

**NYE COUNTY NEVADA'S OVERSIGHT ROLE IN THE
DEPARTMENT OF ENERGY'S YUCCA MOUNTAIN PROJECT**

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ABSTRACT

Nye County plays a unique role in the Yucca Mountain Repository Program. As the situs jurisdiction which will forever host the Yucca Mountain Repository if it is licensed and constructed, Nye County exercises oversight authority specifically granted by Congress under Section 116 of the Nuclear Waste Policy Act, as amended (NWPA). Under Section 117(d) of the NWPA Nye County is also authorized to have, and has designated an On-Site Representative to conduct on-site oversight activities at the Yucca Mountain site itself, as well as the Department of Energy (DOE) offices in Las Vegas, in much the same manner as the Nuclear Regulatory Commission's (NRC) On-Site Representatives. The contribution of this on-site representation program, coupled with the County's other oversight activities and its Independent Scientific Investigations Program (ISIP), has been repeatedly recognized as very important by DOE, the NRC, the Nuclear Waste Technical Review Board (NWTRB), and others. This paper describes that oversight program, from both an historical and forward-looking perspective.

INTRODUCTION

The role of Nye County in the nation's nuclear waste repository program at Yucca Mountain is unprecedented. One can examine American history in vain to find a comparable situation, where a small, rural, sparsely populated county, or any county or other form of local government for that matter, has played a similar role, or performed a function like Nye County performs in a national program of such importance, scientific complexity, contentiousness and historical proportions as the Yucca Mountain Project (YMP).

In understanding Nye County's oversight role it is important to note that Nye County is, and has always been, neutral on the very controversial issue of Yucca Mountain. The federal government's construction and operation of a repository at Yucca Mountain, if it proceeds, will involve the transfer of the nation's entire inventory of nuclear waste to a single local community-Nye County. Out of 3,141 counties in the 50 states, Nye County will be the only one to receive this inventory under current plans for a single national repository. No county or community wants to be singled out to receive this intensely unwanted material. Other states and regions in the country made strenuous, and successful, political efforts to avoid this over the last three decades. Nye County would also clearly prefer a future without the specter of a nuclear waste repository. However, we do not have a choice to accept or reject this imposition by the federal government. Indeed, Congress did not even give Nye County, or any other local government, the same notice of disapproval rights that it provided to the State of Nevada.

Neutrality on the substantive question of whether or not Yucca Mountain should be developed as a repository has not meant neutrality on how the program should be conducted, however. Nye County has played a very proactive role in discharging its responsibilities under the NWPA, and has always insisted that DOE carry out its program under the most rigorous standards, using reasonable scientific conservatism as its guide. Furthermore, a cornerstone of the Nye County program has been, and remains,

a vigorous and comprehensive Community Protection Plan, and a firm resolve that all potential impacts to the county and its residents, now and in the future, be recognized and wholly mitigated by the federal government. For example, Nye County is currently engaged in a review of the overall repository design, particularly its thermal aspects, in order to be satisfied that, in operation, the repository will indeed provide the maximum isolation for the longest practicable period of time.

The YMP is one of a series of extraordinary federal impositions on Nye County, a single rural, sparsely populated (although rapidly growing) county in central Nevada. Early in World War II a portion of Nye County four times the size of the state of Rhode Island was removed from the public domain and set aside as the Nellis Bombing and Gunnery Range. Early in the Cold War a portion of this area-itself larger than Rhode Island-was designated as the Nevada Test Site and became the nation's principal nuclear weapons testing ground. More recently DOE designated portions of the NTS as its preferred site for disposal of low-level radioactive waste generated across the DOE defense complex.

These federal impositions in Nye County involve varying national interests, from national security and defense, to political or purely fiscal. The proposal to transfer nuclear waste from commercial reactor sites across the country to Yucca Mountain, which Congress has now blessed, is the federal government's method of meeting its legal and contractual obligations to take title to and dispose of commercial spent-nuclear fuel from the nation's reactors, and to meet the need (also in some cases contractual; see, e.g. the Tripartite Agreement covering the removal of wastes from and the cleanup of the Hanford Nuclear Reservation in the State of Washington) to dispose of the reprocessing wastes generated since the Manhattan Project in the nuclear weapons program. These impositions on Nye County, while admittedly serving the country's interests, were made under circumstances in which no other location is politically acceptable.

