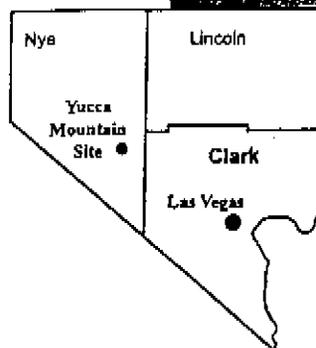


# Clark County Comments

U.S. Department of Energy's Draft 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



## *Executive Summary*

Department of Comprehensive Planning  
Nuclear Waste Division







BRUCE L. WOODBURY  
Chairman

*Board of County Commissioners*

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February 25, 2000

Wendy R. Dixon, EIS Project Manager  
Yucca Mountain Site Characterization Office  
Office of Civilian Radioactive Waste Management  
U.S. Department of Energy  
P.O. Box 30307, Mail Stop 010  
North Las Vegas, Nevada 89036-0307

**Clark County, Nevada Comments on the Draft 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**

Dear Ms. Dixon:

Attached are comments by Clark County, Nevada to the *Draft 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 (DEIS)*. The comments are the culmination of an extensive review of the DEIS by staff from the Department of Comprehensive Planning, Nuclear Waste Division, supported by outside expertise from other County departments and organizations, and consultants. Clark County also received considerable input from citizens, from nineteen Clark County Town Advisory Boards and Citizen Councils, as well as the incorporated cities, other citizens and advisory committees, and private organizations.

Clark County has, of course, been an active participant since 1983 in monitoring the high-level nuclear waste program. In 1988, Clark County was designated as an "affected unit of local government," under provisions of the Nuclear Waste Policy Act of 1987, in full recognition by DOE that impacts could occur to our citizens and community from activities associated with the Yucca Mountain Program. The concern about potential impacts was manifested in the Board approval of resolutions opposing the siting of a repository in Southern Nevada on January 8, 1985 and April 5, 1988.

As the attached comments will fully attest, the Board of Commissioners of Clark County has considerable substantive concerns with the Yucca Mountain DEIS. The deficiencies range from a lack of adherence to the spirit and principles of the National Environmental Policy Act (NEPA) to, specifically, an insufficiency in analysis of potentially significant Clark County impact areas including adverse affects on public health and safety and tourism, among others.

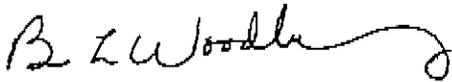
The avoidance of these important Clark County issues in the DEIS is especially perplexing. For almost two decades Clark County has interacted closely with DOE to ensure that the agency was aware of the many issues and concerns that Clark County has had with a project of this scope and controversy. Clark County staff has provided substantial evidence over the years that certain aspects of the project, notably associated with the transportation of the nuclear waste, could have, among other potential impacts, substantial negative consequences to Clark County's tourist-based economy. It is difficult, therefore, to understand why these issues were virtually ignored in the DEIS.

The Board strongly recommends that the substantial deficiencies in the DEIS be corrected. Of particular concern is the need to perform more substantive analyses of the important transportation issues that could affect a large segment of Clark County's citizenry. Comparative analyses between mode and routing alternatives should be provided to determine potential impacts. There is also the need to consider a host of other community issues, including potential impacts to Clark County's competitive tourism industry.

To further emphasize the magnitude of our concerns, I have attached a resolution, approved unanimously by the Board on February 15, 2000, urging the Department of Energy (DOE) to either prepare a new DEIS or a supplemental one correcting the deficiencies noted in our comments.

The Board greatly appreciates DOE's consideration of Clark County's comments and concerns. The Board is also requesting that DOE provide a response to the public's comments prior to the release of the Final Yucca Mountain EIS. If you have further questions on Clark County's comments please contact Dennis Bechtel or Staff of the Comprehensive Planning, Nuclear Waste Division.

Sincerely,



BRUCE L. WOODBURY  
Chairman  
Clark County Commission

DEIS Attachments

cc: The Honorable Richard Bryan  
The Honorable Harry Reid  
The Honorable Shelley Berkeley  
The Honorable Jim Gibbons  
Kenny Guinn, Governor of the State of Nevada  
Dale Askew, County Manager  
Richard B. Holmes, Assistant County Manager  
John Schlegel, Director of Comprehensive Planning  
Affected Units of Local Government

Central DEIS comments/DEIS ltr Feb 00

RESOLUTION OF THE  
CLARK COUNTY, NEVADA BOARD OF COMMISSIONERS  
REGARDING THE DRAFT DEPARTMENT OF ENERGY  
ENVIRONMENTAL IMPACT STATEMENT FOR A GEOLOGIC REPOSITORY  
AT YUCCA MOUNTAIN, NYE COUNTY, NEVADA

WITNESSETH:

WHEREAS, the Department of Energy (DOE) in August 1999 released a Draft Environmental Impact Statement (DEIS) intended to provide information on potential environmental impacts that could result from the proposed action to construct, operate and monitor, and close a geologic repository at Yucca Mountain, Nevada, and

WHEREAS, Clark County is specified in the DEIS as being in the *Region of Influence*, defined as the specific area of study for each of the resource areas that DOE assessed for the EIS analyses, and

WHEREAS, DOE in 1988 designated Clark County as an "affected unit of local government," under provisions of the Nuclear Waste Policy Act, as amended, in further recognition of the potential impacts to Clark County, its citizens and economy, and

WHEREAS, Clark County, which includes the incorporated cities of Las Vegas, Boulder City, Henderson, North Las Vegas and Mesquite, is one of the fastest growing counties in the nation with 1.3 million residents, and 32 million visitors, is experiencing severe traffic congestion, and extensive construction activities, and

WHEREAS, the DEIS lists potential options in Clark County for the transportation of commercial spent nuclear fuel and high-level radioactive waste including Interstate 15, the Las Vegas Valley Beltway transportation alignment, currently under construction, rail lines connecting to the Union Pacific Railroad at Valley modified and Jean, and sidings at Apex/Dry Lake and Sloan/Jean, and

WHEREAS, the DEIS fails to consider potential public health and safety effects from the transportation of nuclear waste through Clark County, in particular the Las Vegas Valley, and

WHEREAS, despite the dependence of Clark County on the volatile economic sector of tourism, the DEIS fails to evaluate impacts to Clark County's economy due to repository operation and transportation, and

WHEREAS, notwithstanding the potential impacts that could occur from the transportation of the nuclear waste, other socioeconomic issues such as impact on quality of life and stigma affects are also not evaluated in the DEIS, and

WHEREAS, DOE failed to interact appropriately with Clark County government to receive accurate and complete local information during the preparation of the DEIS, and

WHEREAS, DOE effectively excluded members of minority and low-income groups from the public information process, and

WHEREAS, The failure of the DEIS to adequately consider the potential impacts to Clark County's economy, public health and safety and quality of life to its citizens is not in the spirit and intent of national environmental policy and requirements.

**NOW, THEREFORE, BE IT RESOLVED THAT**

1. Since Clark County and other issues, appropriately required by the National Environmental Policy Act, are not adequately addressed in the DEIS, a new DEIS or a supplemental EIS for Yucca Mountain must be prepared by DOE to address failures in the current draft DEIS.

2. Clark County's written comments and concerns regarding the DEIS shall be transmitted to the President, Nevada's Congressional delegation, the Council on Environmental Quality, and the leadership of the Senate and House of Representatives.

PASSED, ADOPTED AND APPROVED this 15th Day of FEBRUARY 2000

CLARK COUNTY BOARD OF COMMISSIONERS

By: Bruce L. Woodbury  
BRUCE L. WOODBURY  
Chairman

ATTEST:

Shirley B. Parraguirre  
SHIRLEY B. PARRAGUIRRE, County Clerk

## EXECUTIVE SUMMARY

### *Introduction*

In its capacity as an affected unit of local government under the Nuclear Waste Policy Act, As Amended, Clark County, Nevada, has completed an extensive review of the *Draft EIS*. This document was published in August 1999 and is available for public comment until February 28, 2000. After all comments are reviewed, DOE staff will prepare a final EIS that should reflect consideration of all relevant issues.

The Final EIS will be a key document in the federal approval and licensing process for the proposed repository at Yucca Mountain. Therefore it is of utmost importance that *all* potential impacts of the repository on Clark County are identified and analyzed in the EIS since it will be used by DOE, Congress, DOE and other federal entities to recommend, plan and implement mitigation strategies and programs.

As a result of this review and other interactions with the U.S. Department of Energy [the "DOE"], the Clark County Board of County Commissioners recently passed a resolution requesting that the DOE prepare a new *Draft 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 [the Draft EIS]*. This action was taken because of a number of major insufficiencies that were identified during the county's review of the Draft EIS.

In preparing the Draft EIS, DOE has virtually ignored the standing of Clark County and other affected units of local government. Not only did they fail to acknowledge the comments provided by Clark County, the State of Nevada and other AULGs in 1995 during the scoping phase of DEIS development, they have also disregarded more accurate local information (e.g., demographics, development and strategic plans, transportation system) that was readily available for use in the DEIS.

In addition, DOE did not make a diligent effort to involve the public and implement NEPA procedures. In particular, no substantial effort was made by DOE to involve groups that would be affected by the Yucca Mountain Program, especially low-income and minority populations. DOE failed to comply with Executive Order 12898 that directs the agency to consult with states, Native American tribes and local governments to assist in identifying minority and low-income groups so that they may have significant input.

Because of the lack of compliance with NEPA requirements, consideration of important individual and cumulative impacts, and inclusion of affected groups in the process, the DEIS is inadequate and incomplete. Therefore, the DEIS does not provide enough scope and detail to allow for meaningful mitigation planning.

The rationale for this statement takes into account the following points. The Draft EIS:

- does not comply with the letter and intent of NEPA since it did not provide a realistic alternative that allows for consideration of a No Action Alternative,
- provided insufficient scope and detail to allow for impact determination that could result in the planning and implementation of mitigation and management plans,
- narrowly defined the scope and nature of impacts, thus assuring that few impacts of significance would be identified. For example, the DEIS ignored potential impact categories important to Clark County's economy and (e.g., stigma effects on tourism, land use conflicts, property diminution and unfunded mandates on local government) although there is credible evidence that shows that these may occur, and,
- failed to include minorities and low-income groups in the scoping, interactive and hearing processes related to the EIS.

### ***Insufficiency and Incompleteness of the Draft EIS***

There are a number of reasons why Clark County considers the Draft EIS insufficient or incomplete. For purposes of brevity, we have categorized them into general and specific areas. Within the specific areas, we have identified major impacts not considered in the Draft EIS. In the body of the comments, we have cited NEPA regulations, DOE guidelines, Executive Orders to support our comments.

#### ***General Issues***

- The DEIS does not comply with the letter and intent of NEPA since the DEIS did not provide a realistic alternative that allows for consideration of a No Action Alternative.
- DOE did not make a diligent effort to involve the public and implement NEPA procedures. In particular, no substantial effort was made by DOE to involve groups that would be affected by the Yucca Mountain Program, especially low-income and minority populations. DOE failed to comply with Executive Order 12898 that directs the agency to consult with states, Native American tribes and local governments to assist in identifying minority and low-income groups.
- DOE did not address rapid and significant changes in population and demography within Clark County, the fastest growing County in the nation. DOE did not consider future growth patterns and attributes of the Clark County population during the project life.
- The discussion of cumulative impacts, particularly regarding transportation through Clark County, is inadequate since there is no recognition of upcoming projects at the Nevada Test Site or other activities that would occur at or near the Yucca Mountain site.

#### ***Specific Issues***

##### ***Impacts Related the Yucca Mountain Site***

- The disposal canister design evaluated in the DEIS is no longer being considered for license application. It is Clark County's contention that the difference in design is significant enough to invalidate the long-term (10,000 year) performance assessment given in the DEIS. The final EIS should be based on a design that is the same as the one DOE plans to use for license application.
- The spent fuel inventory and characteristics given in the DEIS do not accurately represent the spent fuel that the DOE will receive. The final EIS should include an up to date inventory and analysis of the spent fuel that is generated, with due consideration being given to the effect of higher burnup ratios.
- In view of the disposal of chemically toxic materials considered for the repository, RCRA regulations should apply.
- Saturated Zone data, away from the immediate vicinity of Yucca Mountain, is inadequate. Expert elicitation is not a substitute for data collection. The final EIS should include adequate data for the Saturated Zone, not only in the vicinity of Yucca Mountain, but out to the compliance boundary being considered by the EPA. If this boundary is not fixed by the time the final EIS is issued then the DOE should, as a minimum, have adequate saturated zone data to defend any assumptions that are made regarding the saturated zone.

##### ***Impacts Related to Transportation***

- Assumptions and methodologies are inadequate or inappropriate for identification and analyses of impacts on the transportation system of Clark County.
- The DEIS did not establish a basis for mitigation negotiations since it did not assign specific roles and responsibilities for actions that cause impacts or ameliorate impacts.

- There were no estimates of the costs necessary to mitigate the impacts of emergency planning, response, evacuation and cleanup. This approach does not conform to best practice in the field of impact assessment.
- The DEIS used outdated databases, geographic data files, and inaccurate or misleading maps to support the conclusions of the transportation, health effects and public safety analyses.

▪ ***Impacts of Importance to Clark County Not Considered in the DEIS***

— This section addresses a number of impact areas of importance to Clark County not considered by DOE. If these areas are not addressed in sufficient detail and scope, a meaningful understanding of potential impacts may not take place, and effective mitigation planning and negotiation strategies could not occur. A number of examples are provided to illustrate potential impacts from Yucca Mountain activities.

- There are a number of potential impacts that could be adverse to Clark County residents, visitors, and businesses, harm the quality of life of residents and adversely affect the economic well-being of the County and State.
- In view of Clark County government's objective to sustain the vibrancy of our area, we must take steps to maintain the economic base for its residents, managing its rapid growth, assuring healthy communities and opportunities for its residents, and preserving the natural environment.
- The DEIS does not consider "stigma induced" impacts. As an example, there exists substantial evidence that demonstrates the real potential for serious property value declines and disinvestment from similar programs. Data indicate that stigma induced changes can occur even under incident-free transportation conditions. At a minimum, stigma-induced impacts if present can result in diminution of property values and business performance, development and investment along routes, and decreases in tourism. The importance of this is underscored by the fact that a number of organizations whose constituencies may be adversely affected have expressed their deep concerns. These organizations include the Southern Nevada Home Builders Association, the Greater Las Vegas Association of Realtors®, the Howard Hughes Corporation, and others.

***Public Participation in the Draft EIS Review Process***

Clark County staff met with 19 Town Advisory Boards / Citizens' Advisory Councils, representatives from local jurisdictions and other groups to exchange information and receive comments on the Draft EIS. It is clear from the comments recorded that not only county officials, but also citizens, are very concerned about the negative impacts that the Yucca Mountain Program may have on Southern Nevada.

- Specific issues raised in the comments include the need to acknowledge and assess the impacts on Native Americans, and more fully consider public safety, environmental impacts, environmental justice, funding to local governments, effects on land use, perception-based impacts of DOE activities, performance assessment, interaction of the repository program of local and regional plans, public participation, regulatory standards, schedule & licensing, socio-economic impacts, storage, and transportation issues.





BRUCE L. WOODBURY  
Chairman

*Board of County Commissioners*

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February 25, 2000

Wendy R. Dixon, EIS Project Manager  
Yucca Mountain Site Characterization Office  
Office of Civilian Radioactive Waste Management  
U.S. Department of Energy  
P.O. Box 30307, Mail Stop 010  
North Las Vegas, Nevada 89036-0307

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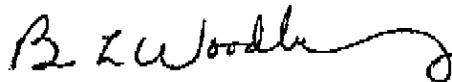
Ms. Dixon  
February 25, 2000  
Page 2

The Board strongly recommends that the substantial deficiencies in the DEIS be corrected. Of particular concern is the need to perform more substantive analyses of the important transportation issues that could affect a large segment of Clark County's citizenry. Comparative analyses between mode and routing alternatives should be provided to determine potential impacts. There is also the need to consider a host of other community issues, including potential impacts to Clark County's competitive tourism industry.

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Sincerely,



BRUCE L. WOODBURY  
Chairman  
Clark County Commission

DEIS Attachments

cc: The Honorable Richard Bryan  
The Honorable Harry Reid  
The Honorable Shelley Berkeley  
The Honorable Jim Gibbons  
Kenny Guinn, Governor of the State of Nevada  
Dale Askew, County Manager  
Richard B. Holmes, Assistant County Manager  
John Schlegel, Director of Comprehensive Planning  
Affected Units of Local Government

Central DEIS comments/DEIS ltr Feb 00

**RESOLUTION OF THE  
CLARK COUNTY, NEVADA BOARD OF COMMISSIONERS  
REGARDING THE DRAFT DEPARTMENT OF ENERGY  
ENVIRONMENTAL IMPACT STATEMENT FOR A GEOLOGIC REPOSITORY  
AT YUCCA MOUNTAIN, NYE COUNTY, NEVADA**

**WITNESSETH:**

**WHEREAS**, the Department of Energy (DOE) in August 1999 released a Draft Environmental Impact Statement (DEIS) intended to provide information on potential environmental impacts that could result from the proposed action to construct, operate and monitor, and close a geologic repository at Yucca Mountain, Nevada, and

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**WHEREAS**, the DEIS fails to consider potential public health and safety effects from the transportation of nuclear waste through Clark County, in particular the Las Vegas Valley, and

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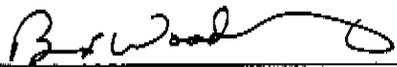
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**NOW, THEREFORE, BE IT RESOLVED THAT**

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2. Clark County's written comments and concerns regarding the DEIS shall be transmitted to the President, Nevada's Congressional delegation, the Council on Environmental Quality, and the leadership of the Senate and House of Representatives.

PASSED, ADOPTED AND APPROVED this 15th Day of FEBRUARY 2000

CLARK COUNTY BOARD OF COMMISSIONERS

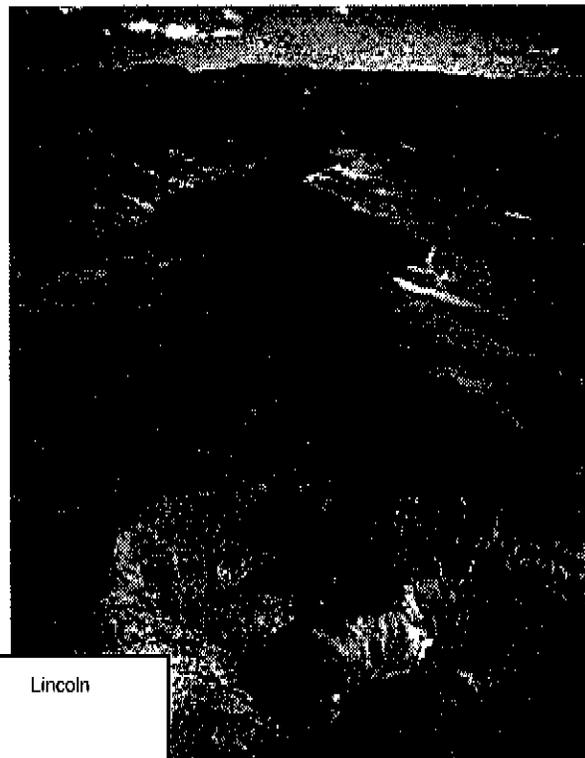
By:   
\_\_\_\_\_  
BRUCE L. WOODBURY  
Chairman

ATTEST:

  
SHIRLEY B. PARRAGUIRRE, County Clerk

# Clark County Comments

U.S. Department of Energy's Draft 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



Department of Comprehensive Planning  
Nuclear Waste Division  
25 February 2000



**TABLE OF CONTENTS**  
**COMMENTS BY CLARK COUNTY, NEVADA**

<b>TABLE OF CONTENTS</b>	i
<b>EXECUTIVE SUMMARY</b>	ES-1
<b>1.0 INTRODUCTION</b>	1-1
1.1 Rationale and Importance of Clark County Comments	1-1
1.2 Role of Clark County in the Yucca Mountain Program	1-3
1.3 Interagency/Intergovernmental Interactions, NEPA Requirements and the Nuclear Waste Policy Act	1-4
1.3.1 Interaction with Clark County and Other Affected Units of Government	1-4
<b>2.0 GENERAL ISSUES REGARDING THE DRAFT EIS</b>	2-1
2.1 Introduction	2-1
2.2 Review of DOE Compliance with NEPA Letter and Intent	2-1
2.2.1 DEIS Assumptions, Scope and Policy; Relationship to NEPA and Other Federal Requirements	2-2
2.2.2 Clark County Comments and NEPA Citations Regarding Specific DEIS Statements; DEIS Scope, Alternatives, Scenarios, Costs, Mitigation	2-4
2.3 Public Involvement	2-6
2.4 Environmental Justice; Effects Upon and Inclusion of Low-Income, Minority Groups and Native Americans in the DEIS Process	2-8
2.4.1 Effects on Environmental Justice of Inadequate Methodology and Outdated Information	2-9
2.4.2 Religious-Cultural Impacts to Native Americans	2-10
2.4.3 Effects on Environmental Justice of the Conclusion of No Significant Adverse Impacts	2-10
2.4.4 Environmental Justice and Future Generations	2-10

2.4.5	Clark County Comments and NEPA Citations Regarding Specific DEIS Statements: Environmental Justice	2-10
2.5	Cumulative Impacts	2-11
2.5.1	Cumulative Impacts Related to Transportation	2-12
2.5.2	Cumulative Impacts Related to the Yucca Mountain Site	2-12
<b>3.0</b>	<b>IMPACTS OF IMPORTANCE TO CLARK COUNTY NOT CONSIDERED IN THE DEIS</b>	3-1
3.1	Introduction	3-1
3.2	The Context of Community Sustainability	3-2
3.3	Repository Effects on Property Values and Other Socio-Economic Factors	3-3
3.3.1	Introduction	3-3
3.3.2	Stigma, Property Values and Disinvestment	3-4
3.4	Repository Effects on Tourism	3-7
3.4.1	Introduction	3-7
3.4.2	Analogous Case Studies on Tourism	3-8
3.4.3	Yucca Mountain Studies	3-10
3.4.4	Conclusions Regarding Repository Effects on Tourism	3-12
3.5	Effects of the Repository and Transportation on the Desert Tortoise	3-12
<b>4.0</b>	<b>YUCCA MOUNTAIN SITE RELATED IMPACTS</b>	4-1
4.1	Introduction	4-1
4.2	General Issues	4-1
4.2.1	Non-Compliance with Legal Standards	4-1
4.2.2	Failure to Address Human Error in Repository Operation, Monitoring and Closure	4-2

4.3	Specific Comments Regarding Site-Related Impacts	4-2
4.3.1	Inventory and Characterization of Spent Fuel	4-2
4.3.2	Thermal Output	4-2
4.3.3	Disposal Cask	4-3
4.4	Environmental Consequences of Long-Term Repository Performance	4-3
4.4.1	Conclusions About Long Term Repository Performance Based on the Total System Performance Assessment [TSPA]	4-3
<b>5.0</b>	<b>TRANSPORTATION AND PUBLIC SAFETY IMPACTS</b>	5-1
5.1	Introduction	5-1
5.2	Crosscutting Issues Regarding Transportation Sections of the DEIS	5-2
5.2.1	Insufficient DEIS Policy, Strategies and Methodology	5-2
5.2.2	Use of Outdated and Inadequate Databases and Maps	5-3
5.3	Transportation and Public Safety Concerns of Clark County	5-3
5.4	Clark County Comments and NEPA Citations Regarding Specific DEIS Statements: Transportation and Public Safety	5-5
<b>6.0</b>	<b>PUBLIC COMMENTS AND PUBLIC OPINION</b>	6-1
6.1	History of Public and Agency Comments Regarding Yucca Mountain	6-2
6.2	Summary of Public Comments During Present DEIS Comment Period, August 1999 – February 2000	6-2
6.2.1	Notes of Public Meetings Attended by NWD Staff Throughout Clark County	6-3
6.3	Other Comments	6-8

## ATTACHMENTS

## 1.0 INTRODUCTION

*Primary Reference:* DEIS Chapters 1, 11

### *Major Points of This Chapter:*

- The EIS is a key document in the federal approval and licensing process for the proposed repository at Yucca Mountain. It is of utmost importance that *all* potential impacts of the repository on Clark County are identified and analyzed in the EIS since it will be used by DOE, Congress, DOE and other federal entities to recommend, plan and implement mitigation strategies and programs.

