Yucca Mountain: How Do Global and Federal Initiatives Impact Clark County's Nuclear Waste Program? - 8066

Irene Navis, AICP, Babs McGehee
Clark County Department of Comprehensive Planning - Nuclear Waste Division
500 South Grand Central Parkway, Las Vegas, NV 89155

ABSTRACT

Since 1987, Clark County has been designated by the U.S. Department of Energy (DOE) as an "Affected Unit of Local Government" (AULG). The AULG designation is an acknowledgement by the federal government that activities associated with the Yucca Mountain proposal could result in considerable impacts on Clark County residents and the community as a whole. As an AULG, Clark County is authorized to identify "any potential economic, social, public health and safety, and environmental impacts of a repository," 42 U.S.C. Section 10135(c)(1)(B)(i) under provisions of the Nuclear Waste Policy Act Amendments (NWPAA).

Clark County's oversight program contains key elements of (1) technical and scientific analysis (2) transportation analysis (3) impact assessment and monitoring (4) policy and legislative analysis and monitoring, and (5) public outreach. Clark County has conducted numerous studies of potential impacts, many of which are summarized in Clark County's Impact Assessment Report that was submitted DOE and the President of the United States in February 2002 [1]. Given the unprecedented magnitude and duration of DOE's proposal, as well as the many unanswered questions about the transportation routes, number of shipments, and the modal mix that will ultimately be used, impacts to public health and safety and security, as well as socioeconomic impacts, can only be estimated. In order to refine these estimates, Clark County Comprehensive Planning Department's Nuclear Waste Division updates, assesses, and monitors impacts on a regular basis. Clark County's Impact Assessment program covers not only unincorporated Clark County but all five jurisdictions of Las Vegas, North Las Vegas, Henderson, Mesquite, and Boulder City as well as tribal jurisdictions that fall within Clark County's geographic boundary. National and global focus on nuclear power and nuclear waste could have significant impact on the Yucca Mountain Program, and therefore, Clark County's oversight of that program.

INTRODUCTION

Since 1987, when Clark County was identified as one of ten "affected units of local government" (AULG), the Nuclear Waste Program has provided oversight of the proposed Yucca Mountain repository site characterization and licensing activities. As an AULG, Clark County receives an annual congressional appropriation to conduct oversight program activities.

Yucca Mountain, a ridge of volcanic rock located on federal land in Nye County, Nevada, is within 45 miles of Clark County's nearest rural community, Indian Springs. Yucca Mountain was designated as the location for the nation's only repository for high level radioactive waste

and spent nuclear fuel through the passage of the 1987 amendments to the Nuclear Waste Policy Act. For over 20 years, the U.S. Department of Energy (DOE) has been working to study, characterize, and license Yucca Mountain for operation as a repository The U.S. Nuclear Regulatory Commission, charged with issuing required licenses for the repository, has not yet received a license application. DOE has made a strong commitment to file a license application in 2008.

Clark County, roughly the same size as the state of New Jersey, has a population of more than 2 million people, and an annual visitor volume of 46 million people. More than 5,000 people continue to move to Southern Nevada each month. Nine of the ten largest hotels in the world are located on the world-famous "Las Vegas Strip," which falls within Clark County's jurisdiction. Clark County's top three employment sectors are tourism, construction, and government. Clark County is responsible for more than 70 percent of the State's population, as well as more than 70 percent of the State's economic base. Clark County provides a unique mix of regional, urban, and rural services, and is recognized for its role as a regional first responder in providing public safety and emergency response support across municipal, county, and state boundaries.

The Board of County Commissioners established oversight responsibilities in the Nuclear Waste Division of the Department of Comprehensive Planning, to monitor federal government activities in the areas of scientific and technical oversight, preparation and dissemination of impact assessment studies, and conducting public outreach activities to ensure that Clark County residents have opportunities to be informed, be involved, and be heard. Community surveys in Clark County have consistently established a more than 70 percent public opposition to the proposed Yucca Mountain repository. Surveys have also consistently ranked Yucca Mountain within the top ten quality of life issues of concern for county residents.

