REPORT OF THE
NEVADA COMMISSION ON
NUCLEAR PROJECTS

December 1990

Grant Sawyer, Chairman

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REPORT OF THE STATE OF NEVADA
COMMISSION ON NUCLEAR PROJECTS

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Mr. James Cashman, III
Ms. Thalia Dondero
Mr. Ron Lurie
Ms. Anne Peirce
STATUTORY AUTHORITY FOR THE
COMMISSION ON NUCLEAR PROJECTS

NUCLEAR PROJECTS

459.009 Definitions. As used in NRS 459.009 to 459.0098, inclusive, unless the context otherwise requires:
1. "Agency" means the agency for nuclear projects.
2. "Commission" means the commission on nuclear projects.
3. "Executive director" means the executive director of the agency.
4. "Radioactive waste" is limited to:
   (a) The highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste and any solid material derived from the liquid waste that contains concentrations of matter produced by nuclear fission sufficient to require permanent isolation, as determined by the Nuclear Regulatory Commission;
   (b) Spent nuclear fuel that has been withdrawn from a reactor following irradiation and has not been separated into its constituent elements by reprocessing; and
   (c) Other material that the Nuclear Regulatory Commission determines must be permanently isolated.
(Added to NRS by 1985, 2303)

-ANNOTATIONS-

Administrative Regulations, Nuclear Projects, NAC 459.960 et seq.

Reviser's Note:
Ch. 680, Stats. 1985, the source of NRS 459.009 to 459.0098, inclusive, contains the following provision not included in NRS:

"The legislature hereby finds, and declares it to be the policy of this state, that the study of the disposal of high-level radioactive waste in the State of Nevada and related activities is essential to the preservation of the public health and welfare. This study must involve the governor, the legislature and local governments as direct participants."
459.0091 Commission on nuclear projects: Creation; membership; terms and salary of members.

1. The commission on nuclear projects, consisting of seven members, is hereby created.

2. The commission consists of:
   (a) Three members of the governor's own choosing.
   (b) Two members chosen by the governor from a list of three names submitted to him by the legislative commission.
   (c) Two members chosen by the governor, one of whom is chosen from a list of three names submitted to him by a statewide organization of county governments and one of whom is chosen from a list of three names submitted to him by a statewide organization of city governments.

3. The members of the commission shall annually select a chairman from among themselves.

4. After the initial terms, members shall serve terms of 2 years.

5. Each member of the commission is entitled to a salary of $80 for each day's attendance at a meeting of the commission.

(Added to NRS by 1985, 2303)

459.0092 Commission on nuclear projects: Duties. The commission shall:

1. Be informed on issues and developments relating to the disposal of radioactive waste.

2. Report to the governor and the legislature on any matter relating to the disposal of radioactive waste which it deems appropriate and on any such matter requested by the governor.

3. Advise and make recommendations to the governor and the legislature on the policy of this state concerning all projects involving the disposal of radioactive waste.

4. Formulate the administrative policies of the agency and its divisions.

5. Advise the state and local governments on litigation relating to radioactive waste.

6. Adopt such regulations and perform such other duties as are necessary to carry out the provisions of NRS 459.009 to 459.0098, inclusive.

(Added to NRS by 1985, 2303)

ANNOTATIONS

Administrative Regulations.
Nuclear Projects: NAC 459.960 et seq.

459.0093 Agency for nuclear projects: Creation; composition; appointment and qualifications of executive director.

1. The agency for nuclear projects is hereby created. It consists of the commission and:

   (a) The division of technical programs.

   (b) The division of planning.
2. The governor shall appoint an executive director, who serves at the pleasure of the commission, and who must:
   (a) Be appointed from a list of three persons submitted to the governor by the commission.
   (b) Possess broad management skills related to the functions of the agency and have the ability to coordinate planning and communication among the Federal Government, the state and the local governments of this state on issues related to radioactive waste.

(Added to NRS by 1985, 2304)

459.0094 Executive director of agency for nuclear projects: Duties.

The executive director shall:
1. Appoint, with the consent of the commission, an administrator of each division of the agency.
2. Advise the commission on matters relating to the potential disposal of radioactive waste in this state.
3. Evaluate the potentially adverse effects of a facility for the disposal of radioactive waste in this state.
4. Consult frequently with local governments and state agencies that may be affected by a facility for the disposal of radioactive waste and appropriate legislative committees.
5. Assist local governments in their dealings with the Department of Energy and its contractors on matters relating to radioactive waste.
7. Cooperate with any governmental agency or other person to carry out the provisions of NRS 459.009 to 459.0098, inclusive.

(Added to NRS by 1985, 2304)

459.0095 Executive director of agency for nuclear projects: Powers.

The executive director may:
1. Provide information relating to radioactive waste to the legislature, local governments and state agencies that may be affected by the disposal of radioactive waste in this state.
2. Consult departments, agencies and institutes of the University of Nevada System or other institutions of higher education on matters relating to radioactive waste.
3. Employ, within the limitations of legislative authorization, technical consultants, specialists, investigators and other professional and clerical employees as are necessary to the performance of his duties.
4. Make and execute contracts and all other instruments necessary for the exercise of the duties of the office.
5. Obtain equipment and supplies necessary to carry out the provisions of NRS 459.009 to 459.0098, inclusive.

(Added to NRS by 1985, 2304)
459.0096 Executive director and administrators: Administration of laws relating to division; classification; other employment prohibited.

1. The administrator of each division shall administer the provisions of law relating to his division under the supervision of the executive director.

2. The executive director and the administrator of each division:
   (a) Are in the unclassified service of the state.
   (b) Shall devote their full time to the business of the agency and not engage in any other gainful employment or occupation.

(Added to NRS by 1985, 2305)

459.0097 Duties of administrator of division of technical programs. The administrator of the division of technical programs shall:

1. Evaluate the:
   (a) Potential effects of radioactive waste upon the physical environment;
   (b) Potential health hazards from the disposal of radioactive waste; and
   (c) Design of and engineering techniques involved in a facility for the disposal of radioactive waste.

2. Assure the quality of techniques and procedures used in research involving radioactive waste and of any information developed as a result of the research.

3. Analyze the geological and technical information which would affect the feasibility and safety of locating a facility for the disposal of radioactive waste in this state.

4. Perform any other duties assigned to him by the executive director.

(Added to NRS by 1985, 2305)

459.0098 Duties of administrator of division of planning. The administrator of the division of planning shall:

1. Coordinate activities between the agency, political subdivisions of the state and affected state agencies.

2. Disseminate information to the state, interested political subdivisions of the state or any agency of either and members of the public regarding radioactive waste.

3. Study the effects of a facility for the disposal of radioactive waste upon transportation and social and economic conditions in this state.

4. Assess the means of mitigating the adverse effects of a facility for the disposal of radioactive waste.

5. Perform any other duties assigned to him by the executive director.

(Added to NRS by 1985, 2305)
EXECUTIVE SUMMARY

This third biennial Report of the Nevada Commission on Nuclear Projects has been prepared in fulfillment of the requirements of NRS 459.0092, which stipulates that the Commission shall report to the Governor and Legislature on any matter relating to radioactive waste disposal the Commission deems appropriate and advise and make recommendations on the policy of the State concerning nuclear waste disposal projects.

Chapter One of the Report presents a brief overview of the Commission's functions and statutory charges. It also contains a summary of developments which have affected the overall nuclear waste disposal issue since the last Commission Report was published in November, 1988.

Chapter Two contains a synthesis of Commission activities and reports on the findings of the Commission relative to the geotechnical, environmental, socioeconomic, transportation, intergovernmental and legal aspects of federal and State nuclear waste program efforts.

In its November, 1988 report, the Nevada Commission on Nuclear Projects concluded that "based upon the history of the federal high-level nuclear waste disposal efforts to date and the experience of other states . . . with related programs, the State of Nevada and its affected local governments must continue to oppose the Yucca Mountain project in order to preserve legitimate rights and prerogatives." The Commission's findings in examining the federal nuclear waste program over the past two years reinforce that 1988 conclusion.

In 1989, the State of Nevada, through its Legislature, Governor and congressional delegation, established and carried forward a strong and unambiguous position of opposition to the high-level nuclear waste program and to the process by which Nevada's Yucca Mountain was singled out as the only available repository location. The effects of Nevada's strong position were immediate and dramatic. Nevada's citizens became less convinced that the repository was inevitable and more confident in their ability to successfully oppose the project. While there appears to have been some progress in transportation (rail route analysis and cask design) and socioeconomic areas of DOE's project, the federal program at Yucca Mountain came to a halt as DOE and Congress attempted to evaluate and then deal with the strong stand taken by Nevada in all available arenas.

The Commission concludes it is extremely important that the State and local governments in Nevada do not permit any weakening in the strong and united position of opposition to the project so carefully crafted by the Governor and Legislature in 1989.
The following recommendations are intended to assist the State and local governments to maintain consistent policy with respect to the repository program during the coming biennium.

Specific Recommendations

RECOMMENDATION 1:


Discussion:

The actions of the 1989 Nevada Legislature sent a clear and unambiguous message to the U.S. Congress, the nuclear industry and the Department of Energy that Nevada is opposed to the existing repository siting process which attempted to single out Yucca Mountain as the only site to be examined for a repository. It remains extremely important that Nevada continue to be united in its opposition to the project.

It is especially important that the State and local governments potentially affected by the repository program work together to maintain consistent opposition and to carry out coordinated programs of socioeconomic and transportation impact assessment. If Congress perceives that there is support for the project either at the State or local level, or that there is hope for reversing clearly stated State and local policies of opposition, it will be more difficult to convince Congress and DOE that alternatives to the Yucca Mountain site must be found.

The Commission believes that the State and local opposition has been effective in helping to precipitate the redirection that is taking place with respect to the federal waste disposal program, perhaps within the next 12 to 24 months. Maintenance of united, consistent state and local government policy regarding the project is crucial at this stage.

RECOMMENDATION 2:

THE COMMISSION COMMENDS THE GOVERNOR, ATTORNEY GENERAL AND CONGRESSIONAL DELEGATION FOR EFFECTIVELY AND COURAGEOUSLY CHALLENGING THE FEDERAL GOVERNMENT IN ITS EFFORTS TO FORCE A NUCLEAR WASTE DUMP ON THE STATE OF NEVADA. THE COMMISSION URGES THE GOVERNOR AND ATTORNEY GENERAL TO CONTINUE TO PURSUE ALL LEGAL, REGULATORY, AND ADMINISTRATIVE AVENUES OPEN TO THE STATE IN ORDER TO SUPPORT AND UPHOLD STATE POLICY REGARDING THE PROJECT.
Discussion:

The Governor, the Attorney General and the State's Congressional Delegation have demonstrated tenacity and courage in steadfastly articulating and carrying out State policy with respect to the repository project. Despite efforts by the nuclear industry and the Department of Energy to promote the potential for economic benefits from the project, the Governor, Attorney General and Congressional Delegation have maintained a bipartisan consensus on the issue and have consistently put State well being ahead of political and party concerns.

