citizens. It is likely that, once the national transportation implications of a massive Yucca Mountain shipping campaign become known, visible opposition nationally to DOE's program would increase significantly.

## **PUBLIC OPINION IN NEVADA: WHERE THE PEOPLE STAND**

*“Courage and perseverance have a magical talisman,  
before which difficulties disappear and obstacles vanish into air.”*

John Quincy Adams (1767 - 1848)

### **The Polls - What They Really Say**

Public opinion in Nevada remains extraordinarily opposed to a Yucca Mountain repository and strongly behind State efforts to block the project. In fact, despite nuclear industry multi-million dollar efforts to convince Nevadans that Yucca Mountain is inevitable, a larger percentage of the population opposes the program today than did a year ago.

A statewide survey conducted in October, 2004 showed that nearly 77 percent of all Nevadans would vote against the Yucca Mountain project if given the chance, with only 19 percent saying they would vote for it. The poll shows opposition increasing since 2003, when 76 percent said they would vote against storing the nation’s high-level nuclear waste at Yucca Mountain and 22 percent said they would vote for the project.

The survey of more than 402 randomly selected Nevadans was conducted between October 7th and 18th by Northwest Survey and Data Services of Eugene, Oregon. The survey has a margin of error of plus or minus 4.8 percent.

When asked if the State should stop its opposition to the Yucca Mountain project and begin negotiations with the federal government or continue to oppose the project even if that meant turning down benefits that might be offered by the federal government, 67 percent said the State should keep fighting and turn down any possible benefits, with only 29 percent wanting to deal. By comparison, the same question, when asked in a survey conducted in 2003 by the same research firm, 65 percent of all respondents favored continuing opposition to the project and rejecting negotiations with the federal government while 30 percent favored making a deal with the government.

Interestingly, the October 2004 survey found that only 36 percent of all Nevadans are aware that a federal court decision this summer in Nevada’s lawsuit against the U. S. Department of Energy “will make it very difficult for the federal government to move ahead with the project.” When informed of this court decision by survey interviewers, the number of Nevadans favoring continued opposition increased to 73 percent, a statistically significant increase of 6 percent, while the percentage of people advocating making a deal dropped to just 25 percent.

In addition to reaffirming strong opposition to Yucca Mountain and support for continuing to combat the project, the survey found that two of every three Nevadans (or 67 percent) support the state’s lawsuits aimed at stopping the project and almost the same

percentage support the state water engineer's denial of water permits for DOE's Yucca Mountain activities.

The survey also reflected a growing distrust of the DOE in Nevada. Asked if the DOE "can be trusted to live up to any benefits agreement the federal government would make with Nevada," 27 percent agreed and 69 percent disagreed, up from 2003 when 64 percent said the DOE cannot be trusted.

People in Nevada continue to view Yucca Mountain as posing serious risks to public health, safety and the economy. Respondents identified rail and truck shipments to the site as the greatest risk (85 percent rated this as moderate to high risk). The second highest risk is seen as the risk of radioactive contamination from the repository (81 percent), followed by the risk of property value losses to homes and businesses (76 percent), adverse health effects for Nevada residents (76 percent), risk of damaging Nevada's reputation (64 percent), risk of economic damage to major Nevada industries such as gaming and conventions (62 percent), and risk of loss of public revenues due to declines in tourists and visitors (62 percent).

### **The Myth of Benefits - There's Nothing to Negotiate**

When the commercial nuclear power industry suggests it is in Nevada's best interests to negotiate for benefits in exchange for accepting Yucca Mountain, two questions must be answered: "What is there to negotiate?" and "What's in it for the industry?"

The answer to the first question is simple: There is nothing to negotiate. No amount of compensation can change the fact that Yucca Mountain is an environmental disaster waiting to happen. The costs and risks to Nevada far exceed any benefits of the project. Yucca Mountain would have devastating public health and safety consequences, the costs of which are incalculable.<sup>30</sup>

Even if negotiations were possible (and the Commission concludes that they are not), there is no way to guarantee DOE and future Congresses would live up to any agreements that are made. The historical record of broken promises, outright deception and massive environmental contamination at DOE facilities around the country<sup>31</sup> clearly indicate that they would not.

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<sup>30</sup> A complete discussion of impacts and costs of the Yucca Mountain program to the State of Nevada is contained in the report titled, "A Mountain of Trouble: A Nation at Risk - Report on Impacts of the Proposed Yucca Mountain High-Level Nuclear Waste Repository," prepared by the Nevada Agency for Nuclear Projects, February, 2002 (<http://www.state.nv.us/nucwaste/yucca/impactreport.pdf>).