Even though Nye County has no choice to accept or reject the Yucca Mountain site, the county's government and leadership must still do what it can to protect its residents, and its economic future. Over a prolonged site characterization period the county, through its Nuclear Waste Repository Project Office (NWRPO), a part of the Department of Natural Resources and Federal Facilities (NR & FF), has assessed and critiqued, as appropriate, the studies and other activities of DOE and other federal agencies, such as the NRC and Environmental Protection Agency (EPA), initiated and conducted its own investigation of selected areas not adequately covered by DOE or others, engaged in an ongoing and extensive Independent Scientific Investigations Program (ISIP) in the field, and evaluated the implications of the YMP on the county's rapidly growing population, its communities and environment, and its economic and cultural future. In carrying out its oversight role under the NWPA Nye County has always been guided by these underlying principals: assurance of the health and safety of its residents, now and in the future, equitable treatment in transportation, and a viable, attractive economic future.

The selection of Yucca Mountain to host the Nation's first, and perhaps only, repository for spent nuclear fuel and high-level nuclear waste has now been approved by Congress. While some uncertainty remains, arising out of litigation pursued by the State and others, and, perhaps to a lesser extent, Nuclear Regulatory Commission licensing, the fundamental political decision has been made. The nation has chosen to transfer to Nye County the country's entire inventory of highly radioactive wastes.

BACKGROUND

The YMP was authorized by the NWPA, first enacted by the Congress in 1982. Under that Act DOE was charged with the responsibility of selecting three sites for characterization, and from those three choosing one for development as a repository. The site selection process was to be governed by guidelines adopted by DOE. Such guidelines were finally adopted in 1984, and DOE selected, from an original group of 9 potentially acceptable sites in 6 states, 3 sites for formal site characterization. In addition to Yucca

Mountain sites at the Hanford Nuclear Reservation in Washington and in Deaf Smith County in Texas were chosen for characterization. In 1987 Congress amended the NWPA to focus the entire effort on Yucca Mountain alone, and prohibited further consideration of any other site.

The 1987 Amendments Act also created the Nuclear Waste Technical Review Board (NWTRB) to oversee DOE's activities and report to the Congress and Secretary of Energy. The Board meets quarterly, generally 3 times a year in Nevada, with at least one of those meetings in Nye County.

The NRC and EPA also play major roles under the NWPA. The repository must be licensed by the NRC, under regulations adopted to specifically govern that process. The EPA was given the responsibility to promulgate "standards for the protection of the general environment from offsite releases from radioactive material" in the repository. The EPA first promulgated such standards in 1985, but they were overturned by the Federal Court of Appeals. The 1985 standards were based on containment requirements, and limited releases of radionuclides from the repository to certain amounts at the boundary of the "accessible environment", defined as any point no farther than 5 kilometers from the repository. Before EPA could adopt new standards, Congress enacted the Energy Policy Act of 1992. (EnPA). That act required EPA, pursuant to recommendations from the National Academy of Sciences, to adopt health-based standards limiting doses to members of the public, rather than simply releases of radionuclides regardless of their effect on health. The NRC was then required to amend its licensing regulations to conform to the EPA standards, and the new standards and licensing regulations were to be applicable only to Yucca Mountain. The EPA and NRC completed this process and adopted new standards (40 CFR Part 197), and licensing regulations (10 CFR Part 63) in 2001. The DOE also amended its siting guidelines (10 CFR Part 963) to make them Yucca Mountain specific and consistent with the NRC's Part 63.