#### *In preparing the DEIS, DOE has:*

- virtually ignored the standing of Clark County and other affected units of local government (AULG), as specified in the Nuclear Waste Policy Act (NWPA), as amended
- ignored the comments provided by Clark County, the State of Nevada and other AULG in 1995 during the scoping phase of DEIS development.
- disregarded more accurate local information (e.g., demographics, development and strategic plans, transportation system, etc.) available for use in the DEIS
- refused to acknowledge information and reference documents provided by Clark County and other AULGs that documented key impact areas of importance and concern to affected communities.

#### *The DEIS is insufficient and incomplete with regard to National Environmental Policy Act requirements, Executive Order 12898, and professional practice because the DEIS:*

- provided insufficient scope and detail to allow for impact determination that could result in the planning and implementation of mitigation and management plans,
- narrowly defined the scope and nature of impacts, thus assuring that few impacts of significance would be identified. For example, the DEIS ignored potential impact categories important to Clark County's economy and (e.g., stigma effects on tourism, land use conflicts, property diminution and unfunded mandates on local government) although there is credible evidence that shows that these may occur.
- failed to include minorities and low-income groups in the scoping, interactive and hearing processes related to the EIS.

### 1.1 Rationale and Importance of Clark County Comments

The information available and evaluated in the EIS are important in assessing whether Yucca Mountain is suitable as a permanent repository for spent commercial nuclear fuel and high-level radioactive waste. Should the Secretary of Energy recommend that the President approve Yucca Mountain as suitable for the development of a repository, the Final EIS (FEIS) will be submitted with the *Site Recommendation Considerations Report*. The FEIS will also accompany an application to the Nuclear Regulatory Commission (NRC) for their analysis regarding whether Yucca Mountain can be licensed as a nuclear waste repository.

Congress, the NRC and others will also employ the DEIS as a major source of information on potential program impacts. Therefore, it is important to Clark County, other affected units of government (AULG), and the State of Nevada that the DEIS adheres to NEPA guidelines and accurately and completely describes potential impacts to our communities from Yucca Mountain Program activities.

To the extent that local impacts are not addressed or inadequately addressed in the DEIS, the chances increase that Congress may not consider, or even be aware of, potentially substantive impacts to AULGs. Clark County is concerned that impacts not noted in a document required by the NWPA could result in the disallowance of mitigation requests even when supported by other documentation. This is the major reason that Clark County,

Nevada, strongly objects to the DEIS in its present form. To meet the requirements of the National Environmental Policy Act (NEPA), the DEIS must characterize and describe potential Yucca Mountain program-related impacts that may affect our communities. DOE has failed to do this in this document.

In preparing the DEIS, DOE has ignored community issues that should have been appropriately addressed under NEPA. These will be discussed in greater detail later in the review. DOE has also ignored the reasons that it is important for a community to have these issues considered. The mandated role of local government is to protect the general welfare of its residents, and in the case of Clark County, the millions of tourists who visit Las Vegas and Clark County annually. DOE managers, scientists and technicians have prepared the DEIS according to the rules of applied science and levels of probability. However, DOE has failed to take into account that potential impacts that may affect local communities are often defined by local government decision-makers, the public and others in the jurisdiction. These definitions relate to the sustainability or livability of a community with regard to economic, environmental and social conditions. This broader view community view has often been upheld in the legal system.

Clark County recognizes that legitimate debate can take place about the relevance or the extent of particular impacts. It is our contention, however, that any potential impact of importance to affected parties must at least be acknowledged in the DEIS. For example, impacts on tourism in Clark County should be considered in the DEIS since this is an issue that affects strategic plans and day-to-day activities of local governmental officials and members of the public.

Tourism and gaming are Clark County's, and the State of Nevada's major economic drivers. Almost half the State of Nevada's revenue is generated by gaming, and fully 70% of that gaming revenue is generated in Clark County. The convention industry, a major subset of tourism, attracts enough groups and individuals to the area to make Clark County the largest convention destination in the U.S. Despite its importance to Clark County, potential impacts to this key economic sector was not even considered in the DEIS.

Impacts to Clark County would, in great part, result from the many potential alternate truck or rail transportation routes that may traverse the Las Vegas Valley. The highway and rail routes noted in the DEIS would result in shipments of nuclear waste being transported on Interstate 15, adjacent to the "Strip," the location of most of Clark County's major casinos, and U.S. 95, where an increasing number of hotels and casinos are being constructed.

The transport of nuclear waste through urbanized Clark County, particularly with our substantial growth and traffic congestion, offers a greater potential for accidents. The implications to a tourist-based economy are many. Whether or not an accident results in the release of radioactivity, it is certain that it would lead to widespread media coverage. Such publicity could result in decisions by potential visitors to avoid Las Vegas and southern Nevada. Convention planners, who have to consider liability and responsibility to their clients, could also advise their customers to consider other destinations.

Conceivably, an accident could negatively affect Clark County's economy. However, DOE dismisses "*risk perception and stigmatization*" as "*not related to the proposed action,*" even though in this case economic impacts may result from public perception of the risk involved. (See Page S-9 of the Summary document). An examination of the implications of routing selection in the DEIS would have lead to a consideration of the potential impacts that could occur. Other examples will be cited later in our review.

To understand concerns such as these, DOE needs to reflect on how local elected officials consider a major federal project such as the one being proposed in the DEIS. In making decisions, local officials must use any information, no matter how uncertain or well defined, to consider the implications to their constituents. This basic criterion may be stated as follows, "*Is an event or impact from that event more likely than not to happen and, if so, what must we do to mitigate any harmful effects?*"

In other words, the standard of proof for technical or statistical decision-making may have the appearance of being more stringent but it is generally much less related to the real world than that which needs to be considered by local elected officials and the public when evaluating the effects of major projects. Technical or statistical data, even when applied with accepted industry standards, often provide an artificial appearance of reality. In many cases, there isn't sufficient experience, information or data to substantiate the numbers.

It is this need on the part of local governments that must be met in order for an environmental impact statement to reflect reality. Thus, DOE does a great disservice to local communities when the DEIS is not written to take into account the potential effects of the Yucca Mountain Program on the economy of Clark County and in other potential impact areas. For example, effects on program costs and the liability of local governments, the necessity for transportation infrastructure improvements, the potential loss of property value, and the potential stigmatization of local area services and products have all been documented as impacts elsewhere. But, they have not been addressed in the Yucca Mountain DEIS. While there may be questions regarding the present or future occurrence of such impacts and their potential magnitude, it is important that there at least be acknowledgement of the issues in the DEIS.

If these impacts of greatest concern to the residents and elected officials of Clark County are not addressed, there can be no reasonable expectation that meaningful mitigation planning can take place. Since a major goal of an EIS is to provide a broad enough scope and enough detail to allow for such action, this DEIS must be considered incomplete and insufficient.

## 1.2 Role of Clark County in the Yucca Mountain Program

Since 1983 Clark County has fulfilled its responsibilities under the Nuclear Waste Policy Act of 1982, and its subsequent amendments in 1987 and 1992 (NWPAct). In April 1988, DOE acknowledged that there may be impacts to our community from the Yucca Mountain Program, by designating Clark County as an affected unit of local government (AULG) under provisions of the NWPAct<sup>1</sup>. The stipulated roles and responsibilities of Clark County under the NWPAct are consistent with its mandate as a subdivision of the State of Nevada and its responsibilities to protect the health, safety and welfare of its residents.

The County's concerns about potential impacts from the repository project were first stated immediately after passage of the NWPAct in a 1983 issue paper and memorandum<sup>2</sup> to the Clark County Manager written by the then director of the Department of Comprehensive Planning. This memorandum not only reflects the County's responsibility as an AULG under the NWPAct, but also its governmental mission as seen in the lengthy history of actions by the County Commissioners and agencies aimed at overseeing the Yucca Mountain program.

A portion of the 1983 memo noted:

*"It is important that issues pertinent to Clark County and local entities are considered at the earliest date. In addition to ensuring that impacts are minimized, it is also important to make the federal government aware of the degree of local concern about: a) the project, and b) the fact that Clark County and its citizens would be the best judge on determining what local impacts would result."* (Donald Shalmy memorandum to County Manager Spaulding, December 1983).

The 1983 briefing report was a response to a request for information from a county commissioner and raised five issues that Clark County and local entities needed to carefully consider to ensure that impacts would be minimized. These issues were stated as:

- emergency response;
- transportation routes and modes;
- socioeconomic considerations, including employment and impacts from construction;
- perceptual issues and their influence, for example, on tourism, and quality of life; and,
- funding to mitigate and minimize impacts and for the analysis of potential impacts from the project.<sup>2</sup>

Although additional important matters such as environmental justice, fiscal impacts on government, and greater public involvement have been added, these five issues have remained part of the core County concerns, as reflected in this response to the DEIS and a host of other county formal communications with the DOE. The following sections will provide background on the County's efforts to investigate these issues within its governmental and AULG mandates. The ongoing interactions between the County and the DOE and their effects on the county program will also be discussed.

### **1.3 Interagency/Intergovernmental Interactions, NEPA Requirements and the Nuclear Waste Policy Act**

#### ***1.3.1 Interaction with Clark County and other Affected Units of Local Government***

In the DEIS, Appendix C, DOE listed and described interactions that it has had with federal, Native American, State of Nevada, AULG and other agencies. In most cases, DOE provided brief descriptions of the authority or interest that each organization holds and the nature of the interactions. With this emphasis on brevity, the Appendix provides little substantive information that may be used to identify the concerns of each entity and possible analysis of these issues in the DEIS.

Section 116[c](1)(B) of NWPA formally recognizes affected units of local government in the Yucca Mountain Program. In 1985, the Clark County Board of County Commissioners adopted a resolution opposing the selection of the Yucca Mountain site, and in early 1988 a resolution declared the county an AULG. Hence, the County Commissioners' actions were in full compliance with the NWPA, and they agreed that as an AULG, the County would assume the following roles and responsibilities:

- Determine any potential economic, social, public health and safety, and environmental impacts of the repository on the state, affected unit of local government and its residents;
- Develop a request for impact assistance (if appropriate);
- Engage in monitoring, testing or evaluation activities with respect to site characterization activities;
- Provide information to state (county) residents regarding any activities of the State, County, the Secretary of Energy, or the Nuclear Regulatory Commission with respect to the site; and,
- Request information from, and *make comments and recommendations to the DOE on actions they have taken* (Section 116 [c](1)(B), emphasis added).

This response to the DEIS clearly falls under this last bulleted mandate and the NEPA (discussed below). In addition, the County has responsibility to protect the health, safety, and welfare of its residents under the General Welfare Clause. Should the repository siting, operation, or transportation of waste have negative impacts, the County is required to provide protection to its residents. To fulfill this responsibility, the County has made and will continue to make extensive efforts to communicate its concerns about potentially negative impacts to the DOE.

Prior to the EIS Scoping Meetings in 1995, all ten of the AULG met with then Secretary of Energy O'Leary, and the Under Secretary of DOE to describe our role in the NWPA and amendments, and to discuss issues of importance. Clark County noted that one of the key factors, still missing from the program, was that the AULG's effective involvement in any program was contingent on DOE's acknowledgement of the role of local governments as pre-decisional participants in all phases of the siting process.<sup>3,4</sup> In this and other meetings, Clark County clearly indicated the importance that it attached to the full implementation of NEPA provisions.

Clark County further attempted to demonstrate to DOE the importance attached by its decision-makers to potential negative impacts and the importance of the EIS process. We commented on DOE's Notice of Intent with a document entitled, "A Review of Impact Assessment Concerns."<sup>5</sup> This document was transmitted to DOE in compliance with the DOE EIS Scoping requirements, and contained an examination of the major concerns and issues that Clark County believed needed to be addressed in the impact assessment effort. The issues raised in the document were the result of years of studies by Clark County, the State of Nevada, and other local governments, and years of meetings in which these and other issues were discussed.

In brief, these issues included the following:

- Property value diminution;
- Regional traffic disruptions;
- Inequitable distribution of risk—environmental justice;
- Project-related business and population impacts;
- Negative impacts on the visitor economy;
- Local government finance imbalance resulting from project related costs; and,
- Political and institutional conflict resulting from the program causing local political instability.

These concerns are further considered in later sections of this review.

A 1998 meeting between the AULGs and DOE led to an agreement that any of the counties may provide reference material to DOE for use in the DEIS and EIS process. In response to this, Clark County submitted a reference document entitled, "*Comments, Findings and References Regarding The Draft Yucca Mountain Environmental Impact Statement.*" This submittal was designed to [1] highlight significant issues that Clark County believes the DOE must address in meeting its responsibilities under NEPA, [2] present findings and contextual information regarding the comments listed, and, [3] provide references to substantiate the comments and findings discussed. The reference document described the County's concerns in eight areas, including:

- Public and institutional processes
- Scope and policy
- Cumulative impacts and integration with other EISs
- Methodology
- Public health and safety
- Transportation
- Environmental justice
- Fiscal and economic effects.

The accompanying letter stated that, "*The EIS is for Clark County and the other AULGs the most important document produced in this program*"<sup>6</sup> The letter also stated that a major strength that Clark County brings to the EIS process is that it has a comprehensive knowledge of its geographical area of responsibility. This submittal was an attempt by the County to aid in producing a better EIS by offering its cooperation and expertise, and by requesting that Clark County and the other AULGs be brought into the process prior to the completion of the DEIS. The letter went on to request that these materials, "*be cited in the EIS by the DOE where appropriate, placed in public reading rooms along with other EIS materials, furnished directly upon request to interested persons, and otherwise made accessible through electronic and/or hard copy means.*"<sup>7</sup>

Under NEPA provisions, the DOE was required to make all reference materials available to the public and others for at least the full public comment period. Despite DOE assurances, these actions were not taken and the reference documents provided by Clark County and several other AULGs were not cited in the DEIS nor were they included as an appendix. In fact, the DEIS made the erroneous statement that only Nye county submitted such comments.

This decision by DOE not to include Clark County and other AULG documents was a violation of an agreement between two governmental entities both possessing legal standing under the NWPA.

DOE had repeatedly assured the county that these issues and concerns would be addressed in the DEIS. However, there is little in the document that shows that DOE took these comments seriously. Despite the fact that the County comments drew heavily on the *Environmental Assessment Checklist* developed by the DOE Office of NEPA Oversight, many of its comments were not addressed. Consequently, critical issues to Clark County are either not addressed, poorly addressed, or not realistically addressed in the DEIS.

Such inaction by DOE during the scoping and DEIS process may be a violation of NWPA Section 117, that states that if Nevada [and AULGs] or a tribe makes a written request for information, the Secretary of Energy

has 30 days to answer. If not answered, the request would go to the President. If s/he does not reply in writing within 30 days, the process of site characterization must be suspended until a written answer is provided. This provision has not been implemented nor has it been followed by the Department of Energy.

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#### REFERENCES

- <sup>1</sup> Nuclear Waste Policy Act of 1982, As Amended (Public Law 97-425; 96 Stat. 2201S), as amended by P.L. 100-203 (1987) and P.L. 102-486 (The Energy Policy Act of 1992); generally classified to 42 U.S.C. 10101 and following.
- <sup>2</sup> Shalmy, D., Memorandum to Bruce Spaulding, County Manager, December 21, 1983
- <sup>3</sup> Affected Units of Local Government, (January 13, 1995). Meeting with the Secretary and Under Secretary U.S. Department of Energy.
- <sup>4</sup> Overview of the Clark County, Nevada Nuclear Waste Repository Program. (November 6, 1991). "Yucca Mountain and Governmental Trust Issues: The Perspective from Clark County. Presented before the Secretary of Energy Advisory Board Task Force on Civilian Radioactive Waste Management.
- <sup>5</sup> Clark County Department of Comprehensive Planning, Nuclear Waste Division, "DOE's High-Level Nuclear Waste Program: A Review of Impact Assessment Concerns." Clark County Department of Comprehensive Planning, Nuclear Waste Division, December 1995.
- <sup>6</sup> Letter to W. Dixon, OCRWM, DOE North Las Vegas Office, from D. Bechtel, Nuclear Waste Division, Clark County Department of Comprehensive Planning. December 7, 1998.

## 2.0 GENERAL ISSUES REGARDING THE DRAFT EIS

### *Major Points of This Chapter:*

- The DEIS does not comply with the letter and intent of NEPA since the DEIS did not provide a realistic alternative that allows for consideration of a No Action Alternative.
- DOE did not make a diligent effort to involve the public and implement NEPA procedures. In particular, no substantial effort was made by DOE to involve groups that would be affected by the Yucca Mountain Program, especially low-income and minority populations. DOE failed to comply with Executive Order 12898 that directs the agency to consult with states, Native American tribes and local governments to assist in identifying minority and low-income groups.
- DOE did not address rapid and significant changes in population and demography within Clark County, the fastest growing County in the nation and in Las Vegas, the fastest growing city in the nation. DOE did not consider future growth patterns and attributes of the Clark County population during the project life.
- The discussion of cumulative impacts, particularly regarding transportation through Clark County, is inadequate since there is no recognition of upcoming projects at the Nevada Test Site or other activities that would occur at or near the Yucca Mountain site.

Because of the lack of compliance with NEPA requirements, consideration of important individual and cumulative impacts, and inclusion of affected groups in the process, the DEIS is inadequate and incomplete. Therefore, the DEIS does not provide enough scope and detail to allow for meaningful mitigation planning.

### 2.1 Introduction

In this section, Clark County will provide comments on general, or crosscutting issues, regarding the Yucca Mountain EIS. First, the four parts of this section include general discussions about DOE's compliance with the letter and intent of NEPA, public involvement processes during scoping and the DEIS comment period, and the DEIS consideration of environmental justice and cumulative impacts. Then, in each part, comments and NEPA references are provided regarding specific DEIS treatment of these issues.

This approach will be repeated, as appropriate, in our comments regarding issues related to the site, transportation and other impact areas.

### 2.2 Review of DOE Compliance with NEPA Letter and Intent

*Primary Reference: DEIS Ch. 1, 11, App. B]*

The DEIS falls short of NEPA requirements in a number of areas. First, the alternatives identified to the Proposed Action are unreasonable and incomplete. While NEPA does not require every possible alternative to be considered, it does require that all "reasonable" alternatives to the proposal be considered. Further, NEPA also requires that the alternatives be considered that are beyond what the applicant "likes or is itself capable of carrying out" (46 Fed. Reg. 180266). As currently drafted, the alternatives outlined in the DEIS do not meet these requirements.

The DEIS also does not contain sufficient detail in order to evaluate mitigation needs. While this may be addressed in future documents, the current DEIS language provides no guarantees. Thus, a whole range of issues and responsibilities are left ambiguous. This could result in a significant harm to the residents of Clark County. There are also methodological and data problems within the DEIS, especially, as they relate to population health risks, uncertainties in site characterization models, and the analysis of environmental justice impacts.

Clark County provides a detailed commentary to the DOE regarding the DEIS. We recommend that DOE begin a second phase analysis of key NEPA issues identified within this review, especially with regard to case law that specifically supports the Clark County's position that certain types of impacts be investigated.

For example, an initial examination of the case law that is purported to support the DOE's contention that stigma need not be addressed within the DEIS, *Metropolitan Edison Company v. People Against Nuclear Energy* (460 US 766, 103 S.Ct. 1556, 75 L/Ed. 534 (1983)), indicates that the scope of impact assessment may actually be much narrower than DOE's.

Finally, the DEIS violates the spirit of NEPA by not revealing the transportation routes that were analyzed for shipment of the SNF and HLW. The lack of information in the DEIS runs contrary to previous DOE practices that considered the Waste Isolation Pilot Project (WIPP) EIS and Supplemental EIS.

The current DEIS falls far short of what is needed for such a major federal project as the Yucca Mountain Program. Clark County recommends that DOE withdraw the current DEIS and undertake the investigations necessary to produce an EIS that fully describes the impacts and appropriate mitigation alternatives in order for the President to make an informed decision on the suitability of the repository.

### ***2.2.1 DEIS Assumptions, Scope and Policy; Relationship to NEPA and Other Federal Requirements***

The specific comment groups hereafter are organized in the following manner. A selection from the DEIS is followed by a Clark County comment regarding its adequacy or potential impact on Clark County. This is then referenced to an appropriate section(s) of NEPA, the Nuclear Waste Policy Act and/or other federal directives.