During the coming year, it will be important that the State's elected officials continue to pursue all appropriate legal, regulatory and administrative avenues available to assure that the State is protected in the face of continuing federal attempts to locate the repository in Nevada. There should be no doubt in Congress, DOE or the nuclear industry that Nevada will continue to do all that is necessary to prevail in this matter.

RECOMMENDATION 3:

THE COMMISSION URGES THAT THE GOVERNOR RECOMMEND AND THE 1991 LEGISLATURE PROVIDE STATE GENERAL FUND REVENUES TO SUPPORT THE AGENCY FOR NUCLEAR PROJECTS AND ITS IMPORTANT OVERSIGHT WORK IF THE CONGRESS AND DOE PERSIST IN THE STRATEGY OF WITHHOLDING NECESSARY FEDERAL OVERSIGHT FUNDS TO FORCE STATE ACQUIESCENCE.

Discussion:

Access to adequate federal funds for oversight of and participation in the federal high-level nuclear waste disposal program is a chronic problem that has hampered the Agency's ability to carry out its federal and State statutory mandates and responsibilities. Since 1987, restriction of access to federal funding for Nevada's oversight activities has been used to try to force acquiescence in DOE's Yucca Mountain project. Congressional budget action has been driven largely by one powerful senator who has effectively barred State input simply by failing to invite Nevada testimony. In addition, DOE has used its position as the grantor of State funds to impede and otherwise interfere with oversight activities and studies.

This situation is compounded by congressional prohibitions on Nevada regarding "lobbying" or influencing federal legislation. These restrictions, together with spending limits on socioeconomic and transportation activities, were placed on the State through the FY 1989, FY 1990 and FY 1991 federal appropriations measures by which Congress appropriated funds for DOE and State nuclear waste activities. The restrictions, combined with DOE's propensity to interfere with State oversight through the grant
award process, make it difficult for the Agency to conduct needed studies and activities. In addition, Agency staff as well as members of the Commission are prohibited even from providing unsolicited information to congressional staff and others working on the nuclear waste issue.

The restrictions make it especially difficult for the State to seek redress in the matter of Nuclear Waste Fund appropriations for the State oversight program and DOE's management of State grants. Since FY 1988, the State's oversight grant has been a line item in the congressional appropriations measures. However, the restrictions placed on "lobbying" have prevented the State from providing information on fiscal needs on a regular basis to congressional staff and others responsible for developing funding formulas.

The Commission believes that the Governor and Legislature should be prepared to provide State funds for crucial Agency activities in the event that federal funds are further restricted or unavailable. The Agency has performed high quality scientific studies and competent oversight work over the past seven years despite the budget limitations and other impediments it has faced. Agency activities have been largely responsible for the State's success in assuring that the State's interests are protected with respect to the Yucca Mountain project. It is important that the Agency continue to function effectively as the State's oversight body and that access to key congressional committees and forums be maintained. This may require the allocation of state funds if restrictions on federal funds continue to be imposed.

RECOMMENDATION 4:

THE COMMISSION SUPPORTS THE CURRENT ARRANGEMENT UNDER STATE AND FEDERAL LAW WHEREBY NEGOTIATIONS WITH THE NUCLEAR WASTE NEGOTIATOR ARE LIMITED TO THE GOVERNOR OF THE STATE. THE COMMISSION RECOMMENDS THAT SUCH CONTACT BE ONLY FOR THE PURPOSE OF REAFFIRMING NEVADA'S STEADFAST OPPOSITION TO THE YUCCA MOUNTAIN PROJECT.

Discussion:

The recently appointed federal Nuclear Waste Negotiator is charged with attempting to identify a state willing to host a Monitored Retrievable Storage facility or a repository. The federal Nuclear Waste Policy Act and Nevada law specify that the Governor is the person authorized to speak on behalf of the State of Nevada in this matter. It is important that there be no ambiguity about the Governor's role and that strict protocol be maintained to assure that the Negotiator does not attempt to subvert this formal communication channel by negotiating with other jurisdictions within the State with offers of benefits in exchange for support for the project.
The Commission believes that the Governor should clearly indicate to the Negotiator that the State of Nevada is unalterably opposed to either a repository or MR3 facility; that both are contrary to State law; and that further communication on the matter is unwarranted and unwanted.

RECOMMENDATION 5:

IN KEEPING WITH THE COMMISSION'S POSITION THAT THE STATE, ITS AGENCIES AND INSTRUMENTALITIES SHOULD MAINTAIN THE POSTURE OF NOT BEING CO-OPTED IN ANY WAY BY THE REPOSITORY PROGRAM, THE COMMISSION RECOMMENDS THAT A HIGH DEGREE OF SENSITIVITY AND CIRCUMSPECTION ACCOMPANY THE ACCEPTANCE OF FUNDS EMANATING FROM THE PROGRAM THAT MAY COMPROMISE THE STATE'S ABILITY TO PURSUE ITS OPTIONS AND OPPORTUNITIES IN CONNECTION WITH ITS POLICY OF OPPOSITION TO THE REPOSITORY.

Discussion:

Acceptance of funds or other benefits not directly related to statutory entitlements or direct impact mitigation could adversely affect the State's ability to successfully resist federal government attempts to locate a repository at Yucca Mountain. The Nevada Attorney General opined in 1988 that the acceptance of benefits could be construed as an indication of implied consent and could damage State legal arguments before the courts. Likewise, the willingness of entities within Nevada to accept benefits could send the message to Congress that the State may be weakening in its resolve and encourage further congressional manipulations aimed at forcing a repository.

The Commission urges the State, affected local governments, university system entities and others receiving federal nuclear waste funds to carefully scrutinize grant applications and uses for such funds to be certain that monies are only for specific statutory entitlements. If impact mitigation is required, it is important that it be directly tied to specific, identified effects of the repository project for which mitigation is specifically provided under Section 116 of the Nuclear Waste Policy Act.

The Nuclear Waste Policy Act, as amended, provides for grants to the State and affected local governments to oversee the DOE program and to carry out impact assessment activities. Such grants are not considered benefits.

RECOMMENDATION 6:

WHILE IT IS UNDERSTOOD THAT UNDER THE PROVISIONS OF THE NUCLEAR WASTE POLICY ACT, AS AMENDED, THE STATE OF NEVADA AND AFFECTED LOCAL GOVERNMENTS ARE ELIGIBLE TO RECEIVE GRANTS EQUAL TO TAXES (GETT) AND THIS IS NOT INCONSISTENT WITH THE OPPOSITION OF THE
Discussion:

As noted in the commentary on Recommendation 1 above, the 1989 Legislature established a clear and unambiguous record of legislative intent with regard to the repository project. Actions taken by the 1991 Legislature must not be seen to, in any way, alter or dilute that intent.

In the past, proposed legislation to augment provisions of the Nuclear Waste Policy Act relative to Grants Equal to Taxes (GETT) have proven potentially problematic in this regard. Section 116 (c)(3) of the Act allows a state or affected local government which contains a repository site selected for characterization to receive annual grants in the amount that state or local government would have received had it been able to tax federal property and activity associated with the repository project.

The 1989 Legislature wisely chose not to act on two measures that may have sent contradictory signals regarding the State's position - a measure allowing creation of a special taxing districts for nuclear waste (and other hazardous) facilities and a constitutional amendment which would allow the State to tax high-level nuclear waste facilities at a higher rate than other property. Both measures were intended to enhance revenues available through GETT.

Legislation aimed at augmenting or otherwise enhancing revenue from the GETT provisions of the federal Act would be inconsistent with the 1989 Legislature's expressed opposition to the repository project and to the State law passed in 1989 which makes disposal of high-level nuclear waste illegal in Nevada. The Legislature should not, on the one hand, pass a state law making waste disposal illegal in Nevada and then, on the other hand, pass legislation providing for special taxing of this illegal activity.

Such legislation is likely to be perceived as akin to the Builfroge County measure passed in 1987 (and subsequently repealed in 1989) and would send the message to Congress and others that the Legislature may be hedging in its position on the repository.

Under existing provisions of Nevada law and the federal Nuclear Waste Policy Act, the State of Nevada and affected local
jurisdictions are eligible to receive grants in the amount of taxes not paid by the federal government because of the government's tax immunity. These grants are calculated according to State taxation rates and would include, primarily, property and sales taxes that would otherwise be due on federal property and equipment. This recommendation is not intended to suggest that the State and local governments should not apply for GETT funds to which they may be entitled under current law.

In addition to any GETT-related legislation, the Legislature should be cautious about any proposal which might be seen as revising or reinterpreting legislative intent as established in 1989. Such proposals might involve resolutions on nuclear power, changes in State nuclear waste oversight mechanisms, or other measures that could be used by DOE or others to imply a softening in State policy.

**RECOMMENDATION 7:**

THE COMMISSION EXPRESSES CONCERN OVER THE DEPARTMENT OF ENERGY'S LACK OF RESPONSE AND COMMITMENT TO PUBLIC AND STATE PARTICIPATION AS EXEMPLIFIED BY THE LACK OF TIMELY AND SUBSTANTIVE RESPONSE TO PUBLIC COMMENTS REGARDING THE PROPOSED SITE CHARACTERIZATION PLAN AND THE LACK OF RESPONSE TO STATE AGENCY COMMENTS.

**Discussion:**

In March, 1989, the Department of Energy held public hearings on its proposed Site Characterization Plan for Yucca Mountain. The hearings were required by the Nuclear Waste Policy Act and were held in Amargosa Valley, Las Vegas and Reno. A large number of people attended the hearings and several hundred submitted comments on the SCP and DOE's repository program. In addition, the State of Nevada, through the Agency for Nuclear Projects provided testimony at each of the hearings and submitted over 800 pages of comments on the SCP. Despite promises to respond expeditiously and substantively to comments received, DOE did not issue any responses until August, 1990, seventeen months after the hearings. The responses that were issued relative to public comments were largely generic and failed to indicate how the comments would be used in modifying the SCP and other DOE planning activities. As of the date of this report, DOE still has not responded to the State's comments.

The situation with regard to the SCP hearings and comments is reflective of a pattern that has characterized DOE's interactions with the State and with the public from the beginning of the high-level nuclear waste disposal program. While attending to the requirement in the Act for state and public involvement and participation, DOE has continually sought to minimize and even trivialize the input it receives from the public and the State.
RECOMMENDATION 8:

THE COMMISSION RECOMMENDS THAT THE AGENCY FOR NUCLEAR PROJECTS MAINTAIN A CLOSE WORKING RELATIONSHIP WITH THE PRESIDENTIALLY-APPOINTED NUCLEAR WASTE TECHNICAL REVIEW BOARD AND THE NUCLEAR REGULATORY COMMISSION'S ADVISORY COMMITTEE ON NUCLEAR WASTE AND OTHER FEDERAL ENTITIES IN ORDER TO ASSURE STATE TECHNICAL AND REGULATORY CONCERNS ARE RECOGNIZED AND ADDRESSED WITHIN THE FEDERAL SYSTEM. THE COMMISSION FURTHER RECOMMENDS THAT THE AGENCY RESIST ANY EFFORT BY FEDERAL REGULATORY BODIES TO TAILOR OR MODIFY HEALTH AND SAFETY REGULATIONS OR SCIENTIFIC MODELS TO FIT THE YUCCA MOUNTAIN SITE.