When the process of characterization was complete and the Secretary of Energy determined that Yucca Mountain was suitable under its guidelines, he recommended the site to the President on February 14, 2002, and the President in turn immediately recommended it to the Congress. Under the NWPA the State then had 60 days to veto the selection of Yucca Mountain by submitting a Notice of Disapproval to the Congress. The State did so on April 8, 2002. The site approval and recommendation would then have been nullified unless Congress, within 90 legislative days, overturned the Governor's veto by a majority vote of both houses. The House of Representatives did so on May 8, 2002 and the Senate followed suit on July 9, 2002 and the President signed the Resolution of Siting Approval. The selection of Yucca Mountain at that point became final, subject only to the possibility of it being overturned by the courts as a result of litigation filed by the State, Clark County and the City of Las Vegas.

Under the NWPA, DOE theoretically is required to file a license application with the NRC within 90 days of final congressional approval. It did not meet that deadline, however, and currently plans on submitting such an application in December of 2004. The initial step in the licensing process, if DOE is successful, is the issuance by the NRC of a construction authorization allowing DOE to build, or begin to build, the repository. That is followed, after repository construction is complete or substantially complete, by a license to "receive and possess" nuclear waste, allowing DOE to actually dispose of the nuclear material underground at the repository. After the repository is filled, and after 50 to 300 years of performance confirmation studies, the NRC will issue a license amendment authorizing DOE to "close" the repository.

Nye County intends to participate actively in the licensing process at every step, and hopes to play a major role in the performance confirmation process.

OVERSIGHT UNDER THE NWPA

Nye County's oversight program is carried out under the authority of the NWPA. Section 2 (31) of the Act refers indirectly to Nye County, for it defines "affected unit of local government" as "the unit of local

government with jurisdiction over the site of a repository or a monitored retrievable storage facility.” Nye County is that unit of local government. The term may also, at the discretion of the Secretary of Energy, mean local governments that are contiguous to Nye County, and the remaining 7 counties in Nevada and Inyo County, California, which comprise the Affected Units of Local Government (AULG), derive their authority from that sentence. Only Nye County is specifically called out by definition in that Act, however, and thus only Nye County is a “situs” jurisdiction. Additionally, only Nye County and the State of Nevada are entitled under the Act to an on-site representative. Section 117(d) of the Act requires the Secretary of Energy to offer to the State or “any unit of local government within whose jurisdiction a site for a repository or monitored retrievable storage facility is located under this title an opportunity to designate a representative to conduct on-site oversight activities at such site.” The County has had an On-Site Representative since 1992, with an office located in the DOE Yucca Mountain Project offices in Summerlin. The contribution of this on-site representation program, coupled with the County’s other oversight activities and its ISIP, has been repeatedly recognized as very important, and having made significant contributions to the overall program by DOE, the NRC, the NWTRB, and others.

Statutory Authority for Oversight

Section 116 of the NWPA governs Nye County’s oversight authority. Subsection 116 (c)(1)(B) requires the Secretary to make grants to the State, Nye County, and other AULG to enable them:

- (i) to review activities taken under this subtitle with respect to the Yucca Mountain site for purposes of determining any potential economic, social, public health and safety, and environmental impacts of a repository on such State, or affected unit of local government and its residents;
- (ii) to develop a request for impact assistance under paragraph (2);
- (iii) to engage in any monitoring, testing, or evaluation activities with respect to site characterization programs with regard to such site;
- (iv) to provide information to Nevada residents regarding any activities of such State, the Secretary, or the Commission with respect to such site; and
- (v) to request information from, and make comments and recommendations to, the Secretary regarding any activities taken under this subtitle with respect to such site.”

In the aftermath of site approval, DOE has taken the position that site characterization activities have ceased, and the department is no longer willing to fund monitoring, testing or evaluation activities under subparagraph (iii). Nye County’s oversight program is thus now focused on activities authorized by paragraphs (i), (ii), (iv) & (v).

Under section 116 (c)(4)(C) oversight-funding ceases 2 years after the NRC issues DOE a license to receive and possess nuclear waste, i.e. 2 years after the commencement of full-scale repository operations. A fundamental position of the county, expressed as Protection #1 of the Nye County Community Protection Plan (CPP) is that this termination of oversight authority and funding be removed and oversight continue, with stable, independent funding, throughout the life of the repository.