For the reader's convenience, we have included the text of any cited NEPA regulations prior to the comments. We have also included selected text from an EPA publication, "Forty Most Asked Questions Concerning CEQ's NEPA Regulations" and Presidential Executive Order 12898.

**NEPA Regulation:** *Sec. 1502.1 Purpose. It shall provide full and fair discussion of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.*

**NEPA Regulation:** *Sec. 1502.2 Implementation. To achieve the purposes set forth in Sec. 1502.1 agencies shall prepare environmental impact statements in the following manner: (e) The range of alternatives discussed in environmental impact statements shall encompass those to be considered by the ultimate agency decision-maker.*

**NEPA Regulation:** *Sec. 1502.14. Alternatives including the proposed action. Based on the information and analysis presented in the sections on the Affected Environment (Sec. 1502.15) and the Environmental Consequences (Sec. 1502.16), an EIS should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public. In this section agencies shall:*

- (a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.*
- (b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.*
- (c) Include reasonable alternatives not within the jurisdiction of the lead agency.*
- (d) Include the alternative of no action.*
- (e) Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.*
- (f) Include appropriate mitigation measures not already included in the proposed action or alternatives.*

**NEPA Regulation:** *Sec. 1502.16 Environmental consequences. This section forms the scientific and analytic basis for the comparisons under Sec. 1502.14. It shall consolidate the discussions of those elements required by*

sections 102(2)(C)(i), (ii), (iv), and (v) of NEPA which are within the scope of the statement and as much of section 102(2)(C)(iii) as is necessary to support the comparisons. The discussion will include the environmental impacts of the alternatives including the proposed action, any adverse environmental effects which cannot be avoided should the proposal be implemented, the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented. This section should not duplicate discussions in Sec. 1502.14.

**NEPA Regulation: Sec. 1502.22 Incomplete or Unavailable Information.** When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.

(a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.

#### **Forty Most Asked Questions Concerning CEQ's NEPA Regulations.**

##### **19a. Mitigation Measures. What is the scope of mitigation measures that must be discussed?**

The mitigation measures discussed in an EIS must cover the range of impacts of the proposal. The measures must include such things as design alternatives that would decrease pollution emissions, construction impacts, esthetic intrusion, as well as relocation assistance, possible land use controls that could be enacted, and other possible efforts. Mitigation measures must be considered even for impacts that by themselves would not be considered "significant." Once the proposal itself is considered as a whole to have significant effects, all of its specific effects on the environment (whether or not "significant") must be considered, and mitigation measures must be developed where it is feasible to do so. Sections 1502.14(f), 1502.16(h), 1508.14.

##### **19b. How should an EIS treat the subject of available mitigation measures that are (1) outside the jurisdiction of the lead or cooperating agencies, or (2) unlikely to be adopted or enforced by the responsible agency?**

All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies, and thus would not be committed as part of the Records of Decision of these agencies. Sections 1502.16(h), 1505.2(c). This will serve to [46 FR 18032] alert agencies or officials who can implement these extra measures, and will encourage them to do so. Because the EIS is the most comprehensive environmental document, it is an ideal vehicle in which to lay out not only the full range of environmental impacts but also the full spectrum of appropriate mitigation.

However, to ensure that environmental effects of a proposed action are fairly assessed, the probability of the mitigation measures being implemented must also be discussed. Thus, the EIS and the Record of Decision should indicate the likelihood that such measures will be adopted or enforced by the responsible agencies. Sections 1502.16(h), 1505.2. If there is a history of non-enforcement or opposition to such measures, the EIS and Record of Decision should acknowledge such opposition or non-enforcement. If the necessary mitigation measures will not be ready for a long period of time, this fact, of course, should also be recognized.

**Executive Order 12898.** Agencies should consider the composition of the affected area, to determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by the proposed action, and if so whether there may be disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Indian tribes.

Agencies should consider relevant public health data and industry data concerning the potential for multiple or cumulative exposure to human health or environmental hazards in the affected population and historical

*patterns of exposure to environmental hazards, to the extent such information is reasonably available. For example, data may suggest there are disproportionately high and adverse human health or environmental effects on a minority population, low-income population, or Indian tribe from the agency action. Agencies should consider these multiple, or cumulative effects, even if certain effects are not within the control or subject to the discretion of the agency proposing the action.*

*Agencies should recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action. These factors should include the physical sensitivity of the community or population to particular impacts; the effect of any disruption on the community structure associated with the proposed action; and the nature and degree of impact on the physical and social structure of the community.*

### **2.2.2 Clark County Comments and NEPA Citations Regarding Specific DEIS Statements: DEIS Scope, Alternatives, Scenarios, Costs, Mitigation**

**DEIS Statement (pg. 1-23)** - Many other public scoping comments presented views and concerns not related to the scope or content of the Proposed Action. Examples of such comments include lack of public confidence in the Yucca Mountain program, inequities and political aspects of the siting process by which Yucca Mountain was selected for further study by Congress, risk perception and stigmatization, legal issues involving Native American land claims and treaty rights, and unrelated DOE activities. DOE considered and recorded these concerns in the comment summary document on the scoping process (DOE 1997a, all), but has not included analyses of these issues in the EIS.

**Clark County Comment** - DOE has taken certain impacts of concern to Clark County and characterized them as "not related to the scope of the Proposed Action." While these may not be of concern to DOE, they form important bases for decision-making among county elected officials, community leaders, business personnel and individuals. These include concerns about the impacts of tourists' and visitors' perceptions of risk and potential consequences of these perceptions, predictions about the effects on commerce by business personnel, and concerns about health, welfare and economic well-being of county residents. Investigations of these matters and others, including stigma to area products and services, and the equity of risks to various populations have been requested by the State of Nevada, Clark County, other AULGs and a number of individuals. *NEPA Regulation: Sec. 1502.14 Alternatives including the proposed action.*

**DEIS Statement (pg. 2-1)** - DOE does not intend to represent the No-Action Alternative as a viable long-term solution but rather to use it as a baseline against which the Proposed Action can be evaluated.

**Clark County Comment** - Under the requirements of NEPA, DOE should have a realistic alternative that allows for the consideration of No-Action. DOE's No-Action Scenario 1 is not realistic in that it provides for institutional controls for 10,000 years if spent nuclear fuel (SNF) and high level radioactive waste (HLW) remains stored at nuclear power plants. At the other extreme, No-Action Scenario 2 drops institutional controls after 100 years. Scenario 1 may not be possible and Scenario 2 would not reflect appropriate and likely governmental actions. *NEPA Regulation: Sec. 1502.14 Alternatives including the proposed action*

**EIS Statement (pg. 2-65) 2.2.2.2** - In No-Action Scenario 1, DOE would continue to manage its spent nuclear fuel and high-level radioactive waste in above-or-below-grade dry storage facilities at five sites around the country. Commercial utilities would continue to manage their spent nuclear fuel at 72 sites. The commercial and DOE sites would remain under effective institutional control for at least 10,000 years. DOE based the 10,000-year analysis period on the generally applicable Environmental Protection Agency regulation for the disposal of spent fuel and high-level radioactive waste (40 CFR Part 191), even though the regulation would not apply to disposal at Yucca Mountain.

**Clark County Comment** - This alternative is not authentic since it posits that institutional controls would remain for 10,000 years at 77 facilities that currently store spent fuel. DOE's alternative for institutional

controls should be reasonably comparable. It is not reasonable to compare relaxed standards of the Nuclear Waste Policy Act with a more restricted national standard. Further, under this scenario, storage facilities would be completely replaced every 100 years. This artificially distorts the cost of a "realistic" on site storage for an interim period of 20-50 years while a fair search for an appropriate disposal solution is sought. Further, HLW at DOE facilities throughout the country are the responsibility, in perpetuity, of the DOE. Replacement of buildings at these facilities should not be factored into the costs of the No-Action alternative. The spirit of NEPA requires the formulation of realistic scenarios in order to identify alternatives, impacts and potential mitigation strategies. The DEIS fails to meet the spirit and letter of NEPA in this regard. *NEPA Regulation: Sec. 1502.14 Alternatives including the proposed action; Sec. 1502.16 Environmental consequences.*

**DEIS Statement (pg. 2-67) 2.2.2.3** - In No-Action Scenario 2, spent nuclear fuel and high-level radioactive waste would remain in dry storage at commercial and DOE sites and would be under effective institutional control for approximately 100 years (the same as Scenario 1). Beyond that time, the scenario assumes no effective institutional control. Therefore, after about 100 years and up to 10,000 years, the analysis assumed that the spent nuclear fuel and high-level radioactive waste storage facilities at 72 commercial and 5 DOE sites would begin to deteriorate and that the radioactive materials in them could be released into the environment. DOE based the choice of 100 years on a review of generally applicable Environmental Protection Agency regulations for the disposal of spent nuclear fuel and high-level radioactive waste.

**Clark County Comment** - This alternative is also biased because it assumes that if the Yucca Mountain repository is not approved, there will be no solution for nuclear waste disposal for 10,000 years. Further, it assumes that after 100 years institutional controls will be removed. If no nuclear waste disposal solution is forthcoming after 100 years, it is unlikely that institutional controls will be abandoned. *NEPA Regulation: Sec. 1502.14 Alternatives including the proposed action; Sec. 1502.2 Implementation.*

**DEIS Statement (pg. 2-67) 2.2.3** - The estimated cost of both Scenarios 1 and 2 for the first 100 years ranges from \$51.5 billion to \$56.7 billion, depending on whether the dry storage canisters have to be replaced every 100 years. The estimated cost for the remaining 9,900 years of Scenario 1 ranges from \$480 million to \$529 million per year. There are no costs for Scenario 2 after the first 100 years because the scenario assumes no effective institutional control.

**Clark County Comment** - Because of the faulty scenarios put forth in the DEIS, the cost data in section 2.2.3 has no basis. DOE should provide a No Action set of scenarios that at least are protective of the public health and safety. The scenarios should also incorporate both institutional and passive controls at the current storage sites that are comparable to what DOE intends to use at the proposed repository. *NEPA Regulation: Sec. 1502.14 Alternatives including the proposed action; Sec. 1502.16 Environmental consequences.*

**DEIS Statement (pg. 2-79), 2.4**

- From 0.04 to 0.4 square kilometer (10 to 100 acres) of land could be contaminated to the extent it would not be usable for long periods near each of the 77 sites for No-Action Scenario 2. There could be accompanying impacts on biological resources, socioeconomic conditions, cultural resources, and aesthetic resources for long periods. Such impacts for the Proposed Action and No-Action Scenario 1 would be very small.
- For No-Action Scenario 2, there could be low levels of contamination in the surface watersheds and high concentrations of contaminants in the groundwater downstream of the 77 sites for long periods. There would be no such impacts for No-Action Scenario 1. For the Proposed Action, there could be low levels of contamination in the groundwater in the Amargosa Desert for a long period.
- Projected radiological impacts to the public for the first 10,000 years for the Proposed Action would be low (0.00055 to 0.00053 latent cancer fatality per year) compared to No-Action Scenario 2 (3,300 latent cancer fatalities).
- Radionuclides would be released for a long period of time under the Proposed Action and peak doses would occur hundreds of thousand years after closure of the repository.

- Projected long-term fatalities associated with No-Action Scenario 1 would be about 1,000, primarily to the workforce at storage sites.
- Risks associated with sabotage and materials diversion in relation to fissionable material stored at the 77 sites would be much greater than they would be if the fissionable material were in a monitored deep geologic repository.

The projected cost associated with No-Action Scenario 1 would be approximately \$600 million a year (1998 dollars) for 9,900 years. Projected long-term costs for the Proposed Action would be very low while there would be none for No-Action Scenario 2 due to the lack of institutional control.

**Clark County Comment** - Since the No-Action scenarios are unreasonable, the forecasted impacts are invalid. *NEPA Regulation: Sec. 1502.16 Environmental consequences; Sec. 1502.22 Incomplete or unavailable information*

**DEIS Statement (p. 9-5) 9.2.2.2** - The DEIS asserts that the Yucca Mountain vicinity is isolated from concentrations of human population and human activity and is likely to remain so.

**Clark County Comment** - This statement is not supportable given the rate of growth in the Amargosa Valley area and the rapidly expanding growth of northern Clark County. Expansion in the Amargosa Valley (and indeed southern Nevada) would most likely be limited by the availability of ground water. Therefore, any reduction in the water available for farming and/or other development is an important impact to that area. Considering the hydrologic basin that receives water from the Yucca Mountain area as "sparsely populated" may be true today, but considering the rapid growth in this area this statement cannot "hold water" for the period of repository construction and operation. *NEPA Regulation: Sec. 1502.16 Environmental consequences.*

## 2.3 Public Involvement

*Primary Reference: DEIS Ch 1*

Federal code requires that agencies "make diligent efforts to involve the public in preparing and implementing their NEPA procedures" (40 CFR 1506.6(a)). It goes on further to say that they are required "to inform those persons and agencies *who may be interested or affected*" (40 CFR 1506.6(b), [emphasis added]). However, in the DEIS, DOE does not demonstrate how they have made diligent effort to involve those who may be interested or affected.

40 CFR 25.3, *Requirements for RCRA Public Participation*, requires access to the decision-making process by the public. The participation guidelines expect public "access" to the decision-making process, and expect that "dialogue" be created. That is, the agency must assimilate public viewpoints and purposes, and then demonstrate that this assimilation has occurred.

The NWPA states that public participation is "essential to promote public confidence in the safety of [the repository]", so, therefore, "appropriate procedures must be taken to ensure [that the Yucca Mountain Site Characterization Plan and attributes of the site] do not adversely affect public health and safety and the environment for this or future generations."

Public participation under Executive Order 12898, and the DOE Environmental Justice Strategy, which are binding upon the preparation of the DEIS, require that six principles must be implemented:

- Agencies should consider the composition of the population in areas affected by actions, whether minority or low-income communities or Indian tribes are present, and whether there may be disproportionately high and adverse effects on them.
- Agencies should consider data regarding potential multiple or cumulative exposures.
- Agencies should recognize that cultural, social, occupational, historical, or economic factors may amplify effects of actions; for example, effects on populations with heightened sensitivities to exposures, or effects on community structure.

- Agencies should develop public participation strategies, and acknowledge and strive to overcome barriers to participation.
- Agencies should assure early and meaningful representation in agency processes of all groups within the affected population.
- Agencies should seek representation from Indian tribes affected by actions.

The Council on Environmental Quality stipulates that these six principles include translation of documents, and the holding of hearings in more than one language if and as needed, and that a Federal agency must ensure that all documents and hearings shall be understandable.<sup>1</sup> What has been done to implement this requirement of environmental justice? There is no Spanish translation of the DEIS available, reports, notifications and newsletters are not published in Spanish even though the DOE is aware that a significant proportion of the residents of Nevada and along potential transportation routes speak and read Spanish as their first language. Likewise, interpreters were not present at DOE hearings.

More deeply, since 'understand' is not confined to 'use my language,' we must ask what efforts DOE has made to translate its thoughts, evidence, plans or proposals into standard English as utilized by the majority, lay population? There has been very little such effort to interpret often complex concepts into standard English.

Although some portions of the DEIS show editing, graphics, examples, definitions or illustrations meant to render text more comprehensible, the document is written primarily in the language of DOE management. Even though acronyms are explained, the sense of the reasoning used is not readily apparent to users of standard English. Considerable interpretation is required, to make the document and its many concepts comprehensible and, therefore, capable of analysis and discussion by members of the public .

Further, the CEQ requires that the DOE use facilities that are local to any affected sub-population. This would mean holding meetings in the neighborhoods of any such affected populations. In Clark County, these meetings have been held at Cashman Field or in the adjacent State of Nevada Sawyer Building, or at UNLV - all easily reached by those with a car and with time for an afternoon or evening meeting. But, in a practical sense, this means that anyone who wants to be heard by the DOE must have the time and the ability to meet at pre-arranged DOE meeting sites, rather than at neighborhood locations more convenient for those people who would be affected by the project.. DOE' attempt at outreach has failed miserably.

We are, therefore, concerned that DOE made no substantial effort to reach the people who would be most affected by the Yucca Mountain project. To counter this deficiency in outreach, from October 1999 through January 2000, Clark County NWD staff presented information about the DEIS at more than 20 public meetings in Clark County and to a large number of individuals. Almost without exception, we were asked why DOE wasn't doing more to directly inform the public about the DEIS?

In DEIS Section 1.5.1, DOE indicated that during the scoping process, they invited members of the general public to participate in the process. The Department mailed a series of information releases to Yucca Mountain stakeholders and members of the public notifying them of the opportunity to comment. However, there is no indication of the number of members of the general public or which groups were sent the information.

Section 1.5.1 further noted that during the scoping process, DOE "...submitted press releases and public service announcements to newspapers and television and radio stations; ..." Again, there is no indication regarding which newspapers or television and radio stations were notified. There is no indication that DOE made any attempt to encourage public involvement during the public comment period on the DEIS.

There is also no description of any efforts made to contact the public about the DEIS during the comment period. With a project as important as the Yucca Mountain Program, one that may affect generations of Nevadans, it would have been in the spirit of NEPA to broadly disseminate advertisements, in addition to public service announcements on radio and television. Public service announcements and press releases often only reach a small proportion of the population. Public service announcements, generally, compete for a limited

amount of airtime with other community events. There is indeed no guarantee that they will be given any airtime or not relegated to off prime time scheduling. DOE has in fact violated its own Environmental Justice Strategy objectives that require DOE not only to use public service announcements, but also radio, TV, and minority publications to advertise forthcoming hearings or meetings.

One example of the inadequacy of DOE's public information process occurred at the Salt Lake City DEIS public hearing on January 13, 2000. In the entire State of Utah, notice was published only in the Salt Lake Tribune. However, there is another major Salt Lake City newspaper, the Deseret News, which attracts a large, separate readership. As a result, many residents were unaware of the public hearing. It should be noted that there are also a number of other papers in Utah serving major population centers in the Ogden and Provo/Orem areas as well as other cities along potential transportation routes throughout Utah. The poor turnout of citizens at the Salt Lake public hearing is indicative of the meeting notification not being well publicized.

In summary, DOE did not demonstrate that they met the federal requirements to "make diligent efforts to involve the public" in the NEPA process. It appears that DOE has performed the bare in public involvement. Considering that the Yucca Mountain Program could impact a sizable segment of the nation now and for many future generations, more effort should have been made to ensure that those "*who may be interested or affected*" would know about the DEIS, how it could affect them and how they could participate in the public process.

#### **2.4 Environmental Justice: Effects Upon and Inclusion of Low-Income, Minority Groups and Native Americans in the DEIS Process**

*Primary Reference:* DEIS Chapter 2; Appendix J

In 1998, the population of Clark County was just about 1.2 million, with 13% described as Hispanic, 9% African American, 5% Asian/Pacific Islander, and about 1% Native American. Most of the latter live on one of two reservations located in the county.<sup>2</sup> As of July 1999, there were an estimated 35,610 non-English speaking or reading people in Clark County, almost 5% of the population. More than 75% of these, approximately 26,990 people, speak and read only Spanish. Approximately 15% of County households may be classified as low income. The Clark County population also consists of retired persons, generally older than the median county age of 47 years, and who usually live on a fixed income below the median county income of about \$40,000 per year.<sup>3</sup>

Clark County's analysis of the laws, regulations, executive orders, agency guidelines and other government documents confirms that there are two underlying concerns regarding environmental justice.<sup>4</sup> The first is that the safety of populations most vulnerable to government actions with potential adverse environmental impacts should be given special attention and deserve protection. The second is that the groups most affected by government actions should participate in the decision-making processes. These can more succinctly be referred to as concerns about vulnerable populations and public participation. These two concerns correspond with the working definition of environmental justice used by Clark County for purposes of these comments:

"a social condition in which environmental hazards, particularly those created by human actions, do not disproportionately impact vulnerable individuals and populations, and in which decision-making processes concerning the distribution of these impacts are safeguarded against unjust outcomes by a range of policies and practices."<sup>3</sup>

Clark County's review of DEIS Appendix C reveals that DOE did not meet the requirements of Executive Order 12898 that directs DOE to consult with states, Native American tribes and local governments to identify minority and low-income groups within their jurisdictions. Clear identification of such groups would allow DOE to provide proper notification regarding the EIS meetings, provide translations of materials, and otherwise encourage individuals and organizations that represent these groups to participate fully in the process. However, no such consultation occurred between DOE and Clark County. This raises the question whether there were any real efforts to get input from Native Americans, low-income, minority, non-English speaking

and others who live along the likely transportation routes and who have claims to Yucca Mountain and surrounding land.

The interpretation of environmental justice issues are dependent upon the findings of the DEIS. The DEIS concludes that no harm would occur to these vulnerable populations. Given that a substantial number of minority and low-income populations reside along proposed transportation, DOE does not substantiate this lack of risk in the DEIS. Within this context, we present our comments on the environmental justice aspects of the DEIS.

#### ***2.4.1 Effects on Environmental Justice of Inadequate Methodology and Outdated Information***

In the DEIS minority and low-income populations are identified along possible transportation routes and in the vicinity of the proposed disposal site for the high-level nuclear wastes. This is accomplished by identifying census tracts and determining whether the proportion of these groups within those census tracts is higher than in other tracts. Because in the Yucca Mountain DEIS it is concluded that there is very little or no risk of adverse impacts from the government actions in question, it is also concluded that these groups will not be significantly affected.

There are several inadequacies in the methods that lead to these conclusions. These are listed below along with corresponding recommendations.

The DEIS treats minority and low-income populations as the vulnerable populations of interest (DEIS, pg. 3-94). These groups are specifically mentioned in all government documents considering environmental justice, because they have historically been politically vulnerable to government actions with adverse effects. But these are not the only groups that are disproportionately vulnerable to such actions. Guidance documents for interpreting Executive Order 12898 emphasize that fair treatment means that no group of people should bear a disproportionate share of negative environmental consequences of government actions. Other groups, for example, would be disproportionately vulnerable to such consequences because of impaired health or immature immunological systems.<sup>5</sup>

In view of this, we recommend that other vulnerable populations, including the aged, the infirm, pregnant women, and children, be included in the DEIS and other environmental justice analyses.

The DEIS sections on environmental justice use census and demographic information from 1990 (pp. 3-94, 3-96). The population of Clark County has changed dramatically in the ten years since the 1990 census. The Council on Environmental Quality (CEQ) Final Guidance Document notes the limitations of census data and proposes using multiple sources of information on potentially affected populations.<sup>6</sup> Clark County recommends that data on current populations and projections of population changes into the foreseeable future should be used to correct, supplement or replace 1990 Census data.