Discussion:

The Nuclear Waste Technical Review Board (NWTRB) was created as part of the 1987 amendments to the Nuclear Waste Policy Act. It was intended to provide for independent oversight of DOE technical activities with respect to the high-level waste program. The NWTRB is comprised of scientists and experts in various technical fields who have been nominated by the National Academy of Sciences and appointed by the President.

In its first full year of operation, the NWTRB has been aggressive in examining DOE's technical program at Yucca Mountain and has raised numerous issues and concerns about DOE's work and plans for work. The NWTRB has also been very receptive to information provided by State scientists and may serve as an effective channel for influencing future DOE and congressional decisions about Yucca Mountain and the national waste disposal program in general. It is important that the Agency and its researchers maintain close working relationships with the Board to assure that State information, findings and perspectives can be appropriately reflected in the NWTRB's deliberations and decisions.

The Nuclear Regulatory Commission's Advisory Committee on Nuclear Waste (ACNW) is another body which can influence licensing proceedings for a repository, should the project reach that stage. It is also influential in reviews and revisions of NRC regulations governing the repository program. Agency input into ACNW deliberations is important to maintaining a balanced and objective NRC position on the repository issue in general and repository licensing in particular.

The July, 1990 report by the National Academy of Sciences Board on Radioactive Waste Management, "Rethinking High-Level Radioactive Waste Disposal", combined with recent statements by DOE and congressional officials, indicates there is a growing awareness that the Yucca Mountain site cannot meet existing standards set by the Environmental Protection Agency and the Nuclear Regulatory Commission for health and safety and for licensing. Rather than eliminating Yucca Mountain from
licensing. Rather than eliminating Yucca Mountain from consideration, it has been suggested that the standards should be changed and tailored to meet conditions at the site. Such a proposal is not only contrary to historical environmental regulation in the United States, but it is potentially dangerous to the health, safety and well-being of the citizens of Nevada. The Commission believes that any attempt to weaken standards and regulations should be strongly resisted not only because of the effects such a move could have relative to Yucca Mountain, but also because of the dangerous precedent such action would set for environmental protection throughout the country.

In this regard, the Commission supports the stance taken by the Director of the U.S. Environmental Protection Agency's Office of Radiation Programs, Richard J. Guimond, that "we should be demanding that we have extremely restrictive standards." Dr. Guimond told a National Academy of Sciences Panel addressing the issue of standards and regulation for a repository in September, 1990 that "[t]o depart from [the historical] approach [to regulation] at this point would be to send a signal that we are ignoring public concern, which could be disastrous."

RECOMMENDATION 9:


Discussion:

Congressional reauthorization of the Hazardous Materials Transportation Act (HMTA) is important in assuring adequate and consistent regulation of the shipment of hazardous and nuclear materials throughout the country. Action taken by Congress regarding HMTA reauthorization will affect Nevada (and other states) in a variety of ways and over an extremely long time period. Shipments of radioactive materials destined for a repository or interim storage site anywhere in the country would be governed by the provisions of HMTA. Even if the Yucca Mountain repository project is abandoned, Nevada could still be affected by nuclear waste shipments from other states passing through Nevada enroute to an MRS, some other interim storage location, or a repository location.

The Commission concurs with Governor Miller's and the Western Governors' Association finding that there has been, over the past ten years, a disturbing tendency on the part of the federal government to undercut states' regulatory authority while failing to enforce existing federal regulations in the areas of hazardous materials transportation. Any reauthorization of the HMTA should
provide sufficient authority to the states to adequately assure public health and safety and effectively manage the shipment of hazardous and nuclear materials.

The Commission endorses the WGA Resolution 90-005 concerning the HMTA and urges the Governor and Legislature to help promote the incorporation of the WGA-sponsored provisions into any final bill reauthorizing the HMTA.

RECOMMENDATION 10:

THE COMMISSION RECOMMENDS THAT THE GOVERNOR AND LEGISLATURE URGE CONGRESS AND THE DEPARTMENT OF ENERGY TO EXPEDITIOUSLY AND SERIOUSLY EXPLORE ALTERNATIVES TO GEOLOGIC DISPOSAL OF NUCLEAR WASTE AT YUCCA MOUNTAIN. FURTHER, THE COMMISSION URGES THE NEVADA CONGRESSIONAL DELEGATION TO ACTIVELY PROMOTE AND SUPPORT ALTERATIONS IN NATIONAL WASTE DISPOSAL POLICY THAT ENCOURAGE LONG-TERM, AT-REACTOR STORAGE OF SPENT FUEL.

Discussion:

Given the inherent geotechnical problems at Yucca Mountain and the strong and continuing opposition of the State of Nevada to the location of a repository at the site, the identification of viable alternative means of waste storage becomes extremely important in solving the nation's commercial waste management problem. In light of the fact that, to date, no country has successfully mandated the establishment of a high-level nuclear waste repository or disposal facility over the opposition of an unwilling community or region, the need for acceptable alternatives to the current U.S. government approach to radioactive waste management and disposal is essential. (The Commission notes that repository programs in West Germany and France, once considered models for other countries, have been halted by citizen opposition. The most promising foreign programs appear to be those in Canada and Sweden, which rely on voluntary siting.)

The Commission finds no basis for the argument that geologic disposal is the only - or even the preferred - immediate solution. There does not appear to be any reason why long-term, at-reactor storage of spent fuel cannot be employed as an interim measure until more permanent means of reprocessing or disposing of the waste can be developed.

The bill introduced in Congress by Senators Bryan and Reid providing for the use of nuclear waste funds for development of on-site dry storage capabilities by nuclear utilities has considerable merit in this regard and deserves strong support. Likewise, the U.S. could learn from a number of European nuclear waste programs which stress long-term interim storage until the
uncertainties associated with geologic disposal can be adequately and safely dealt with.

The Nuclear Waste Policy Amendments Act of 1987 designated Yucca Mountain as the only site to be studied for a repository. It did not make provisions for an alternative approach should, as seems probable, Yucca Mountain prove unusable. While the 1987 Act did provide for the possibility of interim storage in the form of an MRS facility, the manner in which the MRS was linked to the repository and the inherent problems in finding an acceptable and workable MRS site make such a facility questionable as an alternative to Yucca Mountain in the near term.

The Commission believes that on-site, at-reactor dry cask storage is a proven and viable option that can buy the time needed to revisit the question of permanent disposal and resolve the nuclear waste problem for the short term (50 - 100 years). It is an option that should be pursued vigorously and expeditiously.

RECOMMENDATION 11:

THE COMMISSION RECOMMENDS THAT THE GOVERNOR AND LEGISLATURE CONTINUE TO URGE THAT THE DEPARTMENT OF ENERGY BEGIN SERIOUS TRANSPORTATION PLANNING, INCLUDING THE IDENTIFICATION OF NATIONAL HIGH-LEVEL WASTE SHIPPING ROUTES, AS A MEANS OF PROMOTING UNDERSTANDING OF THE WIDER IMPLICATIONS OF A YUCCA MOUNTAIN REPOSITORY.

Discussion:

In its 1988 report, the Commission indicated concern over DOE's lack of adequate transportation planning for repository-related high-level waste shipments. In the two years following the 1988 report very little has changed. As noted in the body of this report, DOE has issued documents on highway and rail routing, but those documents fall far short of what is needed for meaningful analysis and planning. Were it not for State and local government transportation initiatives, very little would have been done to address important transportation planning issues.

The Department of Energy has long been urged, by the State, local governments and regional groups such as the Western Interstate Energy Board, to begin the analysis necessary to identify national transportation routes to a repository, be it located in Nevada or elsewhere. In the absence of such route-specific analysis, planning at the state and local level is difficult, if not impossible, given the many uncertainties involved. National transportation routes can affect state and local government decisions about emergence preparedness, highway upgrading, in-state route designation and other factors. The fact that rail access to a proposed Yucca Mountain repository does not exist and will be extraordinarily problematic to construct
reinforces the need for early and comprehensive highway transportation planning on the part of DOE.
CHAPTER ONE

INTRODUCTION AND OVERVIEW

In response to growing public and governmental concern over the proposed high-level nuclear waste repository at Yucca Mountain in Southern Nevada, the 1985 Nevada Legislature enacted legislation which established a formal structure by which the State would oversee federal waste program activities.

NRS 459.009 - NRS 459.0098 transformed the Nuclear Waste Project Office, which previously functioned as part of the Governor's Office, into an independent, statutorily mandated Agency for Nuclear Projects. The same sections of the NRS also created a Commission on Nuclear Projects to support the Agency and to advise the Governor and Legislature on matters related to the high-level radioactive waste disposal program. The legislation which created the Commission charged it with the following responsibilities:

1. Be informed on issues and developments relating to the disposal of radioactive waste;

2. Report to the Governor and Legislature on any matter relating to the disposal of radioactive waste which the Commission deems appropriate and on any such matter requested by the Governor;

3. Advise and make recommendations to the Governor and the Legislature on the policy of the State concerning all projects involving the disposal of radioactive waste;

4. Formulate the administrative policies of the Agency for Nuclear Projects;

5. Advise State and local governments on litigation relating to radioactive waste; and

6. Adopt such regulations and perform such other duties as may be necessary to carry out the provisions of Senate NRS 459.009 to NRS 459.098, inclusive.

According to the formula stipulated in law, candidates for Commission membership were identified and lists of names submitted to the Governor between July and October, 1985. Governor Richard Bryan formally announced the appointment of Commissioners in November, 1985. Subsequently, all Commissioners have been reappointed.

The Commission began its formal work in December, 1985 and has continued to carry out its responsibilities on a regular basis since that time.
In November, 1986, the Commission issued its first report to the Governor and Legislature. That report examined federal and State nuclear waste program activities and discussed the Commission's findings relative to various aspects of the nuclear waste issue. Fifteen recommendations addressing a wide range of concerns identified by the Commission were contained in that first report.

A second formal report of the Commission was issued and delivered to the Governor and Legislature in November, 1989. That report discussed significant events that occurred with regard to the nuclear waste repository program since the publication of the November, 1986 report and presented current Commission findings relative to the nuclear waste issue. The second Commission report contained six recommendations intended to assist the Governor and Legislature in addressing nuclear waste issues.

This third report of the Commission summarizes high-level waste program developments since November, 1988 and presents findings of the Commission based upon investigations and activities undertaken subsequent to the 1989 legislative session.

OVERVIEW OF NUCLEAR WASTE PROGRAM DEVELOPMENTS

Since the last Commission Report, a number of events have occurred which are of significance within the context of the national high-level radioactive waste disposal program.