Protocols and Agreements with DOE

Supplementary to and in the execution of its oversight authority under the NWPA Nye County has entered in to series of agreements and protocols which further define the County’s relationship with DOE and the YMP. These include the Framework For Formal Interactions Between Nye County, Nevada and

the U.S. Department of Energy/Office of Civilian Radioactive Waste Management, executed in 1991, the Protocol Addressing Procedures For Nye County On-Site Representation During Yucca Mountain Project Site Characterization Activities, executed in 1992, and Access And Procedures For On-Site Independent Verification And Testing, executed in July of 1994 as Appendix A to the On-Site Representation Protocol, which forms the cornerstone for the County's ISIP.

Aside from the protocols listed above Nye County has also entered into a series of cooperative agreements with DOE, and received grants pursuant to those agreements, to establish procedures, and provide funding (independent of and in addition to the oversight funds provided directly by Congress) for Nye County's independent technical programs, the ISIP and the follow-on Early Warning Drilling Program (EWDP), described below, as well as a Transportation Cooperative Agreement, which will be discussed more fully later.

The Oversight Program

Historically, Nye County has divided its oversight program into the following elements:

- Project Management
- Policy, government and community relations
- Regulatory & pre-licensing oversight
- Socioeconomic impacts and mitigation studies, including transportation impacts
- Independent scientific investigations

Subsequent to site approval, however, DOE has reinterpreted the authority granted to the State and local governments under Section 116 of the NWPAA, and has redefined oversight. Accordingly, pursuant to funding guidelines promulgated by the department in July, 2003, Nye County's oversight program will in the future be focused on four elements, each of which is called out in and authorized by Section 116 (c) of the Act. The historical program elements listed above will be folded into the new oversight program in an organized and logical, but less transparent, fashion.

The new program elements are:

- Impact Monitoring; reviewing activities with respect to Yucca Mountain for purposes of determining any potential economic, social, public health and safety, and environmental impacts.
- Impacts of a repository on such State, or AULG.
- Impact Assistance Request; developing a request, or series of requests, for assistance in mitigating impacts to Nye County flowing from Yucca Mountain.
- Public Information: providing information to Nye County residents regarding any activities related to Yucca Mountain, including transportation of nuclear waste to the site.
- Participation; requesting information from, and making comments and recommendations to, DOE regarding any activities taken with respect to Yucca Mountain, including transportation of waste to the site.

While the list of specific program activities and sub elements under each category are too long to include in a paper of this length, some highlights are:

1. Perform inquiries, document review and assessments of evolving Office of Civilian Radioactive Waste Management (OCRWM) and YMP plans, schedules, policies, and activities, including contacts with DOE and others as necessary and appropriate.
2. Participate in formal and informal interactions between DOE and NRC, as well as national, regional, state and local business and industry groups involved or potentially involved in the nation's high-level waste disposal program.
3. Participate in YMP site development plan related repository design analyses and alternative repository design studies. Preparation of comments, findings, and recommendations regarding DOE plans, schedules, and activities, and their implications for Nye County.
4. Establish and document state or local community baseline economic conditions prior to YMP implementation. Identify and analyze YMP-driven economic impacts.
5. Perform inquiries and assessments to better understand evolving transportation plans, schedules, policies, and activities of OCRWM, NRC, DOT, and other relevant agencies.
6. Monitor nuclear waste transportation mode and route decision-making in relation to Nye County. Monitor and assess the national transportation program, as it may affect Nevada and Nye County.
7. Assess the potential social and economic effects of alternative mode and route choices for the transportation of high-level waste to Yucca Mountain. Prepare recommendations and proposals as appropriate.
8. Perform collection and updating of information potentially relevant to licensing, performance confirmation, and other YMP-related science and technology.
9. Update and supplement Nye County's CPP, as appropriate, including details and refinements to the protections proposed in the CPP.
10. Prepare a CPP implementation plan.
11. Identify and recommend mitigating measures to avoid or reduce negative impacts, and/or to enhance potential positive impacts.
12. Participation in and contribution to the licensing support network (LSN), including preparation, operation and maintenance of an appropriate LSN web site.
13. Coordinate on with DOE, NRC, and other stakeholders in licensing plans and processes, as appropriate.
14. Develop contentions and conditions for possible use in the licensing process.
15. Monitor and participate in NRC-DOE technical exchanges, NWTRB meetings, NRC-Advisory Committee on Nuclear Waste (ACNW) meetings.
16. Review and comment on NRC policy positions, regulatory guidelines and procedural rules.