#### ***2.4.2 Religious-Cultural Impacts to Native Americans***

Native Americans are included within the explicit definition of "minorities" in all government documents referencing environmental justice, and most can also be included in the definition of "low-income." Adverse religious-cultural impacts to Native American tribes in the vicinity of Yucca Mountain from activities related to the proposed repository are acknowledged as an unresolved area of controversy in the Yucca Mountain DEIS (pp. S-65, 4-84, 4-85). It is unclear then why this is referred to as an area of controversy rather than as a violation of environmental justice. In addition, the DEIS does not consider the cumulative cultural impacts to Native American tribes from other government activities as well as the Yucca Mountain project, such as activities related to the Nevada Test Site. Furthermore, in addition to other potential impacts, the DEIS does not consider the adverse impact of the proposed repository on the potential economic development of these communities.

Clark County recommends that DOE state and provide rationale for the statement that adverse religious-cultural impacts to Native Americans are regarded as controversial rather than a violation of environmental justice provisions. DOE should also analyze the cumulative impact on the cultural interests of Native American tribes of all government activities in the vicinity, including the Nevada Test Site and consider the adverse impact of the proposed repository on the potential economic development of tribal communities.

#### ***2.4.3. Effects on Environmental Justice of the Conclusion of No Significant Adverse Impacts***

In DEIS Section 5.2.4.1, it was first stated that population changes could significantly alter the risks, but the DEIS immediately found it acceptable to simply use present and past demographic information for assessing risk. This is a significant problem since the exclusion of socio-demographic modeling comes subsequent to the observation on p. 5-17 that "...forecasts are valuable in the decision-making process..." That is, they have limited their forecasts to those derived through geological, hydrological or radiological modeling -- technical issues, while at the same time ignoring the facts that:

[1] For environmental justice concerns (and health/safety risks generally), what matters is the nature of the populations at the times when the repository is under construction and in operation, and after post-closure, and;

[2] Socio-demographic forecast modeling is a basic analytical tool used by regional planning agencies and zoning boards everywhere, probably no more or less prone to uncertainty than technical and engineering models.

In Clark County, growth assessment/planning issues are highly visible and energetically studied, and used for strategic and short-term planning. We believe that DOE must forecast likely growth patterns and attributes, and discuss their potential implications for Yucca Mountain repository risks and impacts.

#### ***2.4.4 Environmental Justice and Future Generations***

In NWPA Section 10131, future generations must be made a priority in studying the potential effects of the repository. Yet, the DEIS does not discuss this issue anywhere. We urge DOE to require or permit serious discussion of the obligations owed to future generations from nuclear waste management activities.

#### ***2.4.5 Clark County Comments and NEPA Citations Regarding Specific DEIS Statements: Environmental Justice***

**DEIS Statement** - DEIS Table 2-7, pg. 2-76, *Impacts Associated with the Proposed Action and No-Action Alternatives*

**Clark County Comment** - Does DOE intend to fund the protection of cultural resources exposed to risk under the proposed action? DOE should also explain in detail the differing view of the Native Americans as to impacts from nuclear waste transportation. It is insufficient to refer to the concerns of Native Americans as occurring solely with reference to the cultural resource impacts.

**DEIS Statement** - Table 2-7, *Impacts Associated with the Proposed Action and No-Action Alternatives*, pg. 2-78 in the DEIS

**Clark County Comment** - There is no basis for the conclusion that there would be no environmental justice impacts from the proposed action, since the DEIS used a faulty methodology and failed to look at impacts at varying scales. *NEPA Regulation: Sec. 1502.16 Environmental consequences*

**DEIS Statement** -- DEIS Table 2-9, pg. 2-83 and 2-85, *Comparison of Impacts for Nevada Heavy-Haul Truck Implementing Alternatives and for legal-weight Truck Shipments.*

**Clark County Comment** - The DEIS does not examine impacts at a scale where potential environmental justice impacts where they could be assessed. This ignores the reality of poor and minority communities that

are frequently concentrated in pockets near major transportation corridors for both rail and legal-weight truck. *NEPA Regulation: Sec. 1502.16 Environmental consequences; Executive Order 12898.*

**DEIS Statement (pg. 6-15) 6.1.2.12** - DOE does not expect disproportionately high and adverse impacts to minority or low-income populations from the Proposed Action. The environmental justice analysis involved a two-stage assessment of the potential for disproportionately high and adverse impacts on minority and low-income populations:

First, a review of the activities included in the Proposed Action to determine if they would be likely to result in high and adverse human health impacts or in environmental impacts that could affect human populations. Second, if the first stage review identified high and adverse impacts to human populations in general, an analysis of these impacts as described above to determine if they could be disproportionately high and adverse for minority or low-income populations.

If the first-stage review does not identify impacts to human populations, a second-stage analysis for potential environmental justice impacts is not required because there would not be high and adverse impacts to any part of the human population, including minority and low-income populations.

*Clark County Comment* - The two-step procedure used to determine environmental justice impacts is inappropriate. This method potentially masks significant impacts to minorities and the poor. It is very possible that even a small number of incidents could be disproportionately distributed among these groups. The analytical method for determining environmental justice impacts should not be dependent on demonstrating an impact to the general population. The term "disproportionately" also needs to be defined.

Cumulative impacts throughout the DEIS are not readily identified given that the procedures used to define impacts are not sufficiently sensitive to isolate impacts among subgroups. With the methodologies (X) available today to analyze data, and given the unprecedented nature of DOE's proposal to ship large volumes of nuclear waste across the nation, it is reasonable to expect DOE to analyze potential impacts at a variety of scales.(X) Without such detail, neither Clark County nor communities along the transportation routes will be able to effectively assess impacts and design appropriate mitigation strategies. *NEPA Regulation: Sec. 1502.14 Alternatives including the proposed action; Sec. 1502.16 Environmental consequences; Sec. 1502.22 Incomplete or unavailable information. Forty Most Asked Questions Concerning CEQ's NEPA Regulations. 19a. Mitigation Measures.*

## **2.5 Cumulative Impacts**

*Primary Reference:* DEIS, Chapter 8

Citing NEPA regulation, 1508.7, "cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

### **2.5.1. Cumulative Impacts Related to Transportation**

In Chapter 8, the DEIS has understated the scale and complexity of the cumulative impacts of DOE programs for the simultaneous disposal of low-level and high-level radioactive waste. According to *DOE's Draft Waste Management Programmatic EIS*<sup>7</sup> and later documents, the Nevada Test Site (NTS) is a preferred regional disposal site for low-level radioactive waste. This program will occur over a number of years, and would greatly increase the total number of truck shipments of radioactive waste through southern Nevada. Under present regulation, these shipments may be routed on the same highway system through Clark County as the shipments to a Yucca Mountain repository.

Despite assurances in the programmatic EIS, the Yucca Mountain DEIS did not contain an authoritative examination of the cumulative impacts of both DOE disposal programs on Nevada and Clark County. According to some estimates, the shipment of low-level radioactive waste from DOE defense sites across the nation to the NTS will last for approximately 70 years. The waste will be shipped by truck, conceivably through the most densely populated and sensitive parts of Clark County. The low-level radioactive waste (LLW) shipping campaign could result in the transport of up to 12 truckloads per day for more than 70 years.

The DOE has already established a poor record for managing and transporting LLW in Clark County. For example, after an incident with a LLW highway shipment from Ohio to the NTS that was found to be leaking non-radioactive water, the shipping campaign was suspended for over eighteen months as an internal investigation<sup>8</sup> was conducted. The two major findings were that DOE had not enforced its own requirements regarding the fabrication and deployment of the containers, and that institutional processes between and among DOE facilities, the State of Nevada, local governments and others had failed to provide effective control of this and similar situations.

Another example is regarding DOE's statements and subsequent efforts to minimize risk and impacts of LLW shipments on Clark County. In this case, representatives of DOE Nevada acknowledged that there are administrative means that may be used by DOE to assure that LLW shipments avoid high-risk areas. However, later inaction by DOE resulted in the continuation of shipments through the areas of concern in the Las Vegas Valley, except for truckers that voluntarily used other routes.

The DEIS analysis of cumulative impacts shows no consideration of the context in which spent nuclear fuel (SNF) will be transported to Yucca Mountain. There is also no information about other hazardous commodities on the roads and railways. There is no discussion of the substantial impacts of the DOE's LLW disposal program on Clark County and the likely relationship between the LLW and SNF disposal programs.

The DEIS also does not present a description of the impacts of these programs on the infrastructure (e.g., highways, roadside facilities) of Clark County, nor does it provide sufficient information about the necessary emergency management requirements to respond to the DOE's programs. To rectify the substantial omissions in the DEIS, the DOE must prepare a supplemental evaluation of cumulative impacts that describes the current context in which SNF will be transported. This additional analysis must address the current hazardous materials shipments in urban Clark County and rural Nevada for both rail and truck modes, it must describe the process used to identify and measure cumulative impacts and it must measure those impacts.

### **2.5.2. Cumulative Impacts Related to the Yucca Mountain Site**

According to the DEIS, the implementation of Module 1 or 2 would be the only actions that could result in cumulative impacts on cultural resources in the area of Yucca Mountain. These impacts have to do with the potential for illicit or incidental vandalism of archaeological or historic sites and artifacts as a result of increased activities in the repository area.

With regard to socioeconomic impacts, the DEIS stated that no substantial cumulative effects would occur in Clark, Lincoln or Nye counties. This is because, in an example of a cumulative effect as defined by DOE, peak employment at the NTS under various waste management scenarios would occur earlier than that for the Yucca Mountain program. Thus, the affected communities would have more time to assimilate any new residents that relocated to the region.

In the paragraphs below, citations are provided from the DEIS regarding its analysis of cumulative impacts on cultural resources and socioeconomic conditions. These are included to demonstrate that, in non-compliance with *NEPA Regulation, Section 1502.22*, DOE has not provided sufficient detail to analyze potential cumulative impacts resulting from the proposed repository at Yucca Mountain. Because of this deficiency, the DEIS inadequately addressed potential mitigation needs.

**DEIS Statement, p. 8-37: Cumulative Impacts on Cultural Resources.** "...the emplacement of either module would require small additional disturbances to land in areas already surveyed during site characterization activities. Because repository construction, operation and monitoring, and closure would be Federal actions, DOE would identify and evaluate cultural resources, as required by Section 106 of the National Historic Preservation Act, and would take appropriate measures to avoid or mitigate adverse impacts to such resources. As a consequence, archaeological information gathered from artifact retrieval during land disturbance would contribute additional cultural resources information to the regional database for understanding past human occupation and use of the land. However, there would be a potential for illicit or incidental vandalism of archaeological or historic sites and artifacts as a result of increased activities in the repository area, which would be extended for Module 1 or 2, and this could contribute to an overall loss of regional cultural resources information.

"The Native American view of resource management and preservation is holistic in the definition of cultural resources, incorporating all elements of the natural and physical environment in an interrelated context (AIWS 1998, all). The Native American perspective on cultural resources is further discussed in Chapter 3, Section 3.1.6. Potential impacts resulting from the Proposed Action described in Chapter 4, Section 4.1.5, would also apply to Inventory Module 1 or 2."

**DEIS Statement, p. 8-39: Cumulative Impacts on Socioeconomic Conditions.** "*The Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada* (DOE 1996f, all) presents various scenarios for Nevada Test Site actions. The Record of Decision for that EIS states that DOE would implement a combination of three alternatives: Expanded Use, No Action (continue operations at current levels) regarding mixed and low-level radioactive waste management, and Alternate Use of Withdrawn Lands regarding public education (61 FR 65551, December 13, 1996). . Under this combination of alternatives, the Nevada Test Site could generate an increase of approximately 4,550 direct jobs, and most of these workers would be likely to live in Clark County (Department of Energy 1996f, page 5-17)."

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## REFERENCES

<sup>1</sup> Council on Environmental Quality Guidelines, p. 29

<sup>2</sup> The Center for Business and Economic Research, University of Nevada, Las Vegas. *We, the Southern Nevadans*. 1999.

<sup>3</sup> *1999 Las Vegas Perspective*. Nevada Development Authority, April 1999.

<sup>4</sup> Walton, C., A. Zundel, R. Gladd, N. Gott, M. Manning Whittaker, E. Dixon, W. Fowler, P. King, N. Koon-Howard, K. Lauckner, M. Morris, and D. Nick. *Environmental Justice in the DOE Yucca Mountain DEIS*. University of Nevada, Las Vegas, January 2000.

<sup>5</sup> Section 2.1, *CEQ Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses*, April 1998.

<sup>6</sup> Section 5.1, *CEQ Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses*, April 1998.

<sup>7</sup> U.S. Department of Energy. *Draft Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage and Disposal of Radioactive and Hazardous Waste*, DOE/EIS-0200-D. 1995.

<sup>8</sup> U.S. Department of Energy Fernald Environmental Management Project. *Type B Accident Investigation Board Report of the December 15, 1997, Leakage of Waste Containers Near Kingman, Arizona*. February 1998.

### **3.0 IMPACTS OF IMPORTANCE TO CLARK COUNTY NOT CONSIDERED IN THE DEIS**

*Primary Reference:* DEIS Chapters 1, 3, 6

#### ***Major Points of This Chapter:***

- This section addresses a number of impact areas of importance to Clark County not considered by DOE. If these areas are not addressed in sufficient detail and scope, a meaningful understanding of potential impacts may not take place, and mitigation planning and negotiation strategies not occur. A number of examples are provided to illustrate potential impacts from Yucca Mountain activities.
- The studies summarized in this section demonstrate that there are a number of potential impacts that could be adverse to Clark County residents, visitors, and businesses, harm the quality of life of residents and adversely affect the economic well-being of the County and State.
- A major objective of Clark County government is to sustain the economic strength and vibrancy of our area. This includes commitments to securing a strong economic base for its residents, managing its rapid growth, assuring healthy communities and opportunities for its residents, and preserving the natural environment.
- The DEIS does not consider "stigma induced" impacts. As an example, there exists substantial evidence that demonstrates the real potential for serious property value declines and disinvestment from similar programs. Data indicate that stigma induced changes can occur even under incident-free transportation conditions. At a minimum, stigma-induced impacts if present can result in diminution of property values and business performance, development and investment along routes, and decreases in tourism.

#### **3.1 Introduction**

The comments in this section provide an opportunity for Clark County to discuss a number of issues crucial in evaluating impacts to individuals, families, businesses, government institutions, the natural environment and other aspects of our community fabric. If the repository program is approved, Clark County and its incorporated municipalities may be vulnerable to significant adverse effects that could be long lasting. As examples, declines in residential and commercial property values along shipment routes, potential losses in the visitor-tourist sector; and significant declines in many aspects of quality of life are all issues to which Clark County must be sensitive. . Even without accidental releases of radioactivity evidence exists that Clark County residents, not to mention the millions of visitors to Las Vegas annually, could experience a number of adverse affects that are not adequately addressed in the DEIS

In Section 1.0, it was stressed that local impacts not be addressed adequately in the EIS and in other federal documents may not be considered substantively to enable mitigation or other assistance should the project proceed. It was also noted that local government decision-makers and the public must consider information relevant to making day-to-day decisions regarding the well-being of their constituencies. The basic criterion of this process may be stated as follows, "Is a program or its immediate and long-term impacts on situations important to us more likely than not to happen? If so, what must we do to avoid or mitigate any harmful effects or take advantage of positive effects?" This will take place whether a road is being constructed or from the transport of nuclear waste. This background is provided to further substantiate the need to consider these potential impacts in the DEIS.

Over the last decade, Clark County and others have examined potential effects that may be experienced by Clark County residents and businesses because of nuclear waste transportation, the extent of those effects, and

the potential short and long-term impacts on the area. This research provides an important summary of possible and anticipated impacts from repository program activities.

With regard to socioeconomic issues, we will present information that documents the relationship between property value decline and stigma that has occurred in other areas and may result from the proposed repository activities. Next, we will present an analysis that shows that the repository would have a significant negative impact on the Clark County's tourism and convention trade. Additional information will be presented regarding special effects, including governmental fiscal impacts, economic development impacts, and business impacts resulting from DOE's proposed actions. We will then briefly discuss the potential effects on the quality of life of Clark County residents that may be attributed to the siting of a HLW repository so close to their communities.

Clark County is committed to securing a strong economic base for its residents, managing its rapid growth to assure healthy communities and opportunities for all its citizens, and preserving the natural environment. The concern for economic viability, environmental quality, and social well-being are reflected in quality of life indicator surveys started in 1995 and followed up in yearly polls.<sup>1</sup>

In order to adequately assess potential impacts from this program, it is important that DOE take these concerns seriously - to review these findings or conduct independent analyses, or both, so that a revised DEIS or Final EIS may show a realistic picture of the potential impacts and concerns of Clark County.

In this section, we will also provide the context for this analysis - the sustainability of the Clark County community. The "sustainability" discussion is taken from a well-documented contractor report<sup>2</sup> prepared for the Clark County Nuclear Waste Division in 1999 [the "UER Report"]. Rather than provide footnotes for each discussion point in these comments, we will indicate which aspects are based on findings of the UER Report.

### **3.2 The Context of Community Sustainability**

Clark County is joining cities and counties around the country who are starting to define a vision for their future that balances community economic, environment and social well being in order to improve the quality of life of its residents. These "sustainable" communities have developed specific goals and strategies to guide programs and governmental services to achieve this balance and quality of life for the long-term. The goals and visions of these local areas are based on the *values* and *priorities* of residents who live there.

A 1999 report by the White House<sup>3</sup> argues that the real challenge that the nation faces in the 21st Century is to build "livable cities." This involves enhancing economic growth, public safety, environmental quality, well-being of families, and sense of community. As part of a national initiative, 70% of over 200 communities in the U.S. adopted policies to pursue "livable cities." Building on the work of the Community Empowerment Board and the President's Council on Sustainable Development, the Livable Communities Initiative mobilized 12 federal agencies to provide information, tools and monitoring support for community targeted assistance.

From the Federal perspective, the initiative is to broaden choices available to communities in order to sustain prosperity and expand economic opportunity, enhance quality of life, and build a strong sense of community. As part of the Livable Communities Agenda, the federal government has a set of principles that argues that the:

- (1) decisions of how communities grow should be made by the communities themselves;
- (2) appropriate role of the federal government is to inform and assist, not to direct; and,
- (3) federal government should help provide information and tools to help communities anticipate and scope patterns of growth.

These initiatives base their efforts on earlier goals of sustainable development - environmental protection (reduce environmental threats), economic security (build on past investment in communities and broaden the economic base), and social well-being (encourage opportunities for all segments of society).

In effect, these initiatives and goals reflect the national policy set forth in 1969 with the adoption of NEPA.

The purpose of the act was to:

- Declare a national policy which will encourage productive and enjoyable harmony between man and his environment;
- Promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man;
- Enrich the understanding of the ecological systems and natural resources important to the Nation; and,
- Establish a Council on Environmental Quality [CEQ] (NEPA, 42 USC § 4321).

While the language of the statute is very short and general, Congress intended in NEPA to:

*To use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans (NEPA, 42 USC § 4331(a)).*

Clearly, NEPA has resulted in implementation of federal assistance programs to maintain and sustain livable communities. CEQ regulations require federal agencies to comply with the purpose, policy and mandates of NEPA in their planning processes, including the preparation of environmental impact statements and other procedural requirements.

It appears that DOE's proposed repository program with its present insensitivity to local issues is actually working against federal environmental. It is imperative that DOE assure that the Yucca Mountain Program and the description of potential effects from its actions is consistent with national environmental policies.

### **3.3 Repository Effects on Property Values and Other Socio-Economic Factors**

#### **3.3.1 Introduction**

The potential for impact on property values is clearly emerging as a possible critical impact area for local residents and jurisdictions to consider. In the DEIS, however, DOE avoids discussion of these possible impacts, despite a considerable body of case law and studies that demonstrate the potential exists for serious property value declines and disinvestment. DOE's approach solely relies on probabilistic risk analysis methodologies to demonstrate minimal impacts from transportation accidents. The consideration of these potential other impacts is avoided.

The case for stigma-induced impacts on property values is compelling. One study by DOE of a recent spent fuel transport route designation demonstrated actual diminution effects in a residential housing market. Several important court decisions also have supported property value damages due to perceived risks. Regarding an important case decided by the New Mexico Supreme Court, a survey on which the conclusions of the case were based, show *expectations* of property value declines and designated bypass routes have resulted in losses in property values.

Risk perception surveys considering the potential transportation of nuclear waste scenarios in Clark County reveal substantial public concerns about negative effects from the transportation of nuclear waste. Considerable evidence supports the proposition that property value impacts will occur as a result of designating routes for shipping nuclear waste and that these effects will become more serious with actual shipments. These economic vulnerabilities must be considered for Clark County as part of the DOE's impact assessment process.

In these comments, we will provide that economic and market conditions can change as a consequence of stigma-induced perceptions resulting from the transportation of nuclear waste. The case is built on four research areas:

1. Analogous case experiences showing diminution effects in home and land values as a result of risk perception regarding hazardous facilities and events;
2. Case law demonstrating the move toward compensating damages from stigmatized places;

3. Surveys of people's perceptions of the risk of transporting nuclear waste and how this type of transport engenders stigma and expectations of losses in property values; and
4. Demonstration of losses in a case of actual shipments.

Because of the transfer of transuranic wastes to the WIPP site in New Mexico, the transportation issue received considerable attention, especially in the area of stigma-inducing effects. The studies on public response to WIPP-bound shipments are strongly consistent in their findings and show the potential for serious economic repercussions. Large segments of the public hold high-risk perceptions of nuclear waste shipments and view routes on which wastes will be transported as unsafe and properties near them as undesirable. In an important legal case, public concern over stigma resulting in value loss was compensated despite low objective risks. The New Mexico Supreme Court upheld damage claims due to stigma effects.

Though inconsistent findings exist on diminution effects on property from stigma perceptions associated with hazardous facilities, contaminated areas, and nuclear power plants, a large number of studies also show strong associations among risk perceptions, stigma, and property values. These are consistent with respect to the case of nuclear waste transportation.

There is evidence from national polls and surveys in Clark County showing that the public is concerned about nuclear waste routes and expressed intentions to avoid risks from such transportation. Results from polls indicate that a large percentage of the public is not willing to live adjacent or purchase homes and businesses near these routes. The public feels that areas adjacent to shipment routes will not only be unsafe but will become stigmatized as undesirable areas. The public *expects* that property values near these routes will decline. Property value impacts have already been observed where nuclear waste shipments have been imminent and in one case where shipments took place. Several studies have reported on the negative imagery associated with nuclear waste transportation.