Federal Agency Nuclear Waste Program Developments

(1) Release of DOE's Site Characterization Plan

In December, 1988, DOE issued its required Site Characterization Plan (SCP) for the Yucca Mountain site. The release of the final SCP followed by eleven months the issuance of a "Consultation Draft SCP". The State of Nevada, the Nuclear Regulatory Commission, the nuclear utilities and others commented extensively on the draft SCP (see the November, 1988 Report of the Nevada Commission on Nuclear Projects). The State concluded that (1) DOE failed to recognize the complexity of the site; (2) DOE appears to have determined that careful characterization is not necessary, nor perhaps desirable; and (3) DOE failed to effectively develop and manage the required scientific program to confidently select and characterize the site. State reviewers further observed that the draft plan appeared to be driven entirely from engineering considerations with little thought about the broader scientific questions which are raised by the proposed repository. Despite strong criticism of the draft SCP, DOE made few substantive changes before releasing the document in final form.
Upon release of the statutorily required SCP, DOE scheduled a series of public hearings, as specifically required by the Nuclear Waste Policy Act. Hearings were conducted during the month of March, 1989 in Amargosa Valley, Las Vegas and Reno. Over 800 people attended the hearings and over 2,000 individual comments were recorded (exclusive of the State, NRC and utilities' extensive comments).

In August, 1990, some sixteen months later, DOE issued responses to public comments received at the hearings. As of the drafting of this report, DOE had not responded to State, NRC or utility comments.

(2) The Secretary of Energy's Report to Congress on Reassessment of the HLW Program

In September, 1989, Congress instructed Secretary of Energy James Watkins to submit, within 60 days, a report on how DOE plans to respond to Congress' concerns over schedule slippage, management problems, and the lack of integrated contractor efforts with regard to the high-level waste program.

On November 28, the Secretary released his report. The report set forth a three-pronged approach for dealing with DOE's repository program problems. It proposed changes in program management, including centralizing the management of the Yucca Mountain project at DOE headquarters by restructuring the program so that the Yucca Mountain Project Office (YMPO) in Nevada reports directly to DOE/HQ instead of to the Nevada Operations Office.

The report also pledged DOE and the Administration to move expeditiously to fill the position of Office of Civilian Radioactive Waste Management (OCRWM) director, a post that has been vacant for over two years following the resignation of Ben Rusche. (Dr. John Bartlett was subsequently nominated and confirmed by Congress for the position).

In addition, Secretary Watkins promised to work with the Administration in appointing the Nuclear Waste Negotiator, a position created by the Amendments Act of 1987, but not filled until July, 1990. According to the report the Negotiator would attempt to find a state willing to host either a repository or a Monitored Retrievable Storage (MRS) facility and "provide assistance in facilitating the repository program". Idaho attorney David Leroy was selected by the President to serve in the position and was confirmed by Congress shortly before the Summer, 1990 recess.

Other major aspects of the Secretary's reassessment of the high-level waste program include:
- DOE's decision to file suit against the State of Nevada if permits for on-site work are not issued within 30 days;

- Revision of the program schedule indicating that a repository cannot begin operation before 2010 at the earliest (the previous date had been 2003, which was a revision of the 1998 opening date set forth in the Nuclear Waste Policy Act);

- The implication that most of the data collected by DOE relative to the Yucca Mountain site may be unusable in a licensing proceeding - data collection may have to start from scratch;

- The announcement of the intent to initiate a surface-based testing program at Yucca Mountain and the postponement of the exploratory shaft until at least 1992 (assuming early and successful litigation against Nevada);

- Plans for DOE to move forward on an MRS facility that is not linked to the repository. (Note: The DOE-proposed facility is not the Federal Emergency Storage (FES) or User Funded Interim Storage (UFIS) facility recommended by the MRS Commission. Rather DOE appears to be moving in the direction of an integrated MRS for longer term interim storage located near the concentration of nuclear power reactors somewhere in the eastern part of the U.S.)

(3) Appointment of a Director for the Office of Civilian Radioactive Waste Management

In April, 1990, John W. Bartlett was confirmed by the U.S. Senate as Director of the DOE Office of Civilian Radioactive Waste Management (OCRWM). Bartlett filled the post which had remained vacant since the resignation of Mr. Ben Rusche in 1987.

Dr. Bartlett's confirmation was made possible when Nevada's two Senators, Richard Bryan and Harry Reid, agreed to release holds they had placed on the nomination. Those holds were removed after Dr. Bartlett met with the Nevada congressional delegation, Commission Chairman Grant Sawyer, and Agency for Nuclear Projects Executive Director Robert Loux and assured them that he would support adequate funding for State oversight of the DOE program. Dr. Bartlett indicated that he supported Agency funding at approximately 5% of DOE's high-level waste budget.

(4) Appointment of the Federal Nuclear Waste Negotiator

The Nuclear Waste Policy Amendments Act of 1987 created the Office of Nuclear Waste Negotiator for the purpose of attempting to find volunteer states and/or Indian Tribes willing to host a repository or MRS facility. The Negotiator, to be appointed by the President and confirmed by Congress, would have five years
from the date of the enactment of the Amendments Act (December, 1987) to locate willing states/tribes and negotiate agreements for siting the agreed upon facility. Congress would have to approve of the agreements and appropriate any funds that were contemplated.

In July, 1990, Congress voted to confirm Mr. David Leroy as the Nuclear Waste Negotiator. Mr. Leroy was nominated for the post by President Bush two and one half years after the passage of the Amendments Act. Mr. Leroy's first task will be to try to find a host for an MRS facility which, according to the Secretary of Energy's Reassessment Report, DOE hopes to have available to accept waste by 1998.

Nevada's Congressional Delegation met with Mr. Leroy prior to his confirmation and received assurances that he will not attempt to negotiate with any state (including Nevada) unless the state has indicated its willingness to consider hosting a repository or MRS. The delegation indicated that Nevada would not consider either facility and that negotiations with the State were not wanted.

(5) U.S. Nuclear Waste Technical Review Board

The Nuclear Waste Technical Review Board (NWTRB) was created by the 1987 Nuclear Waste Policy Amendments Act (NWPAA) to evaluate the technical and scientific validity of the DOE's program to develop a geologic repository for the permanent disposal of commercial spent fuel and defense high level waste. The Board also is charged with evaluating DOE's nuclear waste transportation and packaging activities. The Board is to consist of eleven members from different disciplines, selected by the President from among persons nominated by the National Academy of Sciences. The NWPAA requires the NWTRB to report to Congress and the Secretary of DOE not less than two times per year. The NWPAA authorizes the NWTRB to conduct its activities continuously over the life of the repository project, and grants the NWTRB substantial investigative powers.

The NWTRB began operation in early 1989. At the present time, nine of the eleven Board members have been appointed or reappointed, and the NWTRB has hired an executive director, five professional staff members, and an administrative staff. The Board has organized itself into seven panels: Structural Geology and Geoengineering, Hydrology and Geochemistry, Engineered Barrier Systems, Transportation and Systems, Environment and Public Health, Risk and Performance Analysis, and Quality Assurance. The Board and its panels have held more than two dozen meetings and hearings since January, 1989.

The NWTRB issued its first report to Congress in March, 1990. The NWTRB did not make any recommendations requiring congressional
action, but it did make twenty-four specific recommendations "intended to aid the DOE in its effort to improve technical work being conducted at the site, to assist the DOE in its overall study plan, and to advise Congress and the Secretary of Energy on regulatory or legislative areas of potential future concern." Regarding DOE and State of Nevada interactions, the Board recommended that "the DOE continue its efforts to resolve the present impasse on permitting of site characterization studies. Unless the impasse is resolved, the Yucca Mountain Site cannot be characterized because needed scientific and technical work cannot proceed." The Board also identified five crosscutting issues for future inquiry: A systems engineering and analysis approach, the relative importance of natural and engineered barriers; thermal loading of a repository, repository suitability and licensing standards, and current DOE priorities.

(6) Monitored Retrievable Storage Review Commission

The 1987 Nuclear Waste Policy Amendments Act provided for the establishment of a congressionally-appointed, three member commission to study the need for and operational elements of an MRS facility. The NWPAA required the Review Commission to report to Congress on its findings and recommendations. The report, entitled Nuclear Waste: Is There A Need For Federal Interim Storage?, was released in November, 1989.

The Commission reached five conclusions which were generally favorable to the concept of an MRS facility:

1. Both the MRS and NO-MRS options are safe. From a safety standpoint, the difference between at-reactor storage and storage at an MRS "is so small that the magnitude of the difference should not affect the discussion whether there should be an MRS."

2. The economic costs of an MRS are lower than previously estimated because of delays in the repository program, and the economic benefits of an MRS "would be especially significant if the repository operation were to be delayed beyond 2013 . . ."

3. The cumulative advantages of a system containing an MRS are greater than those of a NO-MRS system, especially if the repository is delayed beyond 2013 and an MRS is in operation by 2000.

4. An MRS facility should not be linked to the repository schedule and should not be limited in capacity, as is currently the case under the NWPAA.
5. Some federal interim storage facilities should be constructed "in the national interest to provide for emergencies and other contingencies."

In its recommendations, however, the Commission backed away from DOE's MRS concept. The Commission recommended:

1. Congress should authorize construction of a Federal Emergency Storage (FES) facility with a capacity limit of 2,000 MTU.

2. Congress should authorize construction of a User-Funded Interim Storage (UFIS) facility with a capacity limit of 5,000 MTU.

3. Congress should reconsider the subject of interim storage by the year 2000.

The Commission report appears to have done little to resolve the controversy over the MRS. The report has been criticized by both MRS proponents and opponents. The utility industry has shown little interest in the user-funded facility recommended by the Commission. Although the MRS Commission failed to endorse the DOE concept of an integrated MRS (i.e., one that is part of the overall waste management system and serves as a packaging, handling and shipping facility as well as an interim storage facility), DOE announced that it intends to pursue its version of the MRS, with primary reliance on the Nuclear Waste Negotiator to find a volunteer site.

(7) U.S. Nuclear Regulatory Commission Actions

During the past year, the U.S. Nuclear Regulatory Commission (NRC) has taken action in three areas which directly affect the federal high-level nuclear waste management program. First, the NRC issued a proposed revision of the Waste Confidence decision. Second, the NRC issued a final rule amending the licensing requirements for dry-storage installations at nuclear reactor sites. Third, the NRC issued an advance notice of proposed rulemaking and supporting technical documents regarding renewal of operating licenses for nuclear power plants.