<sup>31</sup> The U.S. General Accounting Office (GAO) has documented contamination at virtually all nuclear weapons facilities operated by DOE. Reference "Nuclear Health and Safety: Dealing With Problems in the Nuclear Defense Complex Expected to Cost Over \$100 Billion," RCED-88-197BR, July 6, 1988.

If the project is, as the nuclear power industry insists, inevitable, why is the industry continuing to spend millions in Nevada to entice State leaders to negotiate? The Commission believes the answer is obvious: The industry realizes Yucca Mountain can only be built if Nevada ceases its opposition. Once the State indicates even a willingness to talk benefits, the battle is over and the State would have capitulated. That is the real goal of the industry's campaign.

Nevada is, today, extremely well positioned to defeat Yucca Mountain outright. The State has already won a major legal victory when the U.S. Circuit Court of Appeals for the District of Columbia threw out the health and safety regulations DOE and EPA had conspired to rig as a way of trying to make Yucca Mountain appear technically suitable. Since the Yucca Mountain site is incapable of meeting realistic and reasonable public health and safety standards, the court's ruling may very well be the death knell for the project.

But Nevada Attorney General and the State's legal team are not finished. Additional challenges have been and will be filed objecting to DOE's proposed license application to the U.S. Nuclear Regulatory Commission, DOE's embarrassingly inept transportation planning, the NRC's licensing process, and a host of other challenges. As someone in the military might observe, the potential universe of legal challenges to the federal government's Yucca Mountain project is a "target-rich" environment.

The bottom line is that Nevada now has an excellent chance of stopping the program. The Commission believes the only thing that can save this failed and dangerous project is for the State to voluntarily give up the fight. That is something Nevada's leaders cannot do because the health and safety of Nevadans must not be for sale, at any price.

## RECOMMENDATIONS OF THE COMMISSION

*"The secret of success is constancy to purpose."*

Benjamin Disraeli (1804 - 1881)

It is the overall judgement of the Commission that the State of Nevada is now well-positioned to eventually prevail in its efforts to halt the Yucca Mountain project, thereby moving the national discourse about spent fuel and high-level waste disposal away from the single-minded focus on the deficient and unsuitable Nevada repository site and towards workable and scientifically viable alternative solutions to the radioactive waste problem. The D.C. Circuit Court of Appeals' ruling vacating the EPA health protection standard was a major and likely fatal blow to the federal program for the simple reason that Yucca Mountain is incapable of meeting radiation protection requirements that encompass the period of maximum release from the repository.

In addition, the burden of accumulated site and program defects and deficiencies is beginning to reach critical mass, with excessive and escalating program costs, debilitating budget problems, inept program management, major and growing health and safety issues (i.e., the silicosis debacle), pervasive quality assurance and licensing problems, and the albatross of a massive spent fuel transportation campaign about to break into the national consciousness - all combine to signal nothing but trouble for the program for years to come. It may be only a matter of time before Congress and even the nuclear industry recognize the futility of continuing to invest money and resources in a project that has no chance of succeeding and that has become a financial, technical, legal, and environmental black hole instead of a viable solution to the nuclear waste problem.

The recommendations that follow, therefore, are more about what *not* to do than they are about what actions or decisions the State should take. The collective message to be gleaned from these recommendations is simple: "Stay the course." No new executive or legislative initiatives are needed at this time, but continued opposition to the Yucca Mountain program and continued support for existing and ongoing State oversight, legal, and licensing efforts is imperative.

**(1) *The Commission recommends that the Governor and Legislature continue to actively oppose the Yucca Mountain project.***

This recommendation is one that is reiterated from the Commission's 2002 Report. In that report, we noted that, with the political fight over Yucca Mountain having essentially concluded with Congress' override of Governor Guinn's veto, the playing field shifted to the legal and technical arenas where, for the first time ever, DOE would be forced to defend a program that is in clear violation of the Nuclear Waste Policy Act, the National Environmental Policy Act, and the Department's own regulations governing how the suitability of the Yucca Mountain site should have been evaluated. Unlike the political process, where the cards were

stacked in DOE's favor and where DOE never had to address, much less answer, the hard questions, the federal government would be held accountable for conclusions and decisions in the legal and technical arenas.