For several fiscal years Congress appropriated a total of six million dollars (\$6,000,000) to fund oversight by all affected local governments. Nye County's share of that amounted to approximately two million dollars (\$2,000,000). For FY 04, however, Congress appropriated only a total of four million dollars (\$4,000,000). While, as of the writing of this paper, it is unclear exactly what portion of this appropriation Nye County will receive to conduct its oversight program, it is clear that the program will be severely curtailed, and rendered much less effective and valuable, unless additional and alternative sources of funding are obtained. The County is actively engaged in discussions with DOE with a view toward entering into a series of cooperative agreements, or grants, to fund elements of what otherwise would be, and historically have been, a complete oversight program. One such agreement is already in place. Nye County and DOE entered into a Transportation Cooperative Agreement in October 2003. Only Phase 1A of the agreement has been funded, however. Work under that phase is in progress.

Cooperative agreements, while useful and valuable tools to augment traditionally supported full participation in the repository program, cannot be a substitute for that statutory role. State and local government predecisional input, and the ability to fully participate in, comment, critique, suggest modifications and improvements, and be full parties in the licensing process, are critical to the long-term success of the nation's nuclear waste disposal program. The contributions to the program already flowing from State and local oversight are too numerous to enumerate in this paper. Suffice it to say that only through that full participation will there be any real chance to achieve public acceptance of the repository. It is essential that both Congress and the DOE recognize this, and continue the nation's commitment, expressed in the NWPA, to full, meaningful and effective State and local government roles throughout the life of the repository.

The Nye County Independent Technical Program

In July 1994, Nye County and DOE entered into Appendix A to the On-Site Representation Protocol, and in December of that year Nye County began its own independent scientific fieldwork. A Nye County borehole was completed and instrumented in March 1995, and an instrumentation package was placed in a DOE hole. In August 1995, instrumentation to measure temperature, pressure and humidity were placed on DOE's Tunnel Boring Machine. The goals of this program, called the Independent Scientific Investigations Program (ISIP), were to address key issues that can have a paramount impact on both the design and performance of the repository, to evaluate DOE's general scientific and site characterization program, and to identify areas not being adequately addressed by DOE. The key issues of concern identified at the time were the adequacy and accurateness of DOE's hydrologic and geologic investigations and models, particularly pertaining to the area downgradient from Yucca Mountain approaching the population center in Amargosa Valley, the pneumatic and hydrologic systems in the repository block itself, and potential alternative designs that might improve the performance and thus the safety of the repository. Data collection under the ISIP began in March and April of 1995, and was and continues to be shared with all interested parties, initially by circulating data packages and analyses, and subsequently, to the present, by posting the information on the NWRPO web site (nyecounty.com).

The ISIP was extended in 1998 to include what was then called the EWDP. It was intended to provide geologic and hydrologic information, particularly in the area downgradient from Yucca Mountain, that is needed and was overlooked in the DOE site characterization program. That program is now in its fifth phase. The targeted study area is a complex hydrologic system that is one of the least understood in the Yucca Mountain vicinity. The scientific investigations have focused on: (1) the origin of the spring deposits in the area; (2) the geology and hydrology of the Amargosa Valley floor sediments; (3) groundwater recharge; and (4) groundwater flow patterns. An additional but secondary purpose is to provide a network of in-place monitoring wells to protect the residents of the Amargosa Valley from radionuclide releases in the future. This network could, if desired, be easily and usefully integrated into the performance confirmation program that DOE will be required to carry out.