In September, 1989, the NRC published (54 FR 39767) a proposed revision (which has since been finalized) of its 1984 decision in the Waste Confidence Proceeding. The purpose of the Waste Confidence Proceeding was "to assess generically the degree of assurance now available that radioactive waste can be safely disposed of, to determine when such disposal or off-site storage will be available and to determine whether radioactive waste can be safely stored on-site past the expiration of existing facility licenses until off-site disposal or storage is available."
After reviewing developments over the past five years, the NRC has decided to revise two of its key findings. First, the NRC has revised its earlier finding that a geologic repository would be available by the years 2007-2009. The NRC now finds "reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and that sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level radioactive waste and spent fuel originating in such reactor and generated up to that time." Second, the NRC has concluded that "spent fuel can be safely stored without significant environmental impact for at least 100 years, if necessary." The NRC, therefore, now finds "reasonable assurance that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised license) of that reactor at its spent fuel storage basin, or at either on-site or off-site independent spent fuel storage installations." Additionally, the NRC decided that future reassessments of the Waste Confidence decision should be made every 10 years, rather than every 5 years as originally proposed. The NRC now believes that "predictions of repository availability are best expressed in terms of decades rather than years. To specify a year for the expected availability of a repository decades hence would misleadingly imply a degree of precision now unattainable."

In July 1990, the NRC issued (55 FR 29181) final rules amending the licensing requirements (10 C.F.R. Part 72) for storage of spent fuel at nuclear reactor sites. The Commission rule, directed by the NWPAA, would exempt utilities planning to use metal dry storage casks previously approved by the NRC from additional site-specific licensing approvals. The NRC has already certified four metal storage cask designs which could be used under provisions of the new rule. The practical effect of this rule will probably be expedited regulatory approval of utility proposals to expand at-reactor storage capacity. The new regulations may also promote utility use of dual purpose (storage/transport) casks, once storage cask designs are approved for off-site transportation.

In July, 1990, the NRC published a proposed rule and three draft reports (NUREG-1362, NUREG-1398, and NUREG-1412) regarding nuclear power plant license renewal. The NRC is considering adoption of a rule which would allow extension of existing reactor operating licenses by up to 20 years. Such a rule, if adopted, would increase reactor operating lifetimes from a maximum of 40 years to a maximum of 60 years. NRC staff has not directly addressed the complications of the proposed rule on the federal nuclear waste management system, although the environmental assessment (NUREG-1398) acknowledges "utilities may find
relicensing more attractive for a greater portion of their plants, thereby leading to a greater volume of spent fuel to be stored over time."

Agency for Nuclear Projects staff have not yet completed review of the proposed rule and supporting documents, but preliminary analysis suggests potentially significant impacts on the federal repository program. If all currently operating reactors are allowed extensions under the proposed rule, there could be a 20-50 percent increase in the anticipated inventory of commercial spent fuel, depending upon fuel discharge burnup levels. The result would be a proportional increase in disposal capacity requirements, almost certainly requiring a second repository on technical grounds even if the 70,000 MTU limit on first repository emplacements were lifted by Congress. There would also be a proportional increase in waste system transportation requirements and impacts.

(8) National Research Council Report on Rethinking the Federal High-Level Waste Program

In July, 1990, the National Research Council of the National Academy of Sciences (NAS) released a report titled, "Rethinking High-Level Radioactive Waste Disposal". The report, funded under an agreement with the Department of Energy and compiled under the auspices of the NAS Board on Radioactive Waste Management, summarized the results of a week-long study session in July, 1988, where experts from the U.S. and abroad (selected by the Board) held discussions of current United States policies and programs for high-level radioactive waste management.

The report concluded that the U.S repository program, as currently structured and managed, has little chance of success because no site is likely licensable and because of the regulatory approach, it is believed no site can be licensed.

In a series of seven recommendations, the Board proposed major changes in the way the country approaches high-level waste disposal and management. The report suggested that a more flexible approach to licensing and regulation be employed. This would entail the development of standards based upon characteristics of the site. The report recommends meeting problems "as they emerge, instead of trying to anticipate in advance all the complexities of a natural geological environment." In addition, the report recommended a role for the project regulators in designing the repository, a major departure from established regulatory policy in the United States. The specific recommendations of the report are as follows:

1. Congress should reconsider the rigid, inflexible schedule embodied in NWPA and the 1987 amendments. It may be appropriate to delay the licensing application, or even the
scheduled opening of the repository, until more of the uncertainties can be resolved. The Secretary of Energy's recent announcement of a more realistic schedule, with the repository opening in 2010 rather than 2003, is a welcome step.

2. The Environmental Protection Agency (EPA), during its revision of the remanded 40 CFR Part 191, should reconsider the detailed performance standards to be met by the repository, to determine how they affect the level of health risks that will be considered acceptable. In addition, EPA should reexamine the use of quantitative probabilistic release criteria in the standard and examine what will constitute a reasonable level of assurance (i.e., by what combination of methods and strategies can DOE demonstrate that those standards will be met?). All other countries use only a dose requirement. In setting regulatory standards and licensing requirements, the EPA should consider using only dose requirements.

3. The NRC, likewise, should reconsider the detailed licensing requirements for the repository. For example:

- What level of statistical or modeling evidence is really necessary, obtainable, or even feasible?

- To what extent is it necessary to prescribe engineering design, rather than allowing alternatives that accomplish the same goal?

- What can be done to accommodate design changes necessitated by surprises during construction?

- What new strategies (e.g., engineered features like copper containers) might be allowed or encouraged as events dictate?

4. The Department of Energy, for its part, should continue and also expand its current efforts to become a more responsive player in these regulatory issues. The following activities should be included:

- publicly negotiated prelicensing agreements with the NRC on how to deal with the high levels of uncertainty arising from numerical predictions of repository performance;

- publicly negotiated prelicensing agreements with the NRC on improved strategies for performance assessment;
active negotiations with EPA and the NRC on the real goals and precise definitions of their standards and requirements;

- an extramural grant program, in cooperation with the National Science Foundation, for the development of improved modeling methodology, in combination with training programs and public education efforts;

- expanded use of expert scientists from outside the program to review and critique detailed aspects and to provide additional professional judgment;

- greatly expanded risk communication efforts, aimed at reaching appropriate and achievable goals acceptable to the public; and

- meaningful dialogue with state and local governments, Indian tribes, environmental public interest groups, and other interested organizations.

5. The Department of Energy should make greater use of conservative engineering design instead of using unproven engineering design.

6. The Department of Energy should participate more actively in international studies and forums, such as those sponsored by the International Atomic Energy Agency, the Nuclear Energy Agency, and the Commission of European Communities, and should subject its plans and procedures to international scientific review, as Sweden, Switzerland, and the United Kingdom have already done.

7. Although geologic disposal has been the national policy for many years, and the Board believes it to be feasible, contingency planning for other sites and options (for example subseabed disposal of spent fuel and high-level radioactive waste) should be pursued. The nation, the Congress, the federal government, utilities, and the nuclear industry should recognize the importance of contingency planning in the event that some issue should make it impossible to license a geologic repository.

**State of Nevada Developments**

Several developments within the State of Nevada have implications for the HLW program.

1. Passage of AJR 4 and AJR 6 by the 1989 Legislature

   Responding to recommendations made by the Commission in its November, 1988 Report, the 65th Session of the Nevada
Legislature adopted two resolutions intended to embody State policy on the proposed Yucca Mountain repository.

AJR 4 formally advised Congress that the Legislature opposed the establishment of a high-level nuclear waste repository in Nevada. AJR 6 advised Congress that the Legislature would not grant its consent for the cession of jurisdiction required for the withdrawal of land for a repository. Taken together, these two resolutions established a clear, unambiguous and formal State position of opposition to the proposed repository project.

Both resolutions were passed by the Legislature and signed by the Governor. They were transmitted to Congress in April, 1989.

(2) Passage of AB 222 by the 1989 Legislature

Before adjourning, the 1989 Legislature passed, and the Governor Miller subsequently signed, Assembly Bill 222 (NRS 459.910) which states simply that, "[i]t is unlawful for any person or governmental entity to store high-level radioactive waste in Nevada." Together with two resolutions opposing the repository project (AJR 4) and withholding legislative consent for the withdrawal of land for a repository (AJR 6), AB 222 established a clear and unambiguous State of Nevada position with respect to the proposed Yucca Mountain facility, an action recommended by the Commission on Nuclear Projects in its 1988 Report.

(3) State Veto of the Site

In October, 1989, Governor Miller advised DOE that the State had successfully vetoed the Yucca Mountain site, pursuant to the provisions of the Nuclear Waste Policy Act as amended. The governor's contention is based upon the two resolutions (AJR 4 and AJR 6) passed by the 1989 Nevada Legislature, signed by the governor and transmitted to Congress in April, 1989. The resolutions advised Congress of the State's opposition to the facility and withheld state consent for the cession of jurisdiction over the land necessary for the repository.

The Governor, supported by the State Attorney General, contends that these two resolutions constitute a legitimate veto because of the changes in the site selection process brought about by the 1987 Amendments Act. Since the Congress failed to override the State's veto in the 90 days provided for in the Act, the veto should stand and the project in Nevada is legally invalid. As a result, the Governor has advised State permitting agencies that they need not act on DOE permits for the Yucca Mountain project. On September 19,
1990, the Ninth U.S. Circuit Court of Appeals ruled against Nevada's argument. (As of the date of this draft, a decision by the State to appeal the ruling had not been made.)

(4) Request to Disqualify Yucca Mountain on Technical Grounds

When Secretary of Energy Watkins announced plans to reassess DOE's high-level waste program in response to Congress' directive, Governor Miller wrote to the Secretary in November, 1989 advising him formally of a number of technical disqualifiers at Yucca Mountain which make the site unsuitable even under DOE's own Siting Guidelines. The Governor's conclusions were based upon information contained in DOE's existing $1 billion data base. Disqualifying conditions include the potential for tectonic activity (faulting, earthquakes and volcanism), the potential for commercially viable mineral resources at the site (making it impossible to assure that humans will not intrude into the repository in the future), and the rapid ground water travel time which would make it impossible for the site to meet EPA and NRC licensing standards and could lead to aquifer contamination in the future.

The Governor asked the Secretary to acknowledge these disqualifying conditions in his report to Congress reassessing the repository program and use the opportunity to refocus the program away from the politically driven course that has led to Yucca Mountain and towards an alternative, scientifically oriented solution to the country's nuclear waste problem. The Secretary rejected the Governor's request and instead threatened legal action to obtain permits to continue work at Yucca Mountain.

Congressional Developments

In July, 1989, Congress approved the FY 1990 Energy and Water Appropriations Act which severely restricted the funds available for State of Nevada oversight of DOE's high-level waste program. Using language crafted by Senate Energy and Water Appropriations Subcommittee Chairman J. Bennett Johnston (D-LA), Congress allocated $11 million for the State of Nevada but directed that $6 million of that amount be made available only at the discretion of the Secretary of Energy if he determined that Nevada was cooperating with DOE in the Yucca Mountain Project. The Appropriations measure further specified that, of the remaining $5 million, $1 million was to be made available by the State to the University of Nevada Reno (UNR) for unspecified "infrastructure" studies. A separate appropriation of $10 million was made to UNLV for a supercomputer. Formally-designated "affected units of local government" were together allocated $5 million.
As a result of the FY 1990 Appropriations action, the State oversight program was effectively reduced to $4 million, down from $11 million in FY 1989 and almost $15 million in FY 1988. (The State has sought approximately $24 million annually for an adequate oversight program.) Nevada's congressional delegation, lead by Senators Harry Reid and Richard Bryan, decried the reductions and charged that they were aimed at forcing the State into cooperating with the project.