Predicting the size of stigma-induced economic change is difficult, but the data demonstrate that significant stigma-induced changes (e.g., decline in the likelihood of investment) could occur, even under minimal or benign transportation risk conditions. Clark County is particularly vulnerable to these effects and should consider not only the conditions under which stigma-induced impacts will occur, but also the particular sensitivities of various economic sectors to these effects. Moreover, if the nuclear repository program moves forward, local communities will need to consider examining the conditions under which stigma-type effects can be avoided or ameliorated but adverse property value impacts near shipment routes should be anticipated.

### 3.3.2. *Stigma, Property Values and Disinvestment*

The public stigmatizes environmental features it views as repellent, upsetting, disruptive, or hazardous. The source of environmental stigma can range from an increased awareness of the incidence of environmental health problems in an area, to concern over the declining market price of properties due to potential harms or from an exodus of residents from a contaminated area.

The possibility of transporting nuclear waste through heavily populated Clark County, Nevada, as evidenced by the substantial number of potential nuclear waste transportation alternatives noted in the DEIS, continues to be particularly troubling in terms of people's concern over health and safety risks. The potential for accidents and their effects on losses in property values near designated or possibly designated routes for HLW transport are also cause for public concern. In this section, we will review studies that will document potential vulnerabilities that Clark County needs to consider from stigma effects.

The existing studies on this topic show that the occurrence of stigma-type effects can adversely impact property values, even without accidents. Therefore, this is a critical issue for the county to consider when planning for and negotiating mitigation programs to remediate the socio-economic impacts that are likely to result from the proposed repository transportation program.

The potential for stigma and the characteristics of stigma-induced effects have been discussed by a number of authorities in risk assessment [Specific references are found in the UER Report, cited in Section 3.1, above, and available at the Clark County Nuclear Waste Division office]. Four factors have been identified as likely causes of property value loss related to stigma under conditions of environmental contamination:

<i>Fear of Public Liability</i>	degree of stigma related to future marketability or liability;
<i>Fear of Hidden Clean-Up Costs</i>	difficulty in assuring buyers that estimated clean-up costs are adequate;
<i>Lack of Financing</i>	inability to obtain financing for the purchase of a property or its future development; and,
<i>Fear of Accidents or Future Harms</i>	related to the proximity to the source of danger and desire to reduce the risk.

There are a number of studies that demonstrate the public's strong belief that property values near spent fuel shipment routes are expected to decline. This is an important factor to consider when evaluating impacts to Clark County. First, if such attitudes are prevalent and strongly held, investors will shy away from areas near potential routes for investment or development purposes. Second, property value declines may occur prior to actual shipments and without incidents when shipments do occur. Third, nuclear related transportation accidents with or without releases of radioactive materials may cause serious and long-term adverse impacts to property values.

A University of Nevada, Las Vegas (UNLV) national survey of public reactions to nuclear waste shipments supports a case for stigma-induced effects.<sup>4</sup> The specific intent of this national survey of 1,012 persons was to evaluate the extent of which public reactions to nuclear waste shipments would impact the willingness to purchase property near nuclear waste routes. Approximately 68% indicated that they would be unlikely to buy a house in the immediate area of a highway or rail corridor that shipped spent fuel.

The study also reported that 63% of the national sample would likely move away from an area where nuclear waste is transported. When asked about the minimum number of miles from a nuclear waste transport route that they would find acceptable to live, 21% indicated a distance of five miles or less, 23% indicated between six and 25 miles, and the remaining 56% more than 25 miles. This study suggests important behavioral expectations from shipping nuclear materials, including declines in property purchases and out migration from these areas based on nearness to these routes.

In a study on attitudes of recent homebuyers in the Las Vegas area, relationships were found between the proximity to possible nuclear waste transportation routes and home buying preferences.<sup>4</sup> For homebuyers who were unaware of the repository, 61% placed "substantial importance" on the proximity of their new homes to a nuclear waste transportation route. When home buyers were asked how close would they be willing to live to a nuclear waste transportation route, 6% indicated one mile or less, 4% between one to three miles, and 90% over three miles.

In many cases where environmental damage is likely to occur but has not been detected, the possibility alone of future declines in property values may inhibit purchases resulting in losses in market value. An examination of several properties that were only mildly contaminated or suspected of contamination found that the marketability of such properties was limited by various economic fears. These fears include higher financing costs because fewer lenders were willing to consider these properties.

The literature on property values has proliferated during the last ten years with cases demonstrating diminution effects resulting from public perceptions of the risk of contaminated sites, facilities, or accidents involving the release of hazardous materials. The relationship between property value declines and proximity to hazardous facilities, contaminated sites, and shipment routes for hazardous materials is often based on hedonic price theory. This theory maintains that the value of a good will decline in utility because of decreases in environmental amenities. The perception of possible risks or other adverse impacts from a given hazard or site with potential environmental contamination can negatively influence property values because the demand for

residential or business location near the site lessens.

It has been shown that risk perceptions can cause a decline in property values. Despite the fact that a landfill in Colorado was closed without apparent adverse health effects, property values declined in areas where there were perceived health risks. Neighborhoods closer to the landfill had larger percentages of people who judged the project to be a high risk one, leading to the conclusion that subjective health risk was the primary factor in causing real estate values to drop around the landfill. According to this finding, changes in property values are real and depend on risk beliefs that may result from responses other-than-objective risks.

Using the *hedonic pricing method* to measure changes in the real estate market near the site, actual prices have been compared to changes in the neighborhood collective risk judgment. For each 10% increase in the proportion of households in the high-risk group (those who believed the landfill posed a high risk), home prices in that neighborhood decreased \$2,084 on average.

Property value declines have been found to result from perceived harms. For example, several researchers have suggested that waste facilities can create negative images of danger that have the potential to stigmatize an area's attractiveness for residential location or investment. In fact, the concern over the potential for stigma to occur because of the location of an unwanted facility or a hazardous waste shipment route could by itself adversely impact investment in the area. Researchers have argued that [1] high levels of perceived risk over potential groundwater contamination from a landfill resulted in serious losses to assessed values of properties near the site, and, [2] the awareness of a low-level radioactive waste site is directly attributable to adverse effects on property values.

Whether the site actually is hazardous is not important. What is relevant is that it is perceived as such and it is the perception of fear associated with the facility that becomes translated into the observed negative effects on property values. For a new waste facility, a negative effect on property values is likely to persist for some time into the future since the effects would have occurred as a result of the creation of a facility as opposed to the discovery of a problem from an existing facility.

These studies have called on the concept of stigma to explain the adverse price impacts of perceived risks. The conclusions support the contention that stigma may affect property values without real or observable contamination.

Further support for property value losses as a result of stigma comes from another study that found changes in the Houston housing market after the EPA disclosed local sites on the National Priorities List - a list of all Superfund sites in the United States. This study indicates that the announcements by EPA and ensuing publicity provoked a change in public perception whereby residents now viewed proximity to a toxic waste site as a disamenity. After the disclosures, housing prices decreased, but at smaller rates the further houses were from the sites, up to a distance of six miles. Interestingly, consumers failed to distinguish among site severity in their market responses and treated all sites as equally contaminated.

Even the cleanup of contaminated sites may have little effect on decreasing housing values. This has been observed even when the property is cleaned up to the full limits of available technology and the contaminants tested below EPA standards. Yet, buyers remain reluctant to purchase property in such an area. Cleanup alone was not observed to eliminate the value loss from perceptions of harm and future liability. Even with cleanup plans, property values near Superfund sites around Boston did not recover. However, there is some evidence that housing prices may rebound over time with cleanup measures. It appears that some diminishing selling prices may recover while others display little change, and there may be price gradients that relate land values to proximity to stigmatized areas.

A 1991 survey of major real estate lenders attempted to quantify lenders' perceptions of environmental risk and the degree to which these perceptions affect underwriting policy. The study found that less than 40% of banks would consider lending on a property contiguous to a parcel that was environmentally contaminated. For

properties with potential environmental problems, 66% of the banks would require additional indemnification from the borrower, 46% would consider adjusting the loan-to-value ratio, and 60% would require personal guarantees or some personal liability.

In a survey of changes in expectations of residential and commercial property values associated with nuclear waste transportation on a proposed bypass in Santa Fe County, New Mexico, over 70% of the sample population indicated that properties near the bypass would sell for less than comparable properties farther from the route. In addition, almost 60% indicated that under no conditions would they purchase residential properties near the proposed bypass. Another 20% identified conditions for home purchases including low purchase price, unambiguous demonstration of safety, and other risk reduction assurances. This case demonstrated that compensation was deemed necessary to counteract property-value damages resulting only from public concerns over safety and concerns over the economic impacts from stigma.

A contingent valuation survey of New Mexico residents examined whether people were willing to accept compensation for nuclear shipment routes through their state or whether they would pay to avoid such routes to the Waste Isolation Pilot Project (WIPP) site. The study found that a substantial number of people would reject the routing of such shipments and would require extreme compensation. The results also demonstrate that the closer people are to the proposed transport routes, the more willing they are to pay to avoid shipments of nuclear waste. The most negative valuations of proposed nuclear waste routes are associated with high-risk perceptions, especially among families with children, females, and households close to the proposed routes.

Other surveys have questioned residents about the actual routes proposed to transport nuclear waste. As part of the cleanup of the Hanford Reservation, a nuclear weapons production facility in the State of Washington, the DOE proposed to ship transuranic wastes to the WIPP facility in New Mexico. A survey of residents in four counties in Oregon through which the wastes would be transported revealed that approximately two-thirds of the population expressed serious concerns that nuclear waste shipments would produce harmful health and safety effects in their communities. The public associated negative images with nuclear waste shipments, associating the phrase "nuclear waste transport" with images of "danger."

Residents in the survey also believed that these shipments would cause adverse impacts on business development and other economic activities in areas along the transport route. For example, approximately 65% of the sample "strongly agreed" or "agreed" that such areas would likely be unattractive for tourism and business development. Their concern was that these routes would become stigmatized.

The results of this study suggest that home buying behavior in areas where nuclear waste shipments are proposed is likely to be influenced by proximity to the nuclear waste transportation route. Clearly the location of homes in relation to shipment routes would be important in buying decisions. For most persons, given that they are made aware of nuclear waste shipments, buying a home would be contingent on distances greater than at least three miles from such routes

### **3.4 Repository Effects on Tourism**

#### **3.4.1 Introduction**

Since 1970, 72% of Nevada's population growth has occurred in Clark County. Over the last decade, the population of Clark County has doubled from 661,900 to over 1.3 million, while Nevada's population has grown from approximately 1.1 million to 1.85 million

Since 1980, employment in Clark County has almost tripled, reaching 606,685 in 1998. Total personal income has grown almost six times from \$5,217,000,000 to over \$30,000,000,000. This growth has been largely fueled by increases in tourist visits that have grown from approximately 12 million visitors to almost 31 million in the same period. The number of visitors to Clark County grew by 3.1% in 1999. This increased gaming revenues by 4.5% in 1999 and a projected 4.9% in 2000.

Gaming revenues provide approximately 42% of the State of Nevada's tax base. This illustrates the continuing dominance of the tourism sector in Clark County's economy. Growth in this dynamic sector has fueled Nevada's population expansion and economic development over the last decade. The 31 million tourists who visited Clark County last year contributed almost \$25 billion to the local economy.

Sustaining the health of Clark County's tourism economy is critical to both the short and long term economic well being of both Clark County and the state of Nevada. Thus, it is critical to understand the context that links Clark County's tourism market to other regional and national markets. Further, it is important to understand the influence that the proposed repository-related transportation may have on this vital component of the economy. Previous studies have indicated that the tourism industry is particularly sensitive to changes in image, and nuclear waste evokes very strong negative images related to health and safety concerns.

In Clark County the tourism sector can be broken down into various subgroups which include the convention sector, non-gaming tourists, gaming tourists, and those tourists who use Las Vegas as a base for recreating in nearby places. Different internal and external factors as well as imagery influences each sector.

Areas that experience hazardous incidents may become less attractive and/or stigmatized which can negatively impact institutions. There are a number of examples of this phenomenon. A 1990 report in the New York Times highlighted a downturn in tourism that followed a 1990 subway shooting. Similar reductions in tourism were identified in Florida after a spate of tourist attacks. A 1976 outbreak of Legionnaire's Disease so devastated visitor rates at the Bellevue-Stratford Hotel in Philadelphia that it was forced to change its name. When medical wastes washed up on the shores of New York and New Jersey beaches in the summer of 1988, resulting losses to the tourism industry were forecast at \$1.5 billion.

In order to measure the impacts that the proposed transport of HLW may have on the local tourism economy, Clark County and the State of Nevada have undertaken a number of studies. These studies and others will be examined in this impact summary. Specific references are contained in the UER Report, cited in Section 3.1.

#### **3.4.2 Analogous Case Studies on Tourism**

Since the proposed Yucca Mountain repository is unique, there is no history of direct experience of determining impacts from a similar facility on tourism. Data from analogous experiences, however, can be utilized to assess likely impacts to Clark County's tourism from the transportation of nuclear waste to the proposed repository. Facilities and events, however, have been identified that can provide insight about the duration and range of potential impacts. These efforts have focused primarily on the use of case studies. Further, although they isolate the types of impacts that might occur to Clark County because of the repository, they were not designed to measure perceptions of risk and links to fiscal impacts on tourism. The following section will review the key studies that have been conducted of "analogous" impacts.

**Nevada Test Site.** One of the first studies to measure the potential impacts of the proposed repository on tourism was conducted for DOE in 1985. This study was designed to identify potential impacts from the proposed repository at Yucca Mountain on the tourism industry in Nevada and to identify additional research that was needed to assess these impacts. The basis of this report was the development of brief case studies that the researchers felt were analogous events. For example, they used the rapid economic growth of Las Vegas since 1951 to argue that the Nevada Test Site (NTS) did not have a significant impact on the tourism sector of the economy. However, this study did not attempt to evaluate what type, diversity and size of growth might have occurred in Clark County if the NTS site was not located nearby. In fact, another researcher found that no comprehensive studies have been conducted about the effects of the NTS on the Las Vegas visitor economy.

It has also been shown that subsequent to media reports about increased leukemia rates linked to the radioactive fallout emanating from the NTS, tourism and convention rates dropped in St. George, Utah. Media reporting on potential health effects of small events related to the transport of nuclear waste may in fact amplify

public concerns over health and safety. This could have serious adverse consequences for Clark County's tourism economy.

Additionally, the Nevada Test Site is part of the United States defense establishment. As such, perceptions about its acceptability are linked to values related to national security. In contrast, the Yucca Mountain repository has been proposed to solve a civilian waste problem. Public sentiment about the civilian use of nuclear power is clear. Since 1978, no new nuclear power plants have been ordered in the United States. Numerous studies document the public's opposition to a nuclear waste repository in Nevada and the extreme public concern about nuclear waste has been constant.

**Three Mile Island (TMI).** Researchers have attempted to analyze the impact of the 1979 accident at the Three-Mile Island (TMI) nuclear power plant near Harrisburg, Pennsylvania, on area tourism. The accident at TMI involved concerns over the release of radiation that amplified an already growing level of concern about nuclear power in general.

The analysis was based on a 1980 report prepared by the Commonwealth of Pennsylvania that found that in a 6-county area surrounding TMI that the convention and lodging industry suffered losses of \$5.0 million in the period just after the accident. The Commonwealth of Pennsylvania claimed that the reason for the downturn was "uncertain" and could have been the result of other factors including a slowdown in the economy, a gasoline shortage, and a local polio scare. The report also indicated that a survey of potential tourists found that 6% intended to avoid traveling to the Harrisburg area in the summer of 1979.

The study argued that the accident at TMI may have actually resulted in an increase in tourism to the area because the reported visits to the TMI visitor's center went up in the two years subsequent to the accident. Additionally, they argued that local business leaders had indicated to Commonwealth of Pennsylvania representatives that tourism "approached or attained" pre-TMI levels within one year after the accident.

What the report does not point out is that there was no long-term monitoring of the tourism impacts of the TMI accident. In fact, much of the report is anecdotal comment by representatives of the tourist industry who certainly did not want to stoke the negative press that accompanied the TMI accident.

**Nuclear Power Plants.** An NRC-sponsored study measured the impacts on tourism in Massachusetts, Florida, and New Jersey from a proposal to site floating nuclear power plants off the coast of a beach community. It was found that 23% to 27% of those interviewed stated that they would not return if a floating nuclear power plant were stationed offshore. This study also indicated that the level of impact decreased with distance from the proposed facilities. In a summary report of these findings, it was suggested that actual avoidance rates would likely be lower than those indicated by the survey.

In another study, it was shown that the rate of beach visits to State Parks in areas near three nuclear power plants in three states decreased in the period immediately after the plants came online. In the five years following nuclear power plants coming online, at Illinois Beach State Park, near the Zion nuclear power plant and Rocky Neck State Park, near Millstone, Connecticut, visitor rates remained below pre-plant commencement levels. Attendance at San Clemente State Park, California that had grown rapidly in the period immediately prior to the opening of the San Onofre nuclear power plant declined immediately after operations at the plant commenced.

These studies may not be directly analogous to the potential impacts of the proposed Yucca Mountain repository on Clark County's tourism sector since they focus on tourism based on a natural resource, i.e. a beach. In addition, the studies also are not directly associated with nuclear waste transport. However, studies have shown that concerns over nuclear waste transportation are far higher than those for other nuclear related factors. Thus, the studies cited here do support the contention that the tourism industry may be vulnerable for varying periods as the result of the nearby siting of a nuclear-related facility.

### 3.4.3 *Yucca Mountain Studies*

In addition to the analogous events approach described above to identify potential impacts a series of other investigations have been undertaken focused more specifically on the proposed Yucca Mountain's facility's impact on area tourism. These investigations include surveys to elicit behavioral intent, visitor decision modeling and one study that provides a provisional estimate of convention losses.

*Eliciting Behavioral Intent.* Since 1987, two surveys were conducted to gather information about the public's perception and attitudes towards the proposed repository at Yucca Mountain. One survey targeted Nevada residents while the other was national in scope. Each was designed to elicit potential behavioral changes if the repository were constructed. The survey questions examined issues related to retirement, family rearing, vacation preferences, convention attendance, and business relocation. The majority of respondents to both the Nevada and national surveys indicated that the repository would adversely impact the attractiveness of Nevada as a retirement area, a place to raise their family, locate a business or vacation. Close to one-half of the respondents also indicated the repository would negatively affect their decisions on attending a convention in Nevada. Again, these adverse impacts on tourism were found even under scenarios without incident.

Another study used a series of scenarios to determine the behavior of Clark County residents under different risk situations. Since it is uncertain how the repository will perform, this approach allows conditional assessments of likely behavior. The study sought to understand how two specific behaviors, outmigration and investments might be affected under a benign incident scenario, a moderate incident scenario and severe incident scenario. Under the benign scenario, 1% of the respondents indicated that their outmigration would increase. This soared to 79% under the severe scenario group. Willingness to invest in business among those who had reported that they "definitely" planned on investing in the local economy was lowered by 63% under the benign scenario and by as much as 76% under the severe scenario. Outmigration and reductions in investment in the local economy could be significantly deleterious to the many small service businesses that support the gaming industry.

A 1988 project surveyed a sub-sector of tourism visitors - convention planners. The survey targeted only those convention planners who had previously selected Las Vegas as a meeting site. Respondents were asked to reconsider their decision to site a convention or meeting under a variety of scenarios from benign to recurring accidents, and under varying media attention from scenarios that downplayed events to those that amplified incidents. This survey indicated that even if the repository ran without incident for 10 years, meeting planners would lower their ranking for conventions of Nevada by 30%. Additionally, 4% would not consider Las Vegas at all. Under a scenario of repeated accidents and amplified media coverage, almost half would not even consider Las Vegas for a convention. This survey clearly supports the contention that even under the most benign risk conditions, the visitor economy in Clark County is likely to be adversely affected by the proposed repository.

To further explore whether the proposed HLW repository program would influence the decision-making of convention attendees, a 1993 survey sampled 600 persons who had previously attended a convention held by one of six associations. They were queried about the factors that influence their decisions in relation to meeting attendance. They were also asked how various noxious facilities located within 100 miles of a meeting site might influence their decision. The noxious facilities included a prison, a nuclear power plant, a hazardous waste incinerator, a low-level radioactive waste repository, and a HLW repository.

Respondents indicated that a prison or a nuclear power plant within 100 miles would have only a minimal effect on their decision to attend a convention (less than 3.2%). Waste disposal facilities, however, created significantly more concern. Almost 6.5% indicated that the presence of a hazardous waste incinerator within 100 miles would "definitely" or "probably" negatively affect their decision to attend a convention. This grew to 10% when asked to consider the effect of a low-level radioactive waste facility and to almost one-fourth for a HLW facility. Clearly, the level of effect expressed about the location of a HLW repository was much higher than any other type of noxious facility cited. This indicates that the "analogous event" approach to estimating

impacts discussed earlier may not capture the extent of potential impacts of a HLW repository.

**Visitor Decision Modeling.** Another approach that has been taken to understand potential tourism impacts has been the testing of visitor decision-making. These approaches are based either on risk avoidance or negative imagery. Using the risk avoidance approach, researchers hypothesized that those living near the repository and along the transportation corridors leading to it would attempt to avoid the area if they believed that their health would be adversely affected. As part of the convention attendees' survey discussed above, respondents ranked whether various risk factors were "very important" when deciding whether to attend a convention. Respondents ranked crime rate, natural hazards and environmental hazards as "very important" by 26%, 12%, and 9%, respectively.

The survey results of convention attendees was also used to determine whether their reported concerns were predictive of their actual past behavior and future behavior. Respondents were asked to rank four cities on a series of factors including crime, natural hazards, and environmental hazards. Analysis of these results indicates that they are predictive of actual past conference attendance. For half of the six groups tested, at least one risk factor proved predictive of both past and future meeting attendance. The survey results support the contention that perceptions of risk associated with the transportation of spent fuel and HLW to the proposed repository at Yucca Mountain may translate into risk avoidance behavior that adversely impacts tourism.