CLARK COUNTY'S POSITION AND ROLE

Clark County officials have been on record as opposed to the Yucca Mountain repository for more than 20 years. This opposition is based on the notion that the risks outweigh any potential benefits that may be derived from the proposed repository. County Commissioners have always been concerned about the scientific and technical integrity of the project, as well as public health and safety. Evaluating potential socioeconomic impacts resulting from the repository has always been a key component of the County's efforts on this program. At the same time, Clark County officials recognize that it is important to foster a cooperative, consensus-building approach with the various stakeholders involved in this program, to the extent possible from the various political, strategic, and operational perspectives that serve to add to the complexity of this program.

PROGRAM RESPONSIBILITIES

Scientific and Technical Oversight

Clark County has commissioned a number of studies over the years to monitor and address public health, safety and environmental issues at the site and during transport. The main goals of this program component have been to urge the DOE to focus on quantifying uncertainty,

establishing a reliable quality assurance program, increasing confidence in system performance, and looking for ways to minimize the volume, duration, and risk of the materials proposed to be stored in surface facilities at the site.

Clark County's science and technical oversight focuses on the geology and hydrology of the site, potential implications of volcanic and seismic activity, potential impacts to water, air, and species, and worker safety as a result of repository operations and transportation. [1]

Key concerns, which remain unanswered to Clark County's satisfaction, include:

- Time and extent for corrosion of waste packages
- Potential for early failures and manufacturing defects
- DOE's inability to model coupled processes (i.e. chemical, hydrologic and thermal, which determines the waste package environment)
- Unknown effects of colloidal and reactive transport in the saturated and unsaturated zone
- Seismicity and volcanism (probability, frequency, etc.)
- Lack of a systems approach which integrates critical components of repository operation and transportation, including integration between DOE's proposed use of the transport-aging-disposal (TAD) canister and utility operations, and the impacts on thermal load at the repository.

In addition, Clark County provides review and comment on a variety of technical documents and required federal reports and actions, including the revised EPA radiation standard, and draft and supplemental Environmental Impact Statements for the repository and the Caliente Rail Corridor. [2]

Impact Assessment

While efforts are being made to minimize the number and frequency of rail and truck shipments through the Las Vegas Valley, Clark County strongly believes that such shipments cannot be completely avoided, based on DOE's current shipment scenarios and plans.

Clark County has devoted significant attention to identifying potential impacts related to the repository and transportation of nuclear waste, including impacts to property values, impacts to gaming and tourism, impacts to public safety agencies and non-public safety agencies, and impacts to minority populations (environmental justice). The goal of this program area is to use a comprehensive, regional approach involving county, city, and Native American tribal jurisdictions, to prepare impact assessment reports, tools, and techniques to accurately reflect potential impacts, based on DOE's plans, assumptions, policies, and previous record of performance. In addition to comprehensive reports, our consultants have developed assessment tools such as a life-cycle cost analysis tool, a visual preference survey for community visioning, and a web-based monitoring program to track potential impacts over time. [3]

Public Outreach

Clark County expends a significant amount of effort in the area of public outreach. Clark County's award winning public outreach effort is recognized for its balanced, credible approach

and dissemination of timely, relevant information on Yucca Mountain and related topics. Clark County has been able to be at the forefront on this issue by developing a multi-media, multi-cultural, multi-generational outreach program. Keeping abreast of local, state, national, and international developments with limited resources poses a significant challenge. One key goal of the county's outreach program is to convince program managers and stakeholders to recognize the uncertainty and understand the impacts of interactive effects between critical Yucca Mountain program elements and the broader global implications that have become drivers for shaping federal and industry initiatives. For example, if the scope of Yucca Mountain changes to eliminate the possibility of a second repository and maximum capacity is expanded, Clark County will be required to reassess the impacts. Further, Clark County officials will be required to communicate the updated findings to stakeholders and the public, making sure the information is provided in an appropriate format for each audience. Changes to transportation plans based on federal and global progress on nuclear initiatives will certainly impact both the realities and perceptions of this program. While much of the science and technology associated with Yucca Mountain is beyond the average citizen's understanding, it is easy to understand that more nuclear power = more spent fuel = more shipments (both frequency and duration.) Translating complex technical information for the public while keeping within the confined parameters of the Nuclear Waste Policy Act (no coalition building, no lobbying, and no out-of-state public outreach) requires creativity and resourcefulness. Clark County officials are always mindful that although recent surveys may indicate 76 percent public opposition to the repository, public perception requires us to balance facts with program requirements, and communicate effectively with stakeholders at all levels. [4] The National Academy of Sciences *"Going the Distance?"* report in 2006 highlighted this very issue. [5]