In drafting FY 1991 appropriations language, the Senate Energy and Water Appropriation Subcommittee attempted to further reduce State oversight funds (from $4 million in FY 1990 to $2.8 million in FY 1991). As a result of concerted action on the part of Senator Reid and Senator Bryan, however, the full Senate agreed to a funding level of $5 million for the State's program with an additional $1 million to be made available to UNR and UNLV through the State grant. Affected local governments together would receive $5.9 million, and UNLV and UNR would receive $5 million.

At the time this report was being prepared, Congress had not completed action on the FY 1991 Energy and Water Appropriations measure. However, it was expected that, when the House-Senate Conference Committee reconciles the measures, the funding levels specified in the Senate version of the bill would be incorporated into the final measure, since the House of Representatives had already agreed to a higher figure for the State. The Senate action was considered to be significant because, while State funding levels continued to be below what is considered necessary for the oversight effort, it marked the first time that Nevada's congressional delegation has been successful in objecting to punitive cutbacks in Nuclear Waste Funds for the State.
CHAPTER TWO

ACTIVITIES AND FINDINGS OF THE COMMISSION

ACTIVITIES OVERVIEW

Between March, 1989 and October, 1990, the Commission held six meetings during which Commission members received reports and testimony concerning the status of the Agency for Nuclear Projects' (Agency) program, local government programs, Indian Tribes issues and activities, public concerns, and developments in the national high-level waste disposal program.

In order to familiarize itself with important issues surrounding the nuclear waste program, the Commission arranged for representatives of DOE, the nuclear industry, environmental interests, other state agencies, local governments, Indian Tribes, Nevada's Congressional Representatives and members of the public, to provide information at Commission meetings relative to nuclear waste issues and developments in the high-level nuclear waste program. The Executive Director of the Agency and the administrators of the Technical and Planning divisions provided regular updates relative to Agency activities. Representatives from DOE's Office of Civilian Radioactive Waste Management Yucca Mountain Project Office (YMPO) in Las Vegas provided reports and updates to the Commission.

At its meetings, the Commission also sought and received comments and presentations from local governments, Native American communities, and members of the public relative to the nuclear waste program. Commissioners actively encouraged public and local government participation in the nuclear waste issue and established a process whereby such participation could be facilitated.

Individuals other than Agency staff making presentations or providing information to the Commission included the following:

- Governor Bob Miller, who discussed developments in the nuclear waste program in December, 1989, especially the unified position of opposition to the project that the State of Nevada has taken and the effectiveness of that position in halting federal efforts to force the repository on Nevada.

- Senator Richard Bryan, who discussed congressional developments with regard to the high-level waste program, the impact in Congress of Nevada's strong stand opposing the project and the prospects for the future (which Senator Bryan viewed with cautious optimism).
Representatives from the Nevada Department of Transportation (NDOT), who explained the NDOT highway routing study for radioactive materials.

Carl Gertz, Director of DOE's Yucca Mountain Project Office, who updated the Commission on the status of the DOE program in Nevada.

Dr. Arjun Makhijani of the Institute for Energy and Environmental Research, who provided an overview of the federal waste management program and critiqued federal repository efforts from the standpoint of an outside technical agency. Dr. Makhijani concluded that, as presently constituted, the DOE program is extremely poorly managed and has little chance of success and the Congress and utilities would do well to look for alternatives, such as on-site storage.

Mr. Steven Kraft of the Edison Electric Institute, who provided an overview of the utilities' position on the current waste program. Mr. Kraft generally concluded that, while there are many problems with the DOE program and there is a need for alternative planning, DOE should be allowed to proceed with site characterization at Yucca Mountain.

Dr. Marvin Resnikoff of the Radioactive Waste Campaign, an environmental group actively overseeing the DOE waste program. Dr. Resnikoff reviewed the DOE program from the standpoint of its transportation implications and echoed Dr. Makhijani's conclusion that the program was poorly managed and likely would fail in its current form.

TECHNICAL ISSUES AND PROGRAMS

The Commission heard from DOE officials, Agency staff, and others on certain technical aspects and issues concerning a repository at Yucca Mountain. Both the State and DOE technical programs have been functioning at relatively low levels, but for different reasons. DOE's technical programs have been beset by a variety of problems, including the lack of adequate and Nuclear Regulatory Commission-approved quality assurance programs, Nuclear Waste Technical Review Board criticism of exploratory shaft design and construction plans, controversy as to the proposed site for an exploratory shaft, disagreement over how to approach the issue of site suitability, and failure to obtain needed environmental permits. State technical activities have had to be curtailed because of budget cuts resulting from FY 1989 and FY 1990 congressional appropriations actions.
DOE Technical Activities/Issues

In 1985, DOE agreed that it would not begin technical activities related to site characterization until it had demonstrated, to the satisfaction of the NRC, that quality assurance (QA) programs required by NRC licensing regulations were in place and functioning. In comments on DOE's Site Characterization Plan in July, 1989, the NRC noted that none of the required QA plans for activities referenced in the SCP had been developed and approved. On March 20, 1990, the U.S. General Accounting Office (GAO) issued a report detailing the status of DOE's QA efforts and commented that DOE's schedule for completing the QA programs had continually slipped. In February, 1990, the NRC indicated that QA plans for Yucca Mountain were not expected to be approved until September, 1990, at the earliest.

In July, 1989, the NRC, together with State scientists, questioned DOE's plans for the design and construction of the proposed exploratory shaft facility (ESF). NRC noted that the proposed site of the ESF was located within a potential flood plain and that the ESF design report did not consider all applicable regulatory requirements. In early 1990, the Nuclear Waste Technical Review Board also questioned DOE proposals for ESF construction and recommended that DOE review and reconsider the approach planned for constructing the ESF.

As a result of NRC, NWTRB and State criticism, DOE is re-evaluating its plans for site studies planned to begin in 1991, and has deferred the start of ESF construction until mid-1992, assuming the Department is successful in obtaining environmental permits, and all QA and design problems can be solved.

State Technical Activities/Issues

State of Nevada technical activities continued to focus on the site's geological characteristics that appear to indicate the presence of disqualifying conditions at the Yucca Mountain site. Using data developed by Agency researchers, Governor Bob Miller, in November, 1989, wrote to Secretary of Energy James Watkins laying out evidence of disqualifiers at the site and urging the Secretary to recognize that Yucca Mountain is not a licensable site for a repository. The disqualifying conditions cited by the governor include:

- the potential for exploitable natural resources in the Yucca Mountain area (increasing the potential for human intrusion into the repository in the future);

- the possibility for renewed volcanic and geothermal activity at the site;
the possibility that a Yucca Mountain repository, because of its geophysically active location, could result in the contamination of ground-water for the Amargosa Valley area in the future;

- the extreme difficulties in accurately modeling the geohydrologic environment at Yucca Mountain in order to make predictions about future conditions with any degree of certainty.

Much of the efforts of the Agency for Nuclear Projects technical staff and its various contractors during the past year was devoted to interactions with the NWTRB, NRC, and the DOE. At the invitation of the NWTRB and its various technical panels, the State of Nevada made presentations on Nevada's technical concerns with the Yucca Mountain site, a methodology to determine site suitability, environmental issues, transportation issues, and the State's quality assurance program. The State also participated by invitation in two field trips sponsored by the NWTRB: a visit to young volcanic centers in southern Nevada; and a visit to Mexico to observe the mechanical boring of tunnels. State scientists have also participated in numerous NWTRB technical meetings, discussing seismic hazards, tectonics, hydrology, geochemistry, waste package design, performance assessment, and transportation.

The Nuclear Regulatory Commission's Advisory Committee on Nuclear Waste (ACNW) also invited the State and its technical contractors to discuss specific issues with the Committee. Detailed presentations were made on technical evaluations of the Yucca Mountain site and the potential for future human intrusion of the repository.

State scientists also actively participated in NRC/DOE technical meetings. These meetings focused on such subjects as unsaturated zone hydrology, calcite/silica vein deposits, seismic hazards, tectonics, repository design control process, exploratory shaft facility geophysical anomaly, substantially complete containment, and the Midway Valley study plan.

In 1989 and 1990 the Agency for Nuclear Projects led three field trips to Yucca Mountain and the southern Nevada region to discuss its findings. The trips included: (1) a review of field evidence of recent volcanism in southern Nevada for the NRC; (2) a review of Yucca Mountain and regional hydrologic studies for the
NRC; and (3) a review of the field evidence and interpretations related to understanding the regional tectonics in southern Nevada for the NRC and NWTRB.

In 1990 the National Academy of Sciences convened a panel of scientists to review the concept of coupled processes (hydrologic, tectonic, hydrothermal) occurring at Yucca Mountain. The panel's objective is an outgrowth of a hypothesis originally proposed in 1987 by Dr. Jerry Szymanski, a DOE physical scientist, that the hydrologic system responds to changes in tectonic and hydrothermal processes and any resulting changes to the hydrologic system may not be predictable. State scientists participated by invitation in the panel's technical meetings and contributed technical presentations on hydrology and tectonics, and participated in the panel's field trip to review evidence of coupled processes at Yucca Mountain and in the southern Nevada region. The panel is expected to conclude and report its deliberations in 1991.

State Environmental Issues

In 1988, the State initiated an environmental oversight program for DOE site characterization activities at Yucca Mountain. The program plan includes reviewing existing environmental information and determining what additional information and data should be developed in order to assure that environmental impacts of site characterization are avoided or minimized. The State program calls for collection and analysis of baseline field data to improve understanding of the existing ecological system at the site. This will expand the information base used by the State to review DOE's environmental program and plans, including reclamation, and assist the State in its oversight and monitoring of the impacts of DOE's activities.

Implementation of the full environmental program was hindered by a reduction in funds for State activities and site access restrictions.

Major accomplishments of the environmental program to date have been the documentation of the extent of site disturbance from previous DOE activities, a reconnaissance survey of critical habitat on Yucca Mountain, presence of endangered species, and soil and vegetation types, and a preliminary assessment of methodologies and costs involved in reclamation of the site if DOE discontinues activities at Yucca Mountain.

At-Reactor Spent Fuel Storage Issues

Passage of the Nuclear Waste Policy Act of 1982 created an atmosphere of optimism among governmental and private sectors in this nation that the problem of closing the nuclear fuel cycle through early development of a geologic repository was soon to be resolved. The prevailing rhetoric leading to passage of the 1982
Act was that if a repository is not available very soon, nuclear power reactors may have to shut down prematurely due to lack of spent fuel storage space and full core reserve capacity. Since 1982, feasible technologies have developed rapidly for expansion of spent fuel storage at the reactors, and the option of off-site spent fuel storage is technologically achievable as well. In 1989, the Agency for Nuclear Projects conducted a review of the status of spent nuclear fuel storage in the United States, present spent fuel storage technology, and spent fuel storage options for the future. The results of that review was summarized in an October 1989 Agency report titled: "Storage Of Spent Fuel From The Nation's Nuclear Reactors - Status, Technology, And Policy Options".