Nevada's recent victory in the D.C. Circuit Court of Appeals validated the Commission's assessment. By rejecting EPA's attempt to lower the bar for health and safety at Yucca Mountain and requiring DOE to show that Yucca Mountain is, in fact, capable of meeting realistic and adequate standards for waste isolation, the court threw down the gauntlet of technical and scientific accountability not only for DOE, but for the entire EPA and NRC regulatory structure. Given the court's decision, it is no longer possible for DOE to collaborate behind the scenes with its sister agencies to concoct regulations and health protection standards tailored to permit Yucca Mountain to appear suitable. From now on, the burden is squarely on DOE to conclusively demonstrate that Yucca Mountain can do what the law requires - isolate deadly nuclear waste for the full amount of time required - or declare the site unsuitable and move on.

The Commission believes Nevada is fully prepared to contest any application DOE might make to the NRC for a license to construct and operate a repository at Yucca Mountain. As in the courts, NRC licensing is an adjudicatory proceeding where DOE would be forced to defend its flawed and politically-driven science at Yucca Mountain. The State has assembled a first rate team of licensing attorneys and technical experts to represent Nevada in these proceedings and see to it that the real facts regarding Yucca Mountain's unsuitability as a geologic repository prevail.

As the Commission observed in 2002, just as in the legal arena, in any licensing proceeding "DOE is going to find that defending its actions under oath and under cross-examination by the premier legal and technical experts in the country is a far cry from pulling the wool over the eyes of willing and complicit members of Congress."

The Commission concludes that, far from being inevitable, the State of Nevada appears to be on the brink of successfully opposing the Yucca Mountain program and halting what would have been one of the most significant, far-reaching, and potentially damaging federal government mistakes in the history of the nation. Certainly, the fight is not over, but time and circumstance are very much on the side of the State. It is crucial, therefore, that Nevada's elected leaders continue to actively oppose DOE's Yucca Mountain program at every turn and to do so in a consistent and unified manner.

**(2) *The Commission urges the Legislature to continue to provide support for the State's legal and licensing efforts.***

It is absolutely crucial that Nevada have the resources to effectively and forcefully press its case against the Yucca Mountain program in the courts and before the NRC. While the initial legal battle was concluded with the July 2004 ruling by the D.C. Court of Appeals, numerous legal challenges to the federal program remain to be pursued. These include necessary

challenges to DOE's transportation program; challenges to the proposed Caliente rail spur and the NEPA/EIS process DOE has initiated; potential challenges to EPA's and NRC's implementation (or failure thereof) of the appeals court's order requiring revisions and re-issuance of regulations governing Yucca Mountain suitability and licensing; ongoing litigation involving DOE's access to water for use at a Yucca Mountain repository; and DOE's responsibility to adequately fund State oversight under the NWPA.

The Commission further believes that Nevada must be fully and adequately prepared to participate in a licensing proceeding before the NRC, should DOE attempt to submit and defend a license application in 2005. To do that, the Agency for Nuclear Projects, working hand-in-hand with the Attorney General, must have the resources to conduct studies, review DOE research and findings, employ the highest quality technical experts to serve as witnesses, and continue to obtain the highest quality and most effective legal representation in the highly specialized area of law that encompasses NRC's operations and proceedings.

While it may be possible for the Agency to obtain a certain amount of funds for its licensing activities through annual federal appropriations, as has been the case over the years, such funding is unreliable and extraordinarily prone to manipulation by Congress. Federal funding has fluctuated tremendously from year to year, and annually there is debilitating uncertainty surrounding whether Nevada would, in fact, receive federal funds for the coming year and, if so, in what amount. In addition, Congress has historically sought to control and even eviscerate Nevada's oversight of the Yucca Mountain program by either restricting how federal funds can be used or by denying funds altogether.

Costs to participate effectively in the NRC licensing proceeding would be substantial. High-quality technical experts, state-of-the-art independent research, and specialized legal services do not come cheaply. However, the Commission is convinced that, in a fair and objective licensing process, a well-funded, proactive participant has an excellent chance of prevailing, especially when confronting a license application for a project as deficient as Yucca Mountain. Just the knowledge that Nevada is prepared to mount a serious challenge to DOE's licensing application is already having a major positive impact (from Nevada's perspective) on the NRC and its approach to licensing.<sup>32</sup>

The Commission commends the Governor and Legislature for assuring that adequate State funds have been available during the past six years to allow crucial legal, oversight, and licensing activities to continue when federal funds have been withdrawn or cut back. It is crucial that adequate funding for the State's licensing and legal work be maintained, especially during the crucial FY 2006 - FY 2007 biennium.