In a study of over 3,000 respondents, it was found that an underground nuclear waste repository evoked a predominantly negative image among 40% of the respondents. Another study was done to assess images associated with various cities and states including Denver, Las Vegas, New Mexico and Nevada. Those surveyed were asked to rank the images in terms of positive or negative connotations that they provoked. These scores were then added to produce an image score for each place. These results were found to be positively correlated with identified preference for visiting these locales. Further, a longitudinal survey eighteen months later found that the image scores were predictive of visits to these locales. In similar research, it was found that an image score was "significantly related" to the likelihood that a respondent would actually attend a meeting in a specific city.

These studies indicate that if Las Vegas becomes associated in the public's mind with the proposed repository at Yucca Mountain that any negative incident linked to the repository could adversely influence tourism rates.

**Estimating Convention Losses Modeling.** In an attempt to address limitations identified with intended behavior research, researchers modified a model that forecasts the propensity of consumers to purchase goods using reported intent. This model was designed to [1] produce a first cut estimation of the proportion that will engage in a specific behavior based on intent, and, [2] measure the degree of bias in expressed intent versus actual behavior. The study indicated that even under the scenario of no incidents during repository construction, 12% to 36% of convention planners would choose somewhere other than Las Vegas to hold a convention. Under the scenario of multiple transportation accidents, the number of convention planners that would choose sites other than Las Vegas grows to between 47% to 80%. While these ranges are quite wide, they do indicate that the repository is likely to have some level of adverse impact on the tourism sector.

**Tourism Industry Concerns.** The most recent analysis of the potential impact on the areas tourist industry from the transportation of spent fuel and HLW to the proposed Yucca Mountains repository was a 1999 survey of Las Vegas Chamber of Commerce members. The respondents were asked to rank the level of impact on their economy, their business, and themselves under three scenarios related to the transport of spent fuel and other high-level radioactive wastes through Clark County to the repository. The three scenarios described progressively more severe transportation incidents.

Survey results indicate that even under the benign no-incident scenario, 43% of respondents from the tourist industry thought that the impacts would be moderate to significantly adverse on the tourism industry. The second scenario evoked a response of "significant impact" from almost two-thirds of the respondents from the

tourist industry. This level of concern grew to 83% under Scenario 3, even though no one was injured and the NRC determined that the level of release was minimal.

These results further the proposition that some level of adverse impact on tourism is possible from the proposed repository. While there is uncertainty as to the performance of the proposed repository that prohibits a specific impact assessment, it is clear that the tourist industry expects that there will be an adverse impact at some level.

#### **3.4.4 Conclusions Regarding Repository Effects on Tourism**

To date, none of the studies that have been done can firmly establish the nature and size of adverse impacts to Clark County's tourism industry that may likely be attributed to the proposed Yucca Mountain repository. However, they certainly indicate that adverse impacts may occur even under no incident conditions. This supports the contention by Clark County and the State of Nevada that such impacts must be carefully analyzed and incorporated into any decision process on whether to construct the proposed repository at Yucca Mountain, Nevada. In the face of the growing national competition in the gaming industry, negative images of Las Vegas due to the nuclear waste program could have a highly negative impact on tourism in Clark County. In fact, the Chamber of Commerce survey indicates that business leaders within the tourism industry do expect an adverse impact under the most benign scenario of no incidents.

It is clear from the studies that Clark County's tourism industry is highly vulnerable to the proposed nuclear waste repository and, especially, the transportation of nuclear waste through the Clark County. The convention visitor economy is particularly sensitive to images of place and the repository evokes seriously negative images. The studies, in aggregate, show the dangers of a serious downturn in tourist visitation, even without the occurrence of a release. With the critical role of tourism in the Nevada economy, even a minor shift to another location may result in a significant adverse impact on the county and state economies.

#### **3.5 Effects of the Repository and Transportation on the Desert Tortoise**

The Clark County Desert Conservation Plan is administered by the Environmental Division of the Department of Comprehensive Planning. The Environmental Division, the scientific community and other stakeholders are deeply concerned about any activity that may threaten the species' survival in the wild and its recoverability. Comments<sup>1</sup> submitted by the Environmental Division reflects the opinions regarding potential impacts on the desert tortoise of conservation and biological experts.

This group pointed out the insufficiency of the DEIS due to the lack of consideration of the well-being of the desert tortoise during various phases of repository construction, operation, monitoring and closure. Potential effects on the desert tortoise due to transportation by rail or highway were also discussed. A copy of this document is included to this report as Attachment A and is incorporated by reference to the present comments.

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<sup>1</sup> Cannon Center for Survey Research. *Quality of Life in Las Vegas*. Report. City of Las Vegas, Nevada, 1999.

<sup>2</sup> Urban Environmental Research. *Baseline Information and Community Perspective on Potential Repository Impacts on Clark County*. Report. Clark County Nuclear Waste Division, December 1999.

<sup>3</sup> The White House. *Building Livable Communities: A Report from the Clinton-Gore Administration*. Washington, D.C. June 1999.

<sup>4</sup> University of Nevada, Las Vegas, 1988. *Public Opinion in Nevada*

## 4.0 YUCCA MOUNTAIN SITE-RELATED IMPACTS

*Primary Reference:* DEIS Chapters 3, 4, 5; Appendix A

### ***Major Points of This Chapter:***

- The disposal canister design evaluated in the DEIS is no longer being considered for license application. It is Clark County's contention that the difference in design is significant enough to invalidate the long-term (10,000 year) performance assessment given in the DEIS. The final EIS should be based on a design that is the same as the one DOE plans to use for license application.
- The spent fuel inventory and characteristics given in the DEIS do not accurately represent the spent fuel that the DOE will receive. The final EIS should include an up to date inventory and analysis of the spent fuel that is generated, with due consideration being given to the effect of higher burnup ratios.
- In view of the disposal of chemically toxic materials considered for the repository, RCRA regulations should apply.
- Saturated Zone data, away from the immediate vicinity of Yucca Mountain, is inadequate. Expert elicitation is not a substitute for data collection. The final EIS should include adequate data for the Saturated Zone, not only in the vicinity of Yucca Mountain, but out to the compliance boundary being considered by the EPA. If this boundary is not fixed by the time the final EIS is issued then the DOE should, as a minimum, have adequate saturated zone data to defend any assumptions that are made regarding the saturated zone.
- Attachment B of these comments provides documentation for each of the summary comments contained in this chapter.

### **4.1 Introduction**

This section provides Clark County comments that focus primarily on DEIS analyses of environmental consequences of long-term repository performance. Clark County has provided commentary both on general issues and specific sections of the DEIS. A number of these issues have been previously addressed by Clark County in a contractor report, *Review of the Total System Performance Assessment in the U.S. Department of Energy Viability Assessment for the Yucca Mountain Site* (S. Cohen & Associates, March 28, 1999). This report is incorporated by reference into Clark County's present DEIS comments. Specific findings will be cited that relate to the sufficiency of the DEIS. A copy of this report is included with these comments as Attachment B.

### **4.2 General Issues**

#### ***4.2.1 Non-Compliance with Legal Standards***

The Nuclear Waste Policy Act, As Amended, and codified in 42 U.S.C. 10101ff. defines high-level radioactive waste [HLW] as "requiring permanent isolation." "Barrier" is defined as "preventing release." 42 U.S.C. 10197 provides that while Yucca Mountain is being studied geologically, additional studies shall be performed in order to seek some combination of natural barriers and man-made barriers which, taken together as one "system," could assure Americans that HLW would be "isolated from the biosphere." Geologic findings by DOE in 1998 and 1999 demonstrated that no permanent isolation is possible under existing standards, and no engineered barrier is capable of preventing release of irradiated gases and water into the biosphere outside the site.<sup>1</sup>

Given these legal definitions and requirements and the geologic findings, *the DOE is legally obligated to declare the site unsuitable*. Either a different site, capable of permanent isolation, should be chosen, or some other definition of HLW should be created in Congress, by which this lethal burden would receive some other appropriate treatment.

#### **4.2.2 Failure to Address Human Error in Repository Operation, Monitoring and Closure**

Under NWPA provisions, any model or plan devised to illuminate, explain or predict any portion of site performance to be tested under actual conditions (or by extrapolation from well-corroborated knowledge) for seismic, hydrologic, and human intrusion scenarios. However, there is no requirement for investigating the potential for human error, the single largest historical contributory factor for accidents or incidents at DOE nuclear and weapons facilities and civilian nuclear power plants. This factor is completely ignored in the DEIS for any stage of repository construction, operation, monitoring and closure.

DOE must, therefore, initiate a full study of potential effects of human performance and error on repository operations, from construction to closure. Modeling simulations and probability estimates must be performed for every job assignment at each of these stages. These assignments may include loading and unloading of casks at points of departure and arrival, loading into the site, transporting the casks, operating monitoring equipment, administering quality assurance procedures, and so on. This is necessary to plausibly examine the probability and severity of consequences of human error that may lead to situations that may have environmental, economic, or public health and safety impacts.

### **4.3 Specific Comments Regarding Site-Related Impacts**

#### **4.3.1 Inventory and Characterization of Spent Fuel**

DEIS Table A-2 indicates that a total of 4.5 billion curies (Ci) were used for the proposed action. It is our understanding that the total number of Ci to be disposed of in the form of spent fuel range from approximately 11 billion Ci up to 19.3 billion Ci<sup>2</sup>. The documentation available in the DEIS is lacking in a clear and transparent rationale regarding the cause of this reduction from 11E9Ci's to 4.5 billion Ci and what scientific rationale was employed to validate this reduction.

Table A-5, *Typical Spent Nuclear Fuel Parameters*, and A-6, *Proposed Action Spent Nuclear Fuel Inventory*, represent the total inventory and age of spent fuel for the proposed action. However, in its analysis, DOE has neglected a change in industry practice that has significant impacts on the fuel that will be discharged in the future. This is the higher megawatt days per metric ton of heavy metal (MWD's per MTHM) criteria that is becoming more common in industry operation. The analysis given for the proposed action represents neither the thermal output nor the isotopic composition of the spent fuel that will be discharged from reactors in the future. The final EIS therefore needs to update the inventory and characterization of the spent fuel that is being considered for disposal.

The tables giving the radionuclide inventory (A-8 and A-9) both consider fuel that has had a decay time of ~25 years and has lower burnup than current industry practice. If younger spent fuel (See comments on Section 2.7) with a higher burn up rate is used, the number of Ci slated for disposal will have been underestimated.

#### **4.3.2 Thermal Output**

Much more significant to repository performance is the higher thermal output of the higher burnup and younger fuel. The DOE is now considering a repository design that includes drip shields and backfill. Neither of these options were fully analyzed in the DEIS. The effect of the addition of these two design options, is not only to decrease thermal conductivity near the disposal cask (by an amount that has not been considered in the DEIS), but also to change the temperature gradients in the vicinity of the cask. The effect of this has also not been analyzed in the DEIS.

### **4.3.3 Disposal Cask**

The modifications contemplated by the DOE for the license application design include a significant change in materials for the disposal cask. Again, no attempt has been made in the DEIS to evaluate this effect, nor to look at possible manufacturing problems that could be encountered. These would not only affect the ultimate lifetime of the casks, but would also impact the rate and timing of juvenile failures.

## **4.4 Environmental Consequences of Long-Term Repository Performance**

Clark County is concerned that the significant changes currently contemplated for the license application design are significant enough to totally invalidate the performance assessment calculations used in the DEIS. It is our contention that the final EIS must include an updated and valid analysis of long-term repository performance. The current TSPA in the DEIS, which is unchanged, in any significant manner, from that given in the Viability Assessment is outdated and no longer valid. The DEIS, if published in its current form, is no longer of any use as a decision document.

In discussing the effect of chemically toxic materials, DOE made the statement that organic materials (additions to the concrete) "could break down completely in response to exposure to high radiation fields for 100 years or more before closure." Does this mean that all of the repository will be open for a minimum of 100 years. In addition if there are high radiation fields, why is radiolysis ignored in the performance assessment calculations?

In Section 5.6, the DEIS presented consequences from chemically toxic materials. One of the elements considered in this analysis is chromium. The amount of chromium considered has been grossly underestimated since the design that the DOE is currently contemplating as the license application design uses stainless steel, instead of carbon steel as one of the barriers. In view of this, we feel DOE must consider whether RCRA regulations apply to the repository. If DOE feels that such regulations do not apply, they must provide rationale to support this position.

Section 5.2.3.4 discusses reductions in the concentration of radionuclides during their movement in the unsaturated and saturated zone. Statements are made to the effect that sorption would decrease the amount of radionuclides that are expected to reach the accessible environment. These statements are repeated in section I.3.1.1 for selected isotopes. No data are given to support this assertion and to show that certain radionuclides, will in fact sorb in the Yucca Mountain environment. Without actual data collected in the actual environment of the radionuclides, this assertion is unsubstantiated. The section regarding isotopes selected for long term performance should be completely rewritten and all statements regarding sorption should be backed up by data collected under conditions that are equivalent to the environment that the radionuclides will actually encounter if the repository at Yucca Mountain were constructed.

The scaling factor used for calculating the doses to the general population in Sections 5.4.1 to 5.4.3 is of concern to Clark County. It seems simplistic to dilute the radionuclide concentrations by the total amount of water usage in the Amargosa Valley. Does the Department of Energy have data that show that the flow field is so homogenous that this is valid. If, as the TSPA analysis uses, the system is dominated by stream tubes, how can this possibly be valid? What data will there be in the EIS to substantiate these assertions?

### **4.4.1 Conclusions About Long Term Repository Performance Based on the Total System Performance Assessment [TSPA]**

The DOE's analysis of long term environmental consequences, as presented in the DEIS, suffers from the same shortcomings that were found in the performance assessment for the Viability Assessment [VA]. In that document, DOE stated that the TSPA-VA methodology and information base constitute a snapshot in an evolutionary process that leads potentially to a finding that Yucca Mountain is suitable as a disposal site. Such a finding of suitability would then lead to license application to NRC. However, further development of TSPA methodology and data will be needed for a TSPA with enough substance to support a license application.

The DEIS analysis of long-term environmental effects is based largely on TSPA findings. In view of this, we have summarized the principal findings of the Clark County contractor review of the TSPA in order to demonstrate the inadequacy of the DEIS results as an appropriate indicator of long-term consequences.

The following comments are taken directly from the Clark County contractor report, *Review of the Total System Performance Assessment in the U.S. Department of Energy Viability Assessment for the Yucca Mountain Site*, S. Cohen & Associates, March 28, 1999).

#### *Documentation and Computer Codes*

- Some portions of the VA documentation did not meet DOE's objective to be clear and comprehensive in its description of TSPA-VA methodology, assumptions, and use of information. The VA provided only a limited description of the TSPA-VA computer codes and their use, and discussions of performance factors in the chapters of the Technical Basis Document were complex.

#### *Modeling Assumptions and Performance Parameters*

- DOE's selection of values for performance parameters was often based on limited data or recommendations from expert elicitations that were conducted in lieu of data. In some cases, such as waste package wall material corrosion rates (discussed in Attachment B), the base-case expected values used may not adequately represent the potential for radionuclide release and transport.
- DOE often selected features for TSPA-VA models that would produce high values for radionuclide release and transport. For example, it was assumed that the entire surface of the waste package is wetted when dripped on, that all seepage that contacts a package enters the package when the wall is penetrated, and that all of the waste form is exposed in a fuel rod with breached cladding.
- Some performance factors that could contribute to repository system performance, such as in-package dilution, were omitted from the TSPA-VA codes because the basis for characterizing performance parameter values was uncertain.
- A key feature of the models and computer codes used for the TSPA-VA analyses was uncoupling of thermal, hydrologic, chemical and mechanical phenomena that are known to be coupled. Coupled effects may be important to performance of a repository with the temperature and heat-load characteristics assumed for the TSPA-VA analyses, but the characteristics of coupling and their effects, and the effect of model uncoupling on the reliability of the TSPA-VA results, are uncertain.

#### *Modeling Uncertainties and Data Sufficiency*

- At this stage of the process toward evaluation of the suitability of the Yucca Mountain site for disposal, there were data deficiencies which limit confidence in some of the models used in the evaluations and in some of the parameter values used in the models.
- The results of the TSPA-VA evaluations also contain uncertainties associated with modeling of thermal hydrology, which is concerned with the effects of repository temperatures and heat loads on the characteristics of the rocks and hydrologic regime surrounding the emplacement drifts. At present, the data basis for this modeling is limited, and the validity of the models is uncertain. The TSPA-VA assumed that thermal hydrologic processes are short-lived and do not permanently alter the hydrologic regime. Current information is insufficient to know if this is conservative or not. Thermal hydrology is discussed in Attachment B of these comments.
- The 10,000-year base-case dose-rate evaluation results, 0.04 mrem/yr, are principally dependent on assumptions concerning early failure of a waste package at 1,000 years and a climate change, which doubles the precipitation rate and causes an 80-meter rise in the water table, at 5,000 years. In the TSPA-

VA models, assumptions concerning juvenile waste package failure and climate primarily affect the rate of seepage of water into the repository and the magnitude of the radionuclide source term.

- Use of conventional uncertainty characterization techniques showed that uncertainties in the base-case expected dose results span four to five orders of magnitude. This result is associated with the large number of parameters that have uncertainty ranges, either as a result of inherent, natural variability or as a result of current data uncertainties, including those resulting from lack of data.
- Overall, there is great "uncertainty in the uncertainty" associated with the TSPA-VA results. Uncertainty is present because of the many performance parameters that are genuinely variable and uncertain; because of uncertainty ranges assigned to parameters with limited data bases; and because of uncertainty ranges assigned to parameters that cannot have an experimental data basis, such as the number of juvenile waste package failures and future climate conditions. Uncertainty which cannot be explicitly characterized is also present in the TSPA-VA results because of uncertainty that the models used are appropriate and sufficient representations of actual conditions (e.g., uncertainties associated with uncoupling, in the models, of coupled phenomena). Experiments concerning the sensitivity of uncertainty to its various sources in TSPA evaluations might be done by running the computer codes with alternative models and parameter-value distributions.

#### *Assumptions Regarding the Natural and Engineered Barrier Systems*

- The natural barrier system was assumed to make no contribution to repository system base-case performance except for dilution of radionuclide concentrations by a factor of 10 during transit of the saturated zone. The burden for repository system performance was therefore placed on engineered features of the system, i.e., waste package wall corrosion resistance and cladding integrity.
- The TSPA-VA evaluations took credit for performance of cladding as an engineered barrier, but made assumptions that would tend to produce high values for release of radionuclides from the waste form. Such assumptions are concerned with the number of spent fuel rods with breached cladding, the exposed waste form area for each rod with breached cladding, and release of radionuclides with limited solubility, such as Np-237, from the waste form.
- For Tc-99 and I-129 (which are highly soluble, move with the ground water, and were found to be the only species to contribute to the 10,000-year dose rate), the assumption that natural system features contribute only limited dilution in the saturated zone to performance is realistic. The assumption is conservative for long-term dose rates, i.e., for 50,000 years and beyond, which are dominated by Np-237 and Pu-242, and for which some performance contributions from the natural system may be expected as a result of sorption on rock surfaces and the radionuclides' limited solubilities.

#### *Waste Package*

- DOE's selections of corrosion rate values for the waste-package Corrosion Allowance Material (A516 carbon steel) may not adequately represent the corrosion-rate potential because they do not account for the effects of drip velocity, and formation of salts and chlorides. Similarly, the corrosion rates for the Corrosion Resistant Material, Alloy 22, may not adequately account for adverse crevice-corrosion conditions. Corrosion rates are discussed in Attachment B.
- The VA waste-package design is not an effective defense-in-depth design. Design options such as use of drip shields that were considered in the VA but not used in the TSPA-VA design have potential to significantly improve repository system performance.
- As acknowledged by DOE, the TSPA-VA methodologies and information base are not adequate to produce results suitable for licensing reviews. They are, however, significant improvements over previous TSPA evaluations, and they are close to the status required for licensing reviews. Improvements needed for

licensing would include revision or refinement of model details, revision of parameter values as a result of data additions, and improvement of the quality-assurance basis for models, computer codes, and data. The results of TSPA evaluations for licensing reviews will, as demonstrated by the TSPA-VA results, depend strongly on the repository design features (e.g., waste package design and thermal loading) selected for licensing.

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## REFERENCES

*Review of the Total System Performance Assessment in the U.S. Department of Energy Viability Assessment for the Yucca Mountain Site*, S. Cohen & Associates, March 28, 1999).

<sup>1</sup> TRW Environmental Safety Systems Inc. *Total System Performance Assessment – Viability Assessment (TSPA-VA) Analysis*. Prepared for U.S. Department of Energy Yucca Mountain Site Characterization Office. November 1998

<sup>2</sup> Wymer, R.G. and A.C. Campbell. *Chemistry in the Proposed Yucca Mountain Repository Near Field*. January 2000.

## 5.0 TRANSPORTATION AND PUBLIC SAFETY IMPACTS

*Primary Reference:* DEIS Chapters 3, 6; Appendix J

### ***Major Points of This Chapter:***

- Assumptions and methodologies are inadequate or inappropriate for identification and analyses of impacts on the transportation system of Clark County.
- There were no estimates of the costs necessary to mitigate the impacts of emergency planning, response, evacuation and cleanup. This approach does not conform to best practice in the field of impact assessment.
- The DEIS did not establish a basis for mitigation negotiations since it did not assign specific roles and responsibilities for actions that cause impacts or ameliorate impacts.
- The DEIS used outdated databases, geographic data files, and inaccurate or misleading maps to support the conclusions of the transportation, health effects and public safety analyses.
- Section 5.3 contains very specific comments regarding DEIS description and analyses of transportation-related impacts in a number of areas, including public health and safety, transportation system, and socio-economic conditions. This section also addresses impacts on public safety programs and need for information for mitigation planning. Full exposition of these comments is contained in Attachment C of this document, as is a listing of sources consulted.
- Section 5.4 contains comments and NEPA Citations regarding specific DEIS statements about transportation and public safety.

### 5.1 Introduction

This section describes problems in the areas of transportation and public safety identified by Clark County in its review of the Yucca Mountain DEIS. There are substantive problems with the DEIS in both the areas of completeness and sufficiency. A careful review of the document reveals that despite the thoroughness with which some of the necessary information has been collected, there is very little analysis and interpretation of the information.

DOE's Yucca Mountain Program has been substantively criticized over a long period. These criticisms (notably in the comments to the 1986 Environmental Assessment and the Waste Management Programmatic EIS) led the DOE to indicate that the Yucca Mountain EIS would address issues raised in the past. These criticisms have not been addressed by the DEIS. New concerns have been raised by the DEIS' inadequacies.