The report described the available spent fuel storage capacity at commercial nuclear reactors and discussed the feasibility of away-from-reactor storage concepts such as a Monitored Retrievable Storage (MRS) facility or a Federal Interim Storage (FIS) facility. The report summarizes available on-site storage technologies such as metal or concrete casks, dual-purpose casks, and modular vaults. The report concludes that available technology exists for either on-site storage or off-site storage, but there is a need to develop national policy that provides an orderly approach to assuring safety and security in meeting expected needs for additional spent fuel storage for an indefinite future period. The conclusion regarding the availability of safe storage technology is consistent with the NRC's Waste Confidence finding discussed earlier in this report. The report also concludes that there is reason to continue to evaluate the option of geologic disposal, but only through an objective research and development approach.

SOCIOECONOMIC ISSUES AND PROGRAMS

Possible effects of the proposed Yucca Mountain repository and related high-level waste transportation continue to be of significant concern to the State of Nevada, potentially impacted local governments and Native American communities. Since 1986, the State has been engaged in a comprehensive program of impact assessment and research aimed at understanding possible repository effects and determining how they can best be addressed. DOE has also initiated several socioeconomic impact identification activities which, although less ambitious and sophisticated than the State program, could be important in shaping federal government and congressional views on possible repository ramifications.

Following passage of the 1987 Amendments Act, which provided funding for independent socioeconomic impact assessment on the part of "affected units of local government", Nye, Clark and Lincoln counties have also begun their own socioeconomic programs.
These efforts have been funded by DOE since 1988 and are seen as being complimentary to ongoing State socioeconomic work.

DOE's Socioeconomic Program

DOE has attempted, since 1985, to examine, or at least speculate about, possible impacts to communities and the State that might result from a repository at Yucca Mountain. These efforts have generally been in response to statutory or other requirements and have been less than comprehensive.

The 1982 Nuclear Waste Policy Act required DOE to prepare Environmental Assessments (EA) for sites being evaluated as potential repository locations. It also required DOE to mitigate impacts associated with the repository program.

In 1985, DOE issued its EA for the Yucca Mountain site. As described in previous Commission Reports, that document contained discussion of the possible effects of the repository on socioeconomic conditions within Nevada. The EA concluded that any impacts would likely be small or insignificant. State reviewers found the DOE conclusion to be unsubstantiated and noted that the EA was flawed in a number of important respects with regard to its treatment of socioeconomic issues and impacts. They concluded that the document presented a "best-case" scenario that minimized potential impacts to the social and fiscal systems of southern Nevada; it ignored risk, assumed unchanging demographics, and proceeded from the premise that all markets function with perfect information; and it also used a model of questionable validity and ignored relevant differences between Clark and Nye counties (and ignored the rest of the State entirely).

The 1987 Amendments to the Nuclear Waste Policy Act required DOE to prepare a report to Congress on possible socioeconomic impacts associated with a Yucca Mountain repository. The "Section 175 Report" (named after the section of the Act requiring the document) was issued by DOE in December, 1988 and attempted to address possible repository effects in fourteen areas specified by the Act. Despite a number of significant limitations, State and local government reviewers found the Section 175 report to be "a good starting point for ongoing impact assessment work." They cautioned that the report was not detailed enough or complete enough to be used by DOE or Congress as the basis for understanding potential repository impacts.

Like the earlier DOE work in the EA, the Section 175 report stressed the potential benefits of the project while avoiding or minimizing areas of potential negative impacts. It also treated the repository as just another large industrial project (a general misperception also noted in the Secretary of Energy's 60-day report discussed earlier in this report) and assumed that state and local governments/communities would respond to the project as
they might to any undertaking that has the potential for bringing jobs and people to an area. DOE acknowledged the shortcomings of the Section 175 Report and indicated that these concerns would be addressed in a comprehensive socioeconomic plan under development.

In April, 1990, DOE issued a draft of the Yucca Mountain Project Socioeconomic Plan. Instead of augmenting and broadening the Section 175 Report framework as the State and local governments recommended, the Plan appeared to further limit the scope of DOE socioeconomic impact assessment. In their comments on the DOE Socioeconomic Plan, State and local government commentators expressed disappointment at the apparent regression in DOE's socioeconomic thinking and suggested that DOE may need to re-evaluate its entire role in the socioeconomic impact assessment area:

"The long-awaited draft of the Yucca Mountain socioeconomic plan, which was to implement and expand upon the framework begun in the Section 175 Report, falls far below what is expected and required in many areas. It represents a continuation of DOE's avoidance of crucial issues associated with impact assessment, monitoring and mitigation, and it leaves unresolved almost all of the concerns that the State and local governments have been raising since 1985.

"... Instead of laying the framework for comprehensive baseline information development and subsequent impact assessment (by evaluating the effects of with and without project scenarios against that baseline), the Plan contains provisions for developing information on pre-selected areas of investigation (both geographically and with regard to the types of information sought). It is not that difficult to conclude that DOE is continuing to frame its research efforts in the socioeconomic arena in ways that will only provide the information that will support predetermined conclusions - something DOE has also been accused of in the technical studies area.

"... Were it not for the long history of DOE continually promising to 'do better next time' (i.e., to do a more thorough or complete job in the next report or the next plan), one might be tempted to comment as we did with regard to the Section 175 Report: The draft Socioeconomic Plan is a beginning, but it needs a great deal of fleshing out and expanding to be anything near a comprehensive approach to socioeconomic impact assessment.

"Given the historical context of the latest document, however, it may just be that DOE is, in fact, institutionally incapable of doing comprehensive, honest
impact assessment work, and that such tasks might be best left to the entities most suited to accomplishing them most effectively." (State of Nevada Comments on the U.S. Department of Energy Draft Yucca Mountain Socioeconomic Plan - June, 1990.)

State Socioeconomic Efforts

(1) The Interim Report on the State's Socioeconomic Project

In 1986, the State of Nevada initiated a comprehensive socioeconomic impact assessment study designed to develop baseline information in a variety of important areas, create a system capable of identifying impacts of a repository, and establish an adequate system for ongoing monitoring and database updating. The State effort has been implemented in collaboration with potentially impacted local governments and Native American groups in the Nevada and has been overseen by a Technical Review Committee (TRC) comprised of nationally recognized experts from various socioeconomic disciplines.

In designing Nevada's socioeconomic impact assessment program, the State and affected local jurisdictions attempted to examine not only the "standard" impacts of a repository (e.g., those resulting from the employment and population effects of the project), but also the "special" effects associated with the high risk nature of the repository and related nuclear waste transportation.

In June, 1989, the Agency for Nuclear Projects released an "Interim Report on the State of Nevada Socioeconomic Studies". This report summarizes the findings of the impact assessment work to date and identifies areas where further work is needed. The Interim Report integrates findings from over 100 reports and studies by researchers from around the country and has been rigorously reviewed by the TRC. The document addresses what is now thought to be the comprehensive range of possible impacts of the proposed nuclear waste dump.

The report, drafted by Agency socioeconomic study contractors, concludes that the greatest impacts to Nevada's economic and socio-cultural well-being from a nuclear waste repository stem from the intense negative imagery associated with such a facility and with the shipping of highly radioactive wastes along the State's transportation corridors.

This major finding of the Interim Report, one that emerged from a complex and scientifically rigorous series of research studies, seems to confirm an earlier (1984) National Academy of Sciences' hypothesis that the negative effects of a facility of this type are likely to be significant and far different from those associated with other large industrial projects. The State report notes that "the high-level radioactive waste repository proposed
at Yucca Mountain has the potential to result in significant negative impacts for the state's economic base, revenues, public services, and community life [and that] such impacts could more than offset any expected benefits to be derived from employment and income generated by the project."

While noting that the more traditional impacts of a project the size of a repository could result in several millions of dollars in annual losses to state and local government revenues (as a result of increased demands placed upon public services and facilities), the report indicates that, by far, the greatest risk to the economic well-being of the State lies in the damage that could be done to Nevada's tourist economy in the event of an accident that causes visitors to stay away from the State or should the southern Nevada area be stigmatized as a result of the project.

The report incorporates findings of an array of important studies conducted by State researchers which indicate that the intensely negative imagery associated by the public with a radioactive waste repository, combined with the vulnerability of the Nevada economy to changes in its public image, could result in substantial losses should an accident occur during repository operations or should Nevada or Las Vegas become linked in people's perceptions to the repository.

Although the size of such potential negative "special" effects has not been determined, the report points out that each one percent (1%) decline in tourists' spending in Clark County as a result of the repository would result in the loss of at least 7,000 jobs and over $7 million in revenues.

Among the other findings contained in the report:

- Negative impacts for both county and municipal governments from "standard" effects of the facility could amount to more than $500 million over the proposed seventy-year period of repository operations.

- State agencies would face extraordinary demands for oversight, public safety, and new facilities. These costs could range from $85 million to $156 million, based on preliminary estimates made to date. (This does not include cost associated with highway upgrading, new construction, etc., that may be needed as a result of repository-related waste shipments.)

- The repository, unlike other large industrial projects, "may not be considered attractive from an economic development standpoint because it has the potential to bring about precisely the opposite effects on the economy from other forms of development."
Because of the extremely long time period covered by the repository project, its unique, one-of-a-kind nature, and the overwhelming uncertainty that pervades almost every aspect of the undertaking, the findings of the State's report remain preliminary. However, the collective weight of the evidence gathered to date and documented in the Interim Report appears to suggest that the potential for serious negative consequences exists and warrants further study.

(2) Statement of the Technical Review Committee

When the Agency for Nuclear Projects embarked upon the ambitious socioeconomic program in 1986, it also established an innovative process of scientific oversight to assure that State studies would be of high quality and as objective as possible. In addition to utilizing researchers with considerable experience and strong reputations in their respective fields to do the actual impacts assessment work, the Agency established a Technical Review Committee (TRC) to review study efforts and make recommendation as to study approaches and research directions.

The TRC is comprised of ten individuals from diverse backgrounds with national standing in their professions and considerable experience in various socioeconomic disciplines. The Committee includes an economist, a sociologist, a geographer and hazards assessment expert, and anthropologist, two transportation experts, a psychologist, a physical scientist and public policy expert, and two private sector economic consultants with experience in the practical applications of impact assessment studies.

Following the release of the Interim Report on the State Of Nevada Socioeconomic Studies, the TRC undertook a formal review of the document and the research that went into producing it. (See Attachment I). In its review the Committee concurred with research findings that the designation of Yucca Mountain as a potential repository site has already had significant impacts on Nevada, and that the actual development of a repository at the site could have a profound effect upon the economy and quality of life of people of the region.

The Committee stressed the high degree of uncertainty which surrounds the entire repository project - including the extraordinarily long planning horizon (over 10,000 years), the lack of definition as to facility design, the absence of transportation routing and other decisions (or even clarity as to the number and type of shipments needed), the difficulties in predicting how and if stigma effects will occur and what their magnitude could be, and many other uncertainties.