GLOBAL AND FEDERAL INITIATIVES, STATE AND LOCAL IMPLICATONS

The Secretary of Energy, President George W. Bush, and the Congress approved Yucca Mountain to go forward to the licensing phase in 2002. Since that time, a number of initiatives have moved forward that have global, national, state, and local implications. The Bush Administration's support for the Global Nuclear Energy Partnership has opened up the national debate on spent fuel reprocessing. The National Energy Policy of 2005 provides for the expansion of nuclear energy, and the nuclear energy industry has called for a "renaissance" of nuclear power over the next two decades. A number of new and expanded power plants are likely to be approved over the next decade, even without a formal approval for the Yucca Mountain repository. Applications for new power plants have already been submitted to the U.S. Nuclear Regulatory Commission, and legislation remains pending in Congress that could have a significant impact on how Yucca Mountain is used. Based on the evolving nature of national energy policy and support for nuclear power as a more viable alternative energy source, it is likely that the original purpose and scope of the Yucca Mountain repository will also evolve over time.

It is unclear how the expansion of nuclear power worldwide, and in particular in this country, will impact the proposed repository at Yucca Mountain. Certainly, expanding nuclear power translates into the generation of more waste. DOE officials acknowledge that Yucca Mountain's current capacity of 70,000 metric tons of heavy metals or an equivalent amount of uranium (MTU) will be accounted for within two years. Currently, neither authorization nor definitive

plans exist for expanding repository capacity beyond 70,000 MTU or for identifying a possible second repository, as required under the Nuclear Waste Policy Act. Better linkages, and a comprehensive analysis and understanding of the interactive, synergistic effects of Yucca Mountain within the context of broader global and federal initiatives, are required. The total long- and short-term impact of these related, yet currently disjointed, initiatives on state, tribal, and local jurisdictions have not yet been identified. This "stovepipe" approach to managing nuclear materials presents the most significant challenge to local governments, who have the primary responsibility for protection for public health and safety nationwide.

CONCLUSION

Stakeholder opinion varies in terms of whether the Yucca Mountain project provides opportunities as well as challenges. Some see the program for its potential economic benefits, and some cannot see past the seemingly unavoidable challenges to allow for the identification of any benefit or opportunity. Clark County is not alone in facing a multitude of challenges with respect to the Yucca Mountain program. Among the most significant challenges are:

- Convince program managers and stakeholders to recognize the uncertainty and understand the impacts of interactive effects between critical Yucca Mountain program elements and the broader global implications that have become drivers for shaping federal and industry initiatives.
- Translate complex technical information into understandable work products for diverse stakeholders, including the general public.
- Work within the constraints of federal, state, local mandates.
- Understand and balance public perception with facts and program requirements.
- Communicate effectively with stakeholders at all levels.

While Clark County officials do not anticipate significant economic development or societal benefits from the proposed repository, it can be acknowledged that there have been some worthwhile opportunities as a result of Clark County's program oversight role. Most importantly:

- Diverse tools and methodologies for gathering, analyzing, and reporting on risks and impacts, including a monitoring program which serves as an "early warning system" to identify and track indicators of community well-being.
- Multi-media methods for informing, involving, and gathering input from a multi-cultural, multi-generational diverse public.
- Leverage resources to identify the broader implications for public safety, emergency management, and communications.
- Coordinate and cooperate among state, federal, tribal, and local jurisdictions, non-profits, and the private sector to share information and lessons learned.
- Gather the best and brightest academic, applied, and practitioner subject matter experts for high-caliber program participation.

After 20 years of study, characterization, and preparation, DOE intends to file a license application with the NRC by June 2008. Clark County intends to actively participate in the licensing proceeding in order to represent the county's resident, business owner, and visitor's best interests, based on comprehensive, credible, and defensible evaluation and findings.

REFERENCES

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