This section describes Clark County's major concerns with the DEIS as they relate to transportation and public safety. In Section 5.2, we present and discuss a number of broad-based, or crosscutting, issues that are not directly related to any specific transportation impact. Section 5.2 contains a summary and a brief discussion of impact areas of primary concern to Clark County. Section 5.3 provides our comments regarding the completeness, sufficiency and NEPA compliance of specific statements in the DEIS regarding transportation.

Supporting information and documentation regarding the above commentary is contained in Attachment C of this document, *Clark County, Nevada Transportation Comments on U.S. Department of Energy's Draft 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*. This attachment is incorporated by reference to the Clark County DEIS comments and contains extended discussions of transportation-related issues related to the DEIS and of importance to Clark County.

## **5.2 Crosscutting Issues Regarding Transportation Sections of the DEIS**

### **5.2.1 *Insufficient DEIS Policy, Strategies and Methodology***

In preparing the DEIS, the DOE made certain assumptions and adopted procedures that had a strong influence in the approach and findings of the DEIS. These assumptions and procedures are described here as crosscutting issues. Although they do not specifically apply to each concern, they are identified here as problems that affect many portions of the DEIS, including the transportation sections.

The DOE adopted an unorthodox strategy in preparing the DEIS. Ignoring thirty years of best practice in the preparation of environmental impact statements, DOE chose to adopt the narrowest possible definition of an EIS and its purpose. In doing this, the DOE ensured that it found no impacts. The transportation analysis is typical of this approach. For example, the DEIS did not study traffic impacts that are normally considered in an EIS, choosing to base the estimation of transportation impacts solely on the risk of population and worker exposure to radiation. Congestion, lane widths, shoulder widths, peak hour traffic, roadbed conditions, and other conventional measures of traffic impacts were ignored. By narrowing the range of impacts studied, DOE made certain that the DEIS would identify no substantive transportation impacts.

Another example is found in the public health sections. By insisting that the DEIS is not an emergency planning document, the DOE avoided preparing any estimates of the costs necessary to mitigate the impacts of emergency planning, response, evacuation and cleanup. This approach is consistent with other DOE impact assessments (notably the Nevada Test Site EIS), but does not conform to best practice in the field of impact assessment. While this approach may have facilitated speedy preparation of the DEIS, it did not result in a thorough analysis of the impacts of the program and violates the letter and spirit of NEPA.

The purpose of an EIS is to establish a basis for mitigation negotiations. To achieve this goal, an EIS must assign specific roles and responsibilities for actions that cause impacts and for those that ameliorate impacts. This was not achieved in the DEIS. For example, the DEIS failed to provide this information regarding an implementing alternative for transportation routing. At a minimum, it should have provided a specific schedule for the construction of a route to Yucca Mountain, and defined specific agency responsibilities for constructing, maintaining and operating the route to Yucca Mountain. None of this has been accomplished, and in view of these omissions, Clark County and other affected jurisdictions do not have sufficient information necessary to effectively understand effects and negotiate mitigation.

There is an increased interest in risk assessment methodologies that better characterize and quantify uncertainty. The National Academy of Sciences has stated that, "Whenever possible, (upper bound potency estimates) should be supplemented with other descriptions of cancer potency that might more adequately reflect the uncertainty associated with the estimates." The National Research Council has made a similar call for a characterization of uncertainty. However, the estimates in the DEIS were presented as authoritative statements of risk, and the high degree of uncertainty in the estimates was left unstated. In order for the DEIS to have credibility with the public and policymakers, the DOE should have pursued an assessment strategy that addressed uncertainty rather than ignored it.

The quality of the report is flawed in fundamental ways. Sources cited by the report in Chapter 6 refer to reports that assumed the use of a Multi-Purpose Canister (MPC) system. The DOE has abandoned the MPC system as unworkable. Despite this, the DEIS uses references about the MPC design to support its conclusions even though they are not relevant for the proposed action described by the DEIS.

### **5.2.2 *Use of Outdated and Inadequate Databases and Maps***

In many cases, use of databases to support the conclusions of the report is also questionable. A major example of this is the reliance on 1990 Census data to estimate the health effects of transporting spent fuel. Detailed comments later in this report describe the seriousness of this underestimate.

Other databases are similarly flawed. In 1998, Clark County received geographic data files from DOE that were being used for the proposed implementing alternatives through Nevada to Yucca Mountain. Cartographers from Clark County's Geographic Information Systems Department found that the files provided by the DOE incorrectly located major transportation features (e.g., Interstate 15).

Maps presented in the DEIS are also fundamentally misleading. No national routes are depicted in the report. Many of the people who are most affected by the program, therefore, will not be aware of the impact based on the report's contents. Maps in the DEIS fail to depict urban Clark County properly since they give the incorrect impression that a route using the beltway does not pass near urban Clark County. These maps also depict Las Vegas as a point, without illustrating the great expanse of urbanized Clark County. All of these concerns contribute to the impression that the report was prepared disregarding the most basic research standards and current information.

### **5.3 Transportation and Public Safety Concerns of Clark County**

This section of the report summarizes Clark County's major concerns in the areas of transportation and public safety. While this is not a definitive list, it was developed after a careful review of the DEIS. Should more issues be raised during the comment period and beyond, Clark County will submit these immediately for DOE consideration. We have summarized the issues here and provided more detailed for each of these points in Attachment C.

#### ***Transportation Issues:***

- DOE has proposed an unprecedented program of waste transportation in the DEIS. However, the record of previous transportation shipping campaigns is not encouraging. The DEIS should have provided a forecast of likely accidents.
- The DEIS is insufficient because it does not present any information about the operation of the transportation system. In other documents, DOE identified the following components of a transportation system: Design, Development, Certification, Testing, Acquisition, Operation of all necessary transportation equipment and services. By failing to describe these critical system components, DOE has failed to provide a credible EIS that assigns responsibilities and provides sufficient information to negotiate mitigation.
- The assessment of the risks of transporting spent fuel is not credible because the equipment proposed to transport and handle the waste does not exist. One of the reference materials provided in the DEIS indicate that no actual equipment exists for transporting, storing and handling the spent nuclear fuel. There are only "preliminary sketches" of the equipment.
- The DEIS analyzed no specific route through Nevada to the proposed Yucca Mountain facility. At a minimum, the DEIS should have described the process of selecting an implementing alternative. In 1995, the DOE reported that route evaluation criteria for the various transportation routes would be described in the DEIS. Nowhere does the document provide any description of how and why the DEIS will select the route evaluation criteria, how and when they will be applied and when the final route decision will be made. This is especially important in light of the DOE's decision to list the "Chalk-Mountain" route as non-preferred because of the objections of the Air Force. The DOE must explain why the Air Force was effectively granted veto authority over routes through Nevada.
- The DEIS assumes a single route strategy for national transportation. There is no comparison of truck or rail alternatives, e.g., for the current regulations and for an alternative strategy.
- The DEIS did not describe the volumes of waste that may travel on each highway or rail route.

- The DEIS did not analyze the full range of modal alternatives. Specifically, it failed to analyze the risks of heavy haul transportation, despite the DOE proposal to use such transportation on congested freeways through densely urbanized areas of northern and western Las Vegas.
- The DEIS should have indicated how human health risk will enter into decision-making. Based on the contents of the DEIS, risk assessment is not a worthy decision-making criterion. A comparison with the Generic EIS prepared by the Nuclear Regulatory Commission (NRC) for the licensing of nuclear power plants is instructive because it highlights the methodological inconsistencies in transportation risk assessment. The DEIS should explain how risk will be used and how it can be compared. The DEIS provides no basis for comparing routes within Nevada.
- The DEIS failed to examine the likely interaction of the Yucca Mountain Program and other federal activities in Nevada. For example, while Clark County is in non-attainment for National Ambient Air Quality Standards (NAAQS), the DEIS did not mention the potential impact of the addition of heavy haul or legal weight trucks into the transportation system. In addition, the DEIS did not analyze the effects that construction of the heavy haul infrastructure improvements or a rail line would have on the Regional Transportation Plan of Clark County.
- The DEIS grossly understated the human health risk of transporting spent fuel by using 1990 Census data. The population has almost doubled since 1990 and will increase by a further large percentage should shipments of waste be initiated in 2010.
- The DEIS failed to address the impacts on the Clark County transportation system that would be caused by program operations. For example, what would be the effect on traffic of a 300-foot long convoy carrying spent fuel, moving along a highly congested freeway at low speeds four times a day for 24 years? The DEIS is silent on the most likely and reasonable impacts of the transportation program.
- The software used to analyze transportation risk in the DEIS was RADTRAN version 4.019. Extensive criticism of RADTRAN has been made in other venues. Although courts have allowed RADTRAN analysis of risk, the many shortcomings of this approach should have been examined in the DEIS. In particular, the DEIS should have provided the full RADTRAN outputs and interpreted their meaning. A portion of these outputs would have been the decontamination costs should an accident occur.
- The DEIS examined only the problem of transporting 25 year old spent fuel. It is likely that younger, more radioactive fuel will be shipped to the Yucca Mountain facility. The DEIS should have examined this likelihood by bounding its analysis between 10 year and 25 year old spent fuel.

#### ***Public Safety***

- Congress has directed that localities affected by the Yucca Mountain Program be provided with funding to prepare emergency management assets for the program. The DEIS should have examined the institutional arrangements necessary to provide emergency response assistance to affected localities. The DEIS should have assigned specific roles and responsibilities for various federal agencies (such as the Federal Emergency Management Agency).
  - Of critical concern when examining the impacts of spent fuel transportation is the impact of a likely accident. The DEIS is insufficient because it failed to provide a clear description of the Maximum Reasonably Foreseeable Accident (MRFA). It did not analyze the costs to mitigate that accident or examine the cost to recover from that accident. It also failed to describe the preparedness activities, equipment, personnel, and facilities necessary to prevent, respond to or repair the effects of an accident.
- There are serious impediments to local government response to transportation incidents. Mutual aid agreements among Nevada jurisdictions are inconsistent and do not cover many safety areas other than fire. While the DEIS indicated that emergency preparedness is an impact area, it did not address plans or strategies that are needed

by local governments. In order to enhance public safety and provide detail for program planning, any mitigation plan must address the issues of:

- Interagency communication and institutional arrangements among DOE, the State of Nevada and local governments;
  - Interagency communication and institutional arrangements among local governments and jurisdictions;
  - Incident command;
  - Response procedures;
  - Evacuation planning and procedures in the unique resort setting of Clark County;
  - Radiological monitoring;
  - Emergency medical procedures;
  - Use of communications systems;
  - Information management technology;
  - Mitigation strategies;
  - Planning exercise design, and,
  - Transportation safety.
- The DEIS does not identify either public safety needs nor does it identify the large amount of equipment needed by emergency medical services to respond to an incident.
- The DEIS failed to consider local and regional conditions with regard to communication among agencies in emergency situations. Any discussion of mitigation, support or compensation must address the development and maintenance of an adequate communication system for a transportation incident involving radioactive waste. The system must include such aspects as area of coverage, interagency arrangements, and backup systems.
- The DEIS failed to credibly address problems of security and terrorism. The only discussion of the issue was confined to the cursory refutation of arguments made by the State of Nevada. No discussion of eco-terrorism, civil disobedience, or the diversion of military equipment was included.
- Despite overwhelming evidence and fifteen years of commentary, the DEIS did not address the potential effects of human factors and institutional arrangements on transportation safety. The DOE has ignored the most likely cause of a catastrophic transportation accident.

#### **5.4 Clark County Comments and NEPA Citations Regarding Specific DEIS Statements: Transportation and Public Safety**

*See Section 2.2.1.*

**DEIS Statement (pg. 2-1)** - DOE has developed the information about the potential environmental impacts that could result from either the Proposed Action or the No-Action Alternative to inform the Secretary of Energy's determination whether to recommend Yucca Mountain as the site of this Nation's first monitored geologic repository for spent nuclear fuel and high-level radioactive waste.

**Clark County Comment** - DOE believes that it has supplied sufficient data "regarding basic approaches" to transportation and that specific selection studies can be done later. The generalized information in the DEIS does not allow any community to adequately assess impacts nor design mitigation strategies. *NEPA Regulation: Sec. 1502.14 Alternatives including the proposed action; Sec. 1502.22 Incomplete or unavailable information*

**DEIS Statement (pg. 2-1)** - Although it is uncertain at this time when DOE would make any transportation-related decisions, DOE believes that the EIS provides the information necessary to make decisions regarding the basic approaches (for example, mostly rail or mostly truck shipments), as well as the choice among alternative transportation corridors. However, follow-on implementing decisions, such as the selection of a specific rail alignment within a corridor, or the specific location of an intermodal transfer station or the need to

upgrade the associated heavy-haul routes, would require additional field surveys, state and local government consultations, environmental and engineering analyses, and National Environmental Policy Act reviews.

**Clark County Comment** - Unless DOE is proposing to consider construction of major new sections of the transportation routes, this document is inadequate because it does not provide detailed impacts but instead general, aggregated data. The existing rail and highway system, however, are fixed and DOE should have provided detailed data. Without such data about the alignment of the transportation routes, the impact analysis section is incomplete and meaningless. *NEPA Regulation: Sec. 1502.22 Incomplete or unavailable information.*

**DEIS Statement (pg. 2-9)** - The national transportation scenarios evaluated in this EIS encompass the transportation options or modes (legal-weight truck and rail) that are practical for DOE to use to ship spent nuclear fuel and high-level radioactive waste from the commercial and DOE sites to the Yucca Mountain site. 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. Therefore, the EIS evaluated two national transportation scenarios (mostly legal-weight and mostly rail) that cover the possible range of transportation impacts to human health and environment.

**Clark County Comment** - The DEIS used two scenarios (mostly rail and mostly truck) to analyze transportation impacts. These scenarios should have had a fully detailed impact analysis associated with each segment of the transportation corridor. *NEPA Regulation: Sec. 1502.14 Alternatives including the proposed action; Sec. 1502.22 Incomplete or unavailable information*

**DEIS Statement (pg. 2-38)** - The DEIS assumes that, at the time of shipment, the spent nuclear fuel and high-level radioactive waste would be in a form that met approved acceptance and disposal criteria for the repository.

**Clark County Comment** - The DEIS did not delineate how or who will be responsible for ensuring that the material to be disposed of is in approved form. *NEPA Regulation: Sec. 1502.1 Purpose; Sec. 1502.16 Environmental consequences*

**DEIS Statement (pg. 2-40) 2.1.3.2** - DOE has developed TRANSCOM, a satellite-based transportation tracking and communications system, to track current truck and rail shipments. Using the TRANSCOM system, DOE would monitor shipments of spent nuclear fuel and high-level radioactive waste to the repository at frequent intervals. This or a similar system could provide users (for example, DOE, the Nuclear Regulatory Commission, and state and tribal governments) with information about shipments to the repository and would enable communication between the vehicle operators and a central communication station.

**Clark County Comment** - Although the DEIS stated that TRANSCOM will monitor shipments of SNF and HLW, it also stated that "this or a similar system could provide users with information about shipments?" How can you measure the health and safety impacts and emergency management mitigation needs if it is not even clear how DOE plans to communicate with local entities? *NEPA Regulation: Sec. 1502.1 Purpose; Sec. 1502.14 Alternatives including the proposed action.*

**DEIS Statement (pg. 2-40) 2.1.3.2** - In heavily populated areas, armed escorts would be required for highway and rail shipments (10 CFR 73.37).

**Clark County Comment** - The DEIS stated that in "heavily populated" areas, armed escorts would be required. What is the definition of a "heavily populated" area? Who is going to pay for the armed escorts? Who pays for the additional Emergency Management equipment and staff required by the escort function? The DEIS should have delineated these costs as impacts and spelled out the responsible party. *NEPA Regulation: Sec. 1502.1 Purpose; Sec. 1502.14 Alternatives including the proposed action.*

**DEIS Statement (pg. 2-40) 2.1.3.2** - Section 180(c) of the Nuclear Waste Policy Act requires DOE to provide technical and financial assistance to states and tribes for training public safety officials in jurisdictions through which it plans to transport spent nuclear fuel and high-level waste.

*Clark County Comment* - The DEIS stated that DOE will train emergency management staff before the repository opens, but it does not detail who is considered EM staff. Further, no schedule is given. Local governments with limited resources will need an extended period of time and multiple training sessions in order to train staff while not disrupting existing services. The DEIS did not indicate whether DOE will provide multiple training opportunities over time for EM staff or who would for the staff time that is needed for additional training? Currently, local governments frequently have to absorb salary costs for staff in training. Is DOE going to pick up these costs or is this going to be another unfunded federal mandate on the State and local government? *NEPA Regulation: Sec. 1502.1 Purpose: Sec. 1502.22 Incomplete or unavailable information.*

**DEIS Statement (pg. 2-40) 2.1.3.2** - In the event of an accident involving a shipment of spent nuclear fuel or high-level radioactive waste, the transportation vehicle crew would notify local authorities and the central communications station monitoring the shipment. DOE would make resources available to local authorities as appropriate to mitigate such an incident.

*Clark County Comment* - The DEIS stated that "DOE would make resources available to local authorities as appropriate to mitigate" an incident. It did not explain how or when such assistance will be made available. Will local governments and the State of Nevada be burdened with the front-end costs of an incident and have to wait for reimbursement from DOE. If a significant incident occurred, it could be beyond the financial resources of a local entity. The DEIS should clearly state that the DOE will pay for any incident and pay for it up front. *NEPA Regulation: Sec. 1502.1 Purpose; Sec. 1502.22 Incomplete or unavailable information.*

**DEIS Statement (pg. 2-40) 2.1.3.2.1** - DOE would ship spent nuclear fuel and high-level radioactive waste from commercial and DOE sites in some combination of legal-weight truck, rail, heavy-haul truck, and possibly barge. This EIS considers two national transportation scenarios, which for simplicity are referred to as mostly legal-weight truck scenario and mostly rail scenario.

*Clark County Comment* - DOE identified two transportation scenarios (mostly legal-weight truck and mostly rail) without sufficient detail to analyze segment-by-segment impacts. Further, the DEIS stated that they may use barge, but there is no analysis of potential barge impacts. During the shipment of the steam generators from the Trojan Nuclear Power Plant to the Hanford Reservation via barge up the Columbia River, the barge carrying the generators had to wait for an extended period to allow another barge with a shipment of radioactive materials from foreign reactors to pass through the locks. The nation's waterways are a precious resource that in many instances experience heavy traffic. If DOE is considering allowing the use of barge traffic, then the DEIS should have a detailed analysis of potential impacts. In order to analyze impacts fully, DOE must look at the data at varying scales. For example, while the overall accident rate may be low in a specific corridor, in an urban area it may be much higher. The methodology used by DOE throughout the DEIS is designed to mask impacts - not to identify and mitigate them. *NEPA Regulation: Sec. 1502.1 Purpose; Sec. 1502.22 Incomplete or unavailable information.*

**DEIS Statement (pg. 2-43) 2.1.3.2.2** - A truck carrying a shipping cask of spent nuclear fuel or high-level radioactive waste would travel to the repository on highway routes selected in accordance with U.S. Department of Transportation (49 CFR 397.101), which require the use of preferred routes. These routes include the Interstate Highway System, including beltways and bypasses.

*Clark County Comment* - The DEIS stated that shipments would be made along the Interstate Highway system. Although this may be the "shortest path," it is also the path with the highest population density. Thus, more people will be exposed and more costly damage incurred from an incident along these

routes. DOE should have considered an alternative that maximized the avoidance of dense urban areas. *NEPA Regulation: Sec. 1502.1 Purpose; Sec. 1502.14 Alternatives including the proposed action.*

**DEIS Statement (pg. 2-50) 2.1.3.3.2.2** - A small secure rail-yard off the main rail line would be established for switching operations. Railcars with spent nuclear fuel or high-level radioactive waste would have to be moved within 48 hours in accordance with U.S. Department of Transportation regulations (49 CFR 174.14).

**Clark County Comment** - The proposal to allow rail cars to sit at a rail yard for up to 48 hours invites terrorism, sabotage, vandalism and other health and safety risks. How does DOE plan to provide for protection of such rail cars? What does a "secure facility" mean? Armed guards? If so, paid for and reporting to whom? If DOE is planning to leave a rail car at the junction point until the following day so that they can link the end-journey transportation, they are creating, for example, the opportunity for terrorist intervention. Further, if DOE is planning to piggyback rail shipments, then the cumulative impacts from this activity should be identified in the DEIS.

**DEIS Statement (pg. 2.51) 2.1.3.3.3.1** - To enable intermodal transfers and heavy-haul shipments to the repository, an intermodal transfer station *would be* built and operated in Nevada.

**Clark County Comment** - The DEIS is silent as to who is responsible for protecting shipments during the intermodal transfer. Further, the DEIS states that "it *could* build and operate an intermodal station." Is DOE committed to constructing and operating the intermodal transfer station, or is DOE going to contract this to the private sector? If so, who will have the liability from an incident at the intermodal station? Since most accidents with spent fuel occur with the transfer of waste, it is very important to know who will be responsible for this task; how it will be managed; and what role if any will be expected of local governments. Further, will local governments have the right to access such a facility to ensure compliance with regulatory standards? *NEPA Regulation: Sec. 1502.1 Purpose; Sec. 1502.14 Alternatives including the proposed action; Sec. 1502.16 Environmental consequences.*

**DEIS Statement (pg. 2-53) 2.1.3.3.3.1** - Road upgrades for candidate routes, if necessary, would involve four kinds of construction activities: (1) widening the shoulders and constructing turnouts and truck lanes, (2) upgrading intersections that are inadequate for heavy-haul truck traffic, (3) increasing the asphalt thickness (overlay) of some sections, and (4) upgrading engineered structures such as culverts and bridges.

**Clark County Comment** - The DEIS described needed road improvements in a general way but didn't identify who will pay for the construction and maintenance of such upgrades. Further, the DEIS stated that the turnout lanes would be built every 5-20 miles but didn't address specifically where these will be located. Nor did the DEIS examine whether the number of turnout lanes would be sufficient over the life of the repository. Since Clark County is experiencing such rapid growth, the design of transportation upgrades should allow for future enhancements funded by DOE as the population grows. It is inappropriate for DOE to expect that upgrades sufficient to meet today's traffic will be adequate over the life cycle of the repository. *NEPA Regulation: Sec. 1502.22 Incomplete or unavailable information*

**DEIS Statement (pg. 6-1) 6.1** - Although it is uncertain at this time when DOE would make any transportation-related decisions, DOE believes that the EIS provides the information necessary to make decisions regarding basic approaches (for example, mostly rail or mostly truck shipments), as well as the choice among alternative transportation corridors.