The scientific program was initially divided into 3 phases. In Phase I, which began in 1998 and was completed in 1999, 10 holes were drilled, 8 completed and instrumented, and 2 abandoned. Phase II, in 2000 and 2001, involved drilling and conducting various testing activities in an additional 15 boreholes. In Phase III, which was completed in March of 2002, a set of 9 boreholes was drilled and tested, including commencement of work at the Alluvial Testing Complex (ATC) in cooperation with the U.S. Geological Survey (USGS). Phase IV included drilling an additional 5 boreholes. Phase V has been drastically scaled back from initial plans for up to 30 new boreholes because of funding constraints, but it is hoped that future funding will be made available to complete several additional boreholes and associated testing. Phase V also includes significant studies of repository design and ventilation.

Nye County, in cooperation with the USGS, also conducted an aeromagnetic survey to gather information on the geological and hydrological structure of critical areas of interest, including the Amargosa and Pahrump Valleys.

All Nye County technical land scientific work is carried out under a Quality Assurance (QA) Program designed to meet the criteria of the NRC regulation 10 CFR 50, Appendix B, as well as relevant requirements of the American National Standards Institute/American Society of Mechanical Engineers Nuclear Quality Assurance Standard #1 (ANSI/ASME-NQA-1). The Nye County QA Program was accepted by the NRC (it cannot "approve" the program since Nye County will never be an applicant for a license to operate a repository and thus never subject to the full panoply of 10 CFR 50, Appendix B) pursuant to an Acceptance Evaluation dated March 19, 1999.

All data and analyses produced by the Nye County ISIP and EWDP are available on the Nye County NWRPO web site. In addition, DOE is given split samples from some of the Nye County boreholes. DOE has incorporated Nye County EWDP data into critical documents and analyses.

The Role of Nye County in Licensing

The current plan is for DOE to file a license application (LA) with the NRC in December 2004. Approximately 18 months after the LA is filed, assuming it is found to be complete, and accepted and docketed by the NRC, a formal hearing process will begin. The hearings will probably be held somewhere in the Las Vegas area, although the NRC staff has not completely ruled out holding them in Nye County. The hearings will be adjudicatory (as compared with legislative) in nature, with formal documentary evidence, witnesses, cross-examination, etc. Pre-hearing discovery (the exchange of documents) and the filing and introduction of documentary evidence at the hearings, will be conducted electronically through the NRC's Licensing Support Network (LSN). The hearings will be open to the public, with the possible exception of extremely limited times when safeguards and security information is presented. At the conclusion of the hearings, assuming DOE is successful in carrying its burden, the NRC will issue a construction authorization allowing DOE to begin construction of the repository. After the repository is substantially complete, or at some earlier time if the conditions of the construction authorization allow DOE to build the repository in stages, further hearings will be held leading up to a license to receive and possess nuclear waste, sometimes referred to as an operating license. Only after an operating license is received may DOE begin to emplace nuclear waste in Yucca Mountain. DOE hopes to receive such a license, and to begin repository operations, by 2010.

Nye County must be entitled to participate as a full party to the licensing process. This has always been envisioned by all parties to this process, and is supported by the language of the NWPA itself. The County has, since 1988, participated in the development of the LSN, and the NWRPO Regulatory & Licensing Advisor serves on the NRC's LSN Advisory Review Panel. Nye County has developed and is operating its own LSN web site, where NWRPO licensing documents will be posted and available to all other potential parties in accordance with the NRC's requirements in 10 CFR Part 2.

A critical and significant part of the Nye County oversight program over the years has been to prepare the County to participate fully in NRC licensing in order to protect the health and safety of current and future Nye County residents, as well as the environment. The County's posture, and the issues it feels are significant and wishes to address in order to best represent the interests of the County and its residents, will thus be decided by the County's leadership at the beginning of the licensing process. Whatever that decision might be, the NWRPO will be prepared to engage in licensing in a constructive and positive manner, and to carry out its essential mission of guarding the health and safety of Nye County's residents.