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<sup>32</sup> For example, the rejection by NRC's licensing review board of DOE's licensing information system certification can, in part, be traced to the State of Nevada's strong and technically sound opposition to the certification of a patently inadequate system. Had the State of Nevada not been actively involved and fully prepared to intervene, it is very likely NRC would have succumbed to pressure and certified DOE's system in spite of the defects.

- (3) *The Nevada congressional delegation should continue to do all it can to actively oppose the Yucca Mountain program and vigorously oppose any attempt to weaken the EPA standards or bail out DOE's faltering program legislatively.***

Nevada's congressional delegation has been extraordinarily effective in limiting funds for the Yucca Mountain program and derailing legislation that would fast-track or bail out the program. The Commission considers it critically important that the delegation continue to do everything it can to (a) see that Nevada's oversight and licensing efforts are adequately funded, (b) deny DOE the funds it needs to move forward with the program, and (c) successfully oppose any future legislation that might seek to eviscerate the appeals court ruling (i.e., by legislating health and safety standards or exempting DOE from those standards), authorize interim storage in Nevada, or otherwise facilitate DOE's activities related to the site.

An important focus for the congressional delegation in the coming years will be to assure that the NRC is not compromised by pressures from Congress, DOE, and the nuclear industry to soften its approach to licensing and permit DOE to move ahead with a deficient and incomplete license application. Close scrutiny of NRC's Yucca Mountain licensing activities through congressional hearings, inquiries, and budgetary oversight would go a long way towards assuring that NRC's role as regulator and protector of public health and safety is not compromised by pressures to license Yucca Mountain, regardless of scientific and technical evidence showing the site to be unsuitable.

The congressional delegation should also seek to keep Congress' focus on the excessive and burgeoning costs of the Yucca Mountain program and the ultimate impact those costs have on the federal budget. The Commission believes that, next to the as-yet-unrecognized national transportation implications of the program, the tremendous and escalating costs and pervasive inefficiencies of the program constitute the project's most politically debilitating vulnerability.

- (4) *The Commission wishes to recognize the critical importance played by the citizens of Nevada as well as in-state and national public interest groups in helping to maintain strong, consistent and effective opposition to the Yucca Mountain project over the years.***

A critically important and often-overlooked aspect of the fight to halt the dangerous and ill-conceived Yucca Mountain project has been the extraordinarily strong and consistent public support of the State's efforts to oppose the program. Since the Agency began conducting research on public attitudes towards the high-level waste program in the late 1980s, public opposition has never wavered, despite numerous efforts by the nuclear power industry to mislead people about the risks associated with the Yucca Mountain program and about alleged project benefits. Over the years, between 65% and over 70% of Nevadans have remained consistently opposed to the project, with almost the same percentage of people rejecting the notion that the State should abandon its opposition and seek to enter into negotiations with the federal government for benefits. This strong, across-the-board public sentiment has been the bedrock for

Nevada's successful efforts to oppose Yucca Mountain and has provide critical support for Nevada's leaders in carrying on the fight, despite setbacks and frustrations over the years.

Another important factor contributing to Nevada's success in keeping Yucca Mountain from becoming a reality has been the support and encouragement of public interest groups, both in Nevada and nationally. Groups like Citizen Alert and the Nevada Nuclear Waste Task Force within the State and the National Nuclear Waste Task Force, the Nuclear Information and Resource Service, the Environmental Defense Fund, Public Citizen, and other groups on the national scene have played vital and indispensable roles in raising public awareness about the dangers and risks associated with the federal nuclear waste program, assisting with communicating risks and issues to Nevada and national decision-makers, and supporting (both morally and with personnel and resources) Nevada's legal, technical and procedural challenges to the program. These groups remain crucial to continued success in the fight to finally succeed in halting the Yucca Mountain program and moving the national policy focus back onto alternative solutions to the waste problem that are workable, fair, and equitable.

The Commission commends the citizens of Nevada for their tenacity and perseverance in the long struggle against the federal Yucca Mountain program and for the help and immeasurable support this consistent opposition has provided the State's efforts over the years. The Commission also commends and thanks all of the public interest organizations in Nevada and nationally for their invaluable contributions to the fight.

**ATTACHMENT I**

**RULING OF THE UNITED STATES CIRCUIT COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA (JULY 9, 2004)**

**ATTACHMENT II**

**STATE OF NEVADA YUCCA MOUNTAIN SURVEY**  
**SUMMARY REPORT (OCTOBER, 2004)**