**Clark County Comment** - The DEIS argued that without specific transportation routes being identified, DOE can still choose "basic approaches" with sufficient information to assess the level of impact. We believe that, since accident rates vary along segments, DOE cannot determine impacts without identifying specific routes. It is also unclear whether DOE will conduct additional NEPA review for every transport segment when the route and mode mix is finally completed. DOE should explicitly address this point in the DEIS. Further, detailed segment-by-segment assessments of the selected transportation corridors should be made in compliance

with the intent of NEPA. These analyses should determine potential impacts on quality of life, public safety, and environmental justice at varying scales. *NEPA Regulation: Sec. 1502.22 Incomplete or unavailable information.*

**DEIS Statement (pg. 6-6) 6.1** - Over the 24 years of the Proposed Action, an estimated six and two latent cancer fatalities, respectively, could occur in involved worker populations from radiation exposure for the mostly legal-weight and mostly rail scenarios. The probability of a latent cancer fatality to the maximally exposed involved worker would be about 0.005 for both scenarios. No worker fatalities from industrial accidents would be expected. No or very small impacts to workers or members of the public would be expected from postulated loading accidents.

**Clark County Comment** - The DEIS estimated six (mostly legal weight truck scenario) or two (mostly rail scenario) deaths over 24 years to workers from radiation exposure. It also states that there will be no "worker fatalities from an industrial accident." Yet, most accidents to date at nuclear power plants have actually involved exactly this type of incident. On what grounds does DOE make this assertion? *NEPA Regulation: Sec. 1502.22 Incomplete or unavailable information.*

**DEIS Statement (pg. 6-6) 6.1** - Over the 24 years of the Proposed Action, an estimated 18 latent cancer fatalities could occur in the general population along transportation routes from radiation exposure under the mostly legal-weight truck scenario and an estimated two latent cancer fatalities could occur under the mostly rail scenario. For involved workers, an estimated five latent cancer fatalities could occur in the involved worker population from radiation exposure for the mostly legal-weight truck scenario, and an estimated one latent cancer fatality could occur for the mostly rail scenario.

**Clark County Comment** - The DEIS estimated 18 latent cancer fatalities among the general public and five among transport workers over 24 years under the incident free scenario. Without a segment-by-segment of the selected transportation routes, it is impossible to assess whether these deaths will fall inequitably on certain sectors of the population. *NEPA Regulation: Sec. 1502.22 Incomplete or unavailable information.*

**DEIS Statement (pg. 6-8) 6.1** - Nationwide, during the 24 years of the Proposed Action transportation activities, about four fatalities could result from traffic accidents under the mostly legal-weight truck scenario. For the same time period, about four fatalities could also result from traffic accidents under the mostly rail scenario. These fatalities would all be related to physical injuries associated with traffic accidents, not radiological impacts.

**Clark County Comment** - Under the transportation accident scenario for either rail or truck, four fatalities are forecast over 24 years. Without route identification, it is impossible to ascertain whether low-income or minority communities may be unduly burdened at the local scale. *NEPA Regulation: Sec. 1502.22*

## 6.0 PUBLIC COMMENTS AND PUBLIC OPINION

*Primary Reference:* DEIS Chapters 1, 3

### *Major Points of This Chapter:*

- Clark County staff met with 19 Town Advisory Boards/ Citizens' Advisory Councils, representatives from local jurisdictions and other groups to exchange information and receive comments on the Yucca Mountain DEIS. It is clear from the comments recorded that not only county officials, but also citizens, are very concerned about the negative impacts that the Yucca Mountain Program may have on Southern Nevada.
- Specific issues raised in the comments include the need to acknowledge and assess the impacts on Native Americans, and more fully consider public safety, environmental impacts, environmental justice, funding to local governments, effects on land use, perception-based impacts of DOE activities, performance assessment, interaction of the repository on local and regional plans, public participation, regulatory standards, schedule & licensing, socio-economic impacts, storage, and transportation issues.
- *According to comments by Clark County governmental representatives, residents, and other stakeholders made at public meetings and by other means, DOE has:*
  - Ignored cumulative impacts from past and continuing NTS activities.
  - Ignored negative economic impacts that could potentially devastate the economy of Southern Nevada.
  - Ignored existing and planned land uses in the proposed transportation campaign.
  - Used population data that greatly underestimates the impacts on Clark County.
  - Not done enough to let the general population know about something so significant that could have such far-reaching impacts.
  - Underestimated the real and potential impacts of the proposed transportation campaign.
- DOE is not trustworthy – based on past history and currently not listening to citizen concerns.
- We are helpless against what seems to be a done deal, so it is futile to get involved.
- The waste should be stored where it is because new technology can be developed to take better care of it.
- Radiological impacts are greatly underestimated.
- There are a number of problems with bringing all the waste together at Yucca Mountain that are being ignored.
- Other storage options should be considered.
- The impact to future generations and other unusual impacts are not adequately addressed.
- Attachment D includes a copy of the Clark County Community Involvement Tracking System that provides categorized and dated commentary by government officials, members of interest groups, and members of the general public.
- Attachment E includes letters of comment by Greater Las Vegas Association of Realtors, the Southern Nevada Homebuilders Association, the Clark County Comprehensive Plan Steering Committee, the Laughlin Town Advisory Board, and the Winchester Town Advisory Board.

## 6.1 History of Public and Agency Comments Regarding Yucca Mountain

Since 1988, Clark County has recorded comments pertaining to the Yucca Mountain Project and its potential impacts on Clark County. From the very beginning, great concern about the potential repository has been expressed by Clark County officials, staff and others. Specific issues raised in the comments include the need to acknowledge and assess the impacts on Native Americans, issues to be addressed in the EIS, emergency response considerations, environmental impacts, environmental justice, funding, land use, perception-based impacts of DOE activities, performance assessment, planning considerations, public participation, regulatory standards, schedule & licensing, socio-economic impacts, storage, and transportation issues.

It is clear from the comments recorded that not only county officials and NWD staff, but also citizens, are very concerned about the negative impacts that the Yucca Mountain Program could have on Southern Nevada. Comments relating to cultural and historical resources, for example, urge DOE to be very serious about their handling of Native American issues. The DEIS however, makes little mention of Native American issues other than to acknowledge that there are Native American issues that need to be addressed. Requests for a review of the effects of past DOE (and predecessor) activities in Southern Nevada have not been addressed in the DEIS, however. Others asked that DOE address inequalities and the "political" aspects of the issue but these were similarly not addressed in the DEIS. And the comments go on.

Attachment D provides information that is stored in the Nuclear Waste Division's *Community Involvement System [CITS]*. This system is designed to help staff record and categorize public meeting comments. Comments may be categorized by name, date, subject, agency or group representation [if any], and geographic location. Early comments did not have dates associated with them, but beginning with 1992, the dates of the comments are noted.

## 6.2 Summary of Public Comments During Present DEIS Comment Period, August 1999-February 2000

This section provides a summary of comments gathered at meetings held in Clark County during the Yucca Mountain DEIS comment period. These included city council meetings, Town Advisory Board / Citizens Advisory Council meetings, and meetings with professional organizations, businessmen and women, and interested citizens groups. At these meetings, Clark County Nuclear Waste Division staff made presentations, answered questions and noted comments from the general public and officials in attendance. Presentations were made at more than 20 meetings covering geographical areas, rural and urban of Clark County.

Nuclear Waste Division staff participated in public, committee or staff meetings with representatives of the cities of Boulder City, Henderson, Las Vegas, Mesquite, and North Las Vegas. Staff also participated in Town Advisory Board or Citizens Advisory Council meetings in the unincorporated areas of Bunkerville, Enterprise, Goodsprings, Indian Springs, Laughlin, Lone Mountain, Mt. Charleston, Mountain Springs, Moapa, Moapa Valley, Paradise, Red Rock, Searchlight, Spring Valley, Sunrise Manor, Whitney and Winchester. Presentations were also made to the Clark County Local Emergency Response Committee, the Clark County Comprehensive Plan Steering Committee, the Laughlin Chamber of Commerce, the Greater Las Vegas Association of Realtors, the Howard Hughes Corporation, and the Southeast Coalition of Concerned Citizens.

Some of these individuals, groups or jurisdictions have submitted comments directly to DOE, while comments by the Clark County Comprehensive Plan Steering Committee and the Greater Las Vegas Association of Realtors are attached to this document.

The following section lists comments noted by NWD staff at the meetings mentioned. A total of more than 650 people attended the meetings. Comments show that, with two exceptions, citizens are deeply concerned that DOE is not really listening to the people of Nevada and the country. There was great concern about the transportation of the waste to Yucca Mountain. Many people commented that they were surprised that citizens across the country weren't up in arms that the waste could come through their communities.

Many people expressed a very high level of mistrust for DOE, because of their past dealings with the people of Nevada. Examples were given of family members who played in the ash from the fallout of above-ground tests because they were told there was nothing to be concerned about, "just wash your vegetables." These family members it was noted by the public later died from cancer. Other meeting participants have family and close friends who lived "down wind" from the Nevada Test Site (NTS) and have suffered the ravages of cancer. Some survived and others died. The concern was expressed that Nevada has already suffered and continues to suffer the impacts of the nuclear testing that went on at the NTS and that Yucca Mountain could add in *unknown* ways to the impacts that they are already suffering.

### 6.2.1 Notes of Public Meetings Attended by NWD Staff Throughout Clark County

This section includes a summary, by category, of the comments that were noted by Nuclear Waste Division staff in attendance at the meeting of town advisory boards, citizens advisory councils, city councils and other interested groups. The comments are concise summaries of statements made. There are redundancies among the comments, but since they were gathered at a number of locations around the county, we have included all of them for consideration.

#### *GENERAL (provide context for DEIS comments)*

- City Attorney will continue to put together comments on the draft EIS for the City.
- Encouraged citizens to get involved in commenting or attending the public hearing.
- Encouraged individual residents to make comments on their own.
- Protests helped stop Ward Valley in California, we should be involved with Yucca Mountain.
- Agreement with TAB concerns and questions.
- Encouraged citizens in attendance to get involved and comment on this important issue pointing out that the waste and spent fuel could be transported through the center of Enterprise along I-15 and the beltway.
- Several asked for additional information packets to take to friends and family.
- Encouraged Clark County or State to provide forms at the public hearing for people to fill out and submit their comments.
- Voted to send a letter to DOE in opposition of Yucca Mountain - voicing the concerns of the TAB.
- Encouraged citizens to get involved and comment on this important issue.
- Encouraged people to get involved.
- Concerned about the number of people who seem disinterested, that they really don't know how adversely it could impact them.
- TAB members said they would make contacts to try and get people involved.
- Hope that citizens of the community will get involved.
- Urged citizens to be involved and let DOE know that the citizens of the community are concerned.

#### *HELPLESSNESS*

- There was a feeling of helplessness in some people.
- Many wanted to do something but felt overwhelmed or that it was futile.
- Others commented on feeling overwhelmed and that their effort would be futile.
- Feeling that the larger cities, county and state would lead the fight to keep it out of Nevada and that there wasn't much they could do to make a difference.
- Feelings of helplessness about stopping waste coming on I-15 through Mesquite - can't pick up and leave jobs and homes.
- Interest and concern, but a sense of helplessness against an agency that they perceive as not trustworthy.

#### *CUMULATIVE IMPACTS*

- Concern that DOE is not taking into account that Nevada is already impacted by the Low-Level Waste shipments that are going to NTS and the continuing effects of the nuclear tests that were performed there.

- Concern that DOE is not considering all the impacts Southern Nevada has already received from operations at the NTS.

#### ***ECONOMIC IMPACTS***

- Concern that their property values will be deeply impacted because of waste being transported near their homes.
- Who will pay for the maintenance and/or upgrades to roads, bridges, etc. that will be impacted by the transportation?
- Interested and hopeful that DOE would consider the impacts to Nevada that they had not considered: economic impacts to gaming/tourism, trucking impacts that were not really considered - "there will be accidents," stigma to products, etc.
- What about negative impacts to small businesses near the transportation routes?
- The gaming industry should take some lead in this and realize how dramatically they could be impacted.
- One person felt that it was a good thing because it would bring high paying trucking jobs to the community. He didn't think there was a radiological risk and cited his knowledge of a mine in Canada that was so radioactive that it made the stuff that would be coming to Yucca Mountain looks like spit - the stuff in Canada was magnitudes of times greater in radioactivity. He said that if we didn't want the waste shipped here, Canada would take it there and reap the economic benefits.
- Concerns that DOE is not really looking at the impacts to the economy.
- One person felt that there weren't great risks from the waste coming through and that it would add jobs to the economy. Other citizens responded that the jobs would be technical or high risk and not really be available to the people living here.
- Don't believe that DOE is really looking at the potential impacts to the citizens and economy.
- Wondered if gaming is involved because their weight behind opposing Yucca Mountain would have greater influence.
- Concerned that waste coming through the area could have a devastating impact on the economy.
- Concerned that the poor will be greatly impacted.
- Investments have been made and continue in developing what is considered a premier property (Summerlin). Nuclear waste being transported through the middle of the property could have devastating economic impacts.

#### ***LAND USE IMPACTS***

- DOE ignored the land use plans but we have to live with them for a long time.
- It seems obvious that DOE did not look at the site plan for Summerlin or the Las Vegas Valley and all the residential and commercial uses planned along the western beltway.
- It is unbelievable that DOE is even considering transportation of the waste along the beltways through populated Las Vegas Valley.

#### ***MITIGATION***

- Concerns about not getting compensation (money) for accepting the waste.
- Others felt that now is the time to go after DOE for mitigation funds.
- Asked about mitigation steps that were being taken.

#### ***NEW TECHNOLOGY***

- Leave the waste where it is generated until something better can be done.
- Isn't it safer to store it on site, above ground, for a while until new technology can help us handle it in a better way than burying it?
- Want the waste kept out of Nevada, leave it where it is until some better technology can be produced.

- Hopeful that DOE would really look at how adversely this could impact the whole country and look at doing something else.
- Hope that perhaps DOE would listen to the people and look at other ways of taking care of the waste.
- Wondered why nothing else is being considered by DOE or Congress, since so many new technologies are being developed all of the time.

#### **POPULATION DATA**

- 1990 Census figures are being used and don't reflect the growing population in the north portion of the valley.
- Can the EIS be thrown out since the data is so out of date?
- Several wondered about the audacity of DOE in proposing to take the waste through such a heavily populated area that is continuing to grow at such a high rate.
- Concerned that DOE is not really considering the impacts to people along potential routes, especially in Southern Nevada where population has grown so dramatically.

#### **PUBLIC INVOLVEMENT**

- Concern that more citizens weren't involved.
- Those in attendance wondered why they hadn't heard more about this before from DOE.
- Encouraged the Clark County Nuclear Waste Division really spread the word and try and get people involved because DOE won't do it.
- Concerns about general public not really being aware of the impacts because DOE has not really made an effort to get the word out.
- DOE should have made a much greater effort to let people know about something so long lasting and potentially harmful as this.
- Concerned that a lot of people who would be adversely affected, don't even know about it because of inadequate public outreach by DOE.

#### **RADIOLOGICAL IMPACTS**

- Great concern that the health impacts are not really reported. There are lots of things besides deaths from radiological exposure (from a member of the TAB who is a doctor).
- Concerns that radiological impact could be far greater than what is being reported.

#### **SITE ISSUES**

- Concerns over effects of the radiation in the area where it would be stored because of problems they observed when they lived in the Tri-Cities area near Hanford. Effects on animals and plants, etc.
- The original analysis contained several critical, technical flaws that need to be addressed.
- Concerns about all the waste together in one place creating a sabotage or safety issue (critical mass).
- Earthquake action in the area (recent quake not too far from Yucca Mountain) raises great concerns.
- Concerned that with the amount of money that has been spent on studying Yucca Mountain it will become a repository even if though there are problems with water flowing through the mountain, earthquakes, and volcanic activity.

#### **STORAGE**

- Take care of the waste where it was created, at the generation sites.
- One man, educated in this area, feels that salt mine storage or uranium mine storage would be better. He also indicated that he felt that it should be stored regionally and not transported across the country.

#### **TRANSPORTATION / ROUTES / CASKS**

- Great concern that the potential route goes along the western beltway - there is a new high school that is adjacent to the beltway alignment (beltway has not been constructed in this area yet).

- Concern that there could be accidents at the interchange of the beltway and Highway 95. How would heavy-haul trucks make the turns at the interchange?
- Concern over transportation no being more specific: no licensed casks, commercial carriers not adequately trained, not knowing route, etc.
- Asked about the possibility of legal-weight trucks being diverted off of I-15 through their community - that would be a very serious mistake (Logandale, Overton).
- Concerns about driving into Las Vegas and traveling on the Interstate with the trucks - not being aware or having to delay commutes so as not to travel along side or near the trucks.
- Concerned about the safety of the casks and trucks.
- Concerned about the human error factor of truck drivers.
- Asked if the cask was licensed.
- Wondered if the City Council could legally create a "nuclear free zone."
- Concern that Craig Road could be used as a route.
- Concerns about the potential of it going through Mesquite because can't trust the DOE won't do it.
- Transportation is a big issue, 'it's a craps game by putting it on a truck' - transportation is a very dangerous environment.
- Focus on national transportation (not in Everybody's backyard) to keep congressional delegation united in fighting it across the country.
- Hopeful that DOE would consider trucking impacts that were not really considered - "there will be accidents."
- Members of the TAB asked questions about the potential impacts from transportation through Enterprise.
- Questions were asked about the number of potential shipments.
- City Council members expressed concern about the possibility of waste coming through Boulder City either along US Highway 93 or across Boulder Dam.
- One man, educated in this area, commented that he is very concerned about the transportation of nuclear waste around the country.
- Hopeful that Boulder Dam would not be used as a transportation route.
- Concern about the waste potentially coming through Spring Valley along the western beltway.
- Concerns about the radiological impacts of transporting it through the community.
- Don't want it transported along I-15, the doorstep to their community.
- Concerned about the transportation along I-15 through Mesquite where most of the schools are within ½ mile of the Interstate. The children of this community go to those schools and could be adversely impacted.
- Concerned about commuting along I-15 to Las Vegas or St. George and either traveling with the trucks carrying the waste or having to delay trips to avoid traveling near the trucks.
- Extreme concern about the waste traveling through the Virgin River Gorge where there the road is windy and narrow and accidents occur frequently and tie up traffic.
- Wanted to know how they would lift a cask out to the gorge if one fell into it there or at one of the bridge crossings not right in the gorge.
- Concern about the impacts of trucks hauling the waste on people's health and safety.
- Concern that DOE is not really looking at the impacts along the transportation routes in the smaller communities.
- Concern that DOE did not rule out the use of Highway 160 that goes right through the middle of their community.
- Concern about the demand on emergency response if Highway 160 were used because they are a volunteer unit and do not have the training or equipment to respond.
- Concerned about the impact that the transportation of the waste could have on Southern Nevada.
- Concerned about potential traffic accidents and impacts even if there is not release of radioactive material.

#### **TRUST**

- Some seemed to think it was a done deal.

- Concern over Yucca Mountain being the only site studied - seems like there is no way to stop it.
- Disbelief that there is no other sites being considered.
- General feeling of not trusting DOE because of past record of being lied to about hazards from testing in Nevada - people dead in community.
- Great concern, and even anger, on what they perceived as having Yucca Mountain shoved down their throats.
- Concern that no other place is being studied and that it is a "done deal."
- How can DOE force this on the people of Nevada?
- Citizens were generally concerned and wanted to know if their efforts would fall on deaf ears.
- It seems predetermined that the waste will come to Yucca Mountain, public comments seem perfunctory.
- Indicated that it was depressing to think that the waste could be transported to Yucca Mountain because of feeling like it was a done deal.
- Asked if comments would even be recorded at the public hearing - "they [DOE] don't really listen."
- Concerns that DOE has not been truthful before and that it could have far greater impacts then they are saying.
- Concerned that DOE does not really listen to what is being said, that they will go ahead even if it really isn't in the best interest of the public because so much money has been put into the project so far.
- Concern about DOE not really disclosing impacts.
- General mistrust for DOE because of past record associated with NTS and leaking shipments across Boulder Dam.
- Don't trust DOE and their analysis of what could happen.
- DOE has lied in the past and they could do it again.
- Do not feel that DOE is trustworthy in what they are reporting as the potential impacts.
- Concerned that comments will fall on deaf ears.
- Concerned that DOE was not really looking at the negative impacts.
- Don't trust DOE - their analysis or that they will do the right thing.
- Concerned that because of the money that has been spent and other reasons, it will happen "no matter what."  
[4 comments]
- Doubt if they would really be listened to by DOE.
- Do not trust DOE or Congress to do the right thing, only what is easiest at the moment.

#### **UNUSUAL IMPACTS**

- Indicated that if a spill went into the Virgin River it could impact the "endangered" fish in the river.
- Many of the people expressed genuine concern about the potential impacts to them and their descendants.

#### **6.3 Other Comments**

Attachment E of this document contains letters of comment from the Greater Las Vegas Association of Realtors, the Southern Nevada Home Builders Association, the Clark County Comprehensive Plan Steering Committee and the Laughlin and Winchester Town Advisory Boards. Members of each of these groups have specific concerns regarding planning issues, and impacts on land use, property values, economic conditions, and health, safety and quality of life impacts.

## ATTACHMENTS

- A. Clark County, Nevada, Department of Comprehensive Planning, Environmental Division. *Comments on the Draft 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.* February 4, 2000.
- B. S. Cohen & Associates. *Review of the Total System Performance Assessment in the U.S. Department of Energy Viability Assessment for the Yucca Mountain Site.* Report for the Clark County Nuclear Waste Division, March 28, 1999.
- C. Clark County, Nevada, Department of Comprehensive Planning, Nuclear Waste Division. *Clark County Transportation Comments on U.S. Department of Energy's Draft 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.* February 2000
- D. Clark County, Nevada, Department of Comprehensive Planning, Nuclear Waste Division. *Community Involvement Tracking System [CITS].* Public and Agency Comments up to September 1999.
- E. Other Comments:  
*Letters from:*  
Greater Las Vegas Association of Realtors  
Southern Nevada Home Builders Association  
Clark County Comprehensive Plan Steering Committee  
Laughlin Town Advisory Board  
Winchester Town Advisory Board