The Committee concluded that this uncertainty and the difficulty it presents for understanding the impacts of a repository should not be minimized, and that "careful studies, like
those undertaken by Nevada, can provide insights concerning the
range of future impacts and management options, and can be helpful
in informing the near-term choices and decisions that face the
state and the nation."

The Committee highlighted the finding of the Interim Report
that "the greatest potential socioeconomic difficulty of the
proposed repository stems from the intense negative imagery
associated by the public with a high-level nuclear waste
repository, combined with the vulnerability of the Nevada [tourism-
based] economy to changes in [the State's] public image."

The Committee also expressed concern that the important work
begun by the State of Nevada, and which has significant national
implications for repository siting which transcend Yucca Mountain,
has been seriously jeopardized by congressional budget reductions
imposed upon the State during the past two years.

Dr. Gilbert F. White, chairman of the Technical Review
Committee, pointed to the "quality and possible national
significance of studies undertaken by the State of Nevada" in his
preface to the Interim Statement of the Committee.

(3) Follow-up Studies on Risk Effects

As a result of finding in the Interim Report and the Technical
Review Committee's response to that document, the study team
performing the State research designed and executed a series of
additional studies intended to further investigate the effects of
risk and people's perceptions of risk on factors affecting economic
variables in Nevada. A program of survey research was designed and
implemented between July and November, 1989 that sought to (1)
better understand how people perceive and react to the proposed
nuclear waste repository and (2) study the mechanisms of risk
perception and stigmatization as they apply to behavior with
economic consequences for Nevada (i.e., the willingness to visit
the State as a tourist, the decision to hold or attend a convention
in Nevada, etc.). These studies were designed by experts in the
field of risk and decision processes and were reviewed by the
Technical Review Committee prior to implementation.

Because people's attitudes and perceptions about environmental
and nuclear-related matters are likely to influence actions and
behavior which have economic and other consequences, it is
important that a baseline be established by which these attitudes
and perceptions can be evaluated and examined over time. As part
of an ongoing effort to maintain such baseline information and to
carefully assess the socioeconomic implications of attitudes and
perceptions about the repository project, a carefully designed and
administered telephone survey of 1,206 Nevada residents was
conducted in October, 1989.
The survey indicated that people in Nevada are generally satisfied with their state and their communities but they also have concerns about environmental and other problems they face. Nevadans consider pollution and nuclear waste disposal to be the major environmental problems, and their lack of trust in the federal government, especially the Department of Energy, the Nuclear Regulatory Commission, and the U.S. Congress in dealing with these issues may be seen as exacerbating these concerns.

Nevadans overwhelmingly oppose the location of a high-level nuclear waste repository at Yucca Mountain (by a margin of 69% to 14%). The survey found that residents of the state view the repository as something extremely negative and as a source of significant dread and concern. While there remains a certain element of inevitability about federal efforts to build the repository in Nevada, the results of this survey, when compared to the surveys of 1987 and 1988, indicate that people are becoming progressively more confident about being able to successfully oppose the project. (In 1987, 89% felt that the repository would be built whether the State opposed it or not. In 1989, only 56% felt that way - a significant percentage drop.)

There is very strong support for legislation like AB 222 which the 1989 State Legislature passed and which prohibits the permanent storage of high-level nuclear waste in the State (74% favor such a law). Nevadans are solidly in favor of the State doing all that it can to oppose the Yucca Mountain project, and they overwhelmingly (73% to 19%) believe that the State should continue such efforts even if that means foregoing benefits that might be available from the federal government.

The survey shows that people view the potential risks associated with the repository as very serious, and an analysis of these findings indicate that such perceptions and the behaviors they engender could lead to negative social and economic consequences for the State and its communities. (Selected data from the 1989 Nevada State Survey is contained in Attachment II.)

(4) Findings of Additional Research Conducted Between October 1, 1989 and June 30, 1990

Despite serious funding constraints, State researchers continued socioeconomic studies in all study areas during Fiscal Year 1990. These efforts resulted in a series of summary reports which were reviewed by the Technical Review Committee at the end of July, 1990. Some of the findings of this research are as follows:

- Metropolitan Las Vegas residents perceive the risks of a repository as being very great, but view waste transportation as even riskier.
- There is a strong correlation between the trust and confidence people have in the federal government and the strength of their concerns over the nuclear waste project. (Low trust correlates strongly with a high degree of concern and high perception of risk.)

- Rural communities close to the Yucca Mountain site tend to be more accepting of the project and more influenced by perceived economic benefits of the project.

- Native American communities are especially vulnerable to any economic downturn that may be caused by a repository or repository-related incident.

- There is a strong relationship between the images people have of cities and states and their propensity to visit those places as tourists. A positive image correlates with increased visitation. Nuclear imagery tends to be extraordinarily negative and drastically lowers the attractiveness of a place as a tourist destination.

- For Nevada, nuclear imagery is more associated with the Test Site than with the proposed repository, indicating that many people outside the state are not yet aware of the Yucca Mountain project. If repository imagery begins to attach itself more strongly to Las Vegas or Nevada (i.e., as the result of adverse publicity or repository-related accidents), this could result in negative visitation decisions.

- Convention attendance is very sensitive to risk and to the image of the host city.

- Convention planners and attendees view the repository much differently and more negatively than other types of noxious facilities (such as chemical plants or even nuclear power plants).

- According to a statistical forecasting model that accounts for variables and vagaries in decision-making, between 12% and 35% of convention planners who had already scheduled a convention in Las Vegas would likely hold their meeting somewhere else if there was a link between Las Vegas and the repository.

- The theory of social amplification of risk, which postulates that real risk can only be measured when effects of media coverage, public response and public perception are accounted for, was found to be valid in a study of 108 hazard events.

- The major effects/impacts of the repository project to date in Nevada have been socio-cultural and political, with few standard economic impacts (i.e., those related to employment/population changes). The largest potential impacts
appear to involve the negative imagery of the repository, stigmatization, and the potential loss of economic opportunities associated with decisions not to visit the state.

(5) Local Government Socioeconomic Activities

Nye, Clark and Lincoln counties were designated as "units of affected local government" by the Secretary of Energy in 1988 and have been receiving funds for socioeconomic impact assessment activities directly from DOE for two years. Each jurisdiction has hired staff and consultants to carry out a variety of socioeconomic activities. Details concerning local government efforts are contained in a separate section of this Report.

Coordination of State and county efforts is done by means of the State/Local Government Planning Group established in 1984. There appears to be a natural and complimentary division of labor among State and counties' work areas as a result of the counties' interests and concerns for information system development in the community services, facilities and fiscal areas and the State's focus on broader aspects of impact assessment.

TRANSPORTATION ISSUES AND PROGRAMS

The transportation of nuclear waste continues to be a major area of uncertainty and concern for the State of Nevada, its affected local communities, and other states/communities located along potential nuclear waste shipping "corridors."

In its 1988 Report, the Commission specified several areas of concern with regard to DOE high-level waste transportation efforts, including:

"The Commission has found that the citizens of Nevada are greatly concerned with the current U.S. Department of Energy lack of emphasis on nuclear waste transportation issues, including transportation risk management. Risk management and risk avoidance initiatives must be identified and incorporated in the DOE's planning as early as possible in order to assure that all needed facilities and infrastructure modification are feasible, acceptable, and can be implemented in a timely manner.

"The Commission has a particular interest in the early determination of the feasibility of constructing rail access to Yucca Mountain. If, as seems possible, constraints such as land use and access, environmental restrictions, and cost and schedule, make it infeasible to construct a rail access directly to a Yucca Mountain site, DOE and Nevada will be faced with the unprecedented eventuality of having thousands of nuclear waste
shipments traversing the State on trucks each year for about thirty years. At a minimum, DOE must immediately begin working with all appropriate State and local government entities to examine in specific detail all aspects of the transportation system in Nevada that could require infrastructure addition or modification, because of the long lead-times necessary to plan and implement any major changes that might be necessary.

"The Commission believes it is extremely important that the State and local governments not acquiesce to DOE assurances that important aspects of the transportation eventually will be addressed. DOE must commit to an acceptable structure and schedule of analysis and decisions that is consistent with the realities of planning and implementation of a transportation system that places a high priority on risk avoidance and the capability to responsibly manage the residual risks."

Transportation issues remain very important to the State and local communities and may well be the most visible and dramatic "driver" of potential repository impacts for Nevada. In survey research carried out as part of the State's socioeconomic impact assessment effort, 77% of statewide respondents were concerned about highway and rail accidents during shipments to a repository, and 61% were concerned about vulnerability of shipments to sabotage attacks by terrorists. Transportation issues also are of concern to other states located along possible nuclear waste shipping routes and have the potential to affect Nevada's relationships with neighboring states.

Despite the central role transportation plays in the nuclear waste disposal issue, little progress has been made by DOE or the federal government in addressing key transportation matters since the last Commission report. State and local efforts are under way and have added considerably to the available information base. However, such efforts (especially those undertaken by the State) have been hampered by congressional funding cuts and other restrictions imposed by the FY 1989 and 1990 federal appropriations language.

DOE Transportation Efforts

(1) DOE's Preliminary Rail Access Study

Very early in the evolution of the U.S. Department of Energy's high-level nuclear waste program, the shipment of radioactive waste from reactor sites to a planned geologic repository by rail was determined to be an appealing alternative. Rail shipping containers would be larger than those used for truck transport and would result in fewer shipments nationwide. With fewer numbers of shipments, the chances for accidents could be reduced. By using
dedicated trains for waste shipment, DOE could vastly simplify shipping schedules and address states and local government concerns over shipment times, routes and other variables related to safety and operational efficiency. The railroads advocate further safety precautions, arguing that high-level waste should be shipped in "special trains", dedicated trains operating under a thirty-five miles per hour speed limit and passing rules requiring one train to come to a complete stop.

When DOE identified Nevada's Yucca Mountain as one of three preferred repository sites in 1986, it did so knowing that the DOE Environmental Assessments showed that the Nevada site was one of if not the least favorable sites from a transportation standpoint. DOE has defended this aspect of its decision by pointing to the fact that rail access will be available to the site by the time a repository is ready to accept waste. When the U.S. Congress singled out Yucca Mountain as the only site to be evaluated for suitability as a repository, the issue of transportation was not debated.

Without rail access, radioactive wastes destined for a Nevada repository would either have to be trucked long distances over non-interstate highways or they would have to be transported on the interstate system through the most heavily populated and congested portions of the State. Consequently, rail access to Yucca Mountain is something that is of considerable concern to the State and potentially affected local governments which would have to bear the brunt of highway waste shipments over an extended period of time (30 years or more). The Agency for Nuclear Projects has evaluated the number of truck shipments for several potential scenarios and finds that the total number of shipments over the life of the facility could range between 44,500 and 142,000.

Yucca Mountain is over 100 miles from the nearest main line railroad, and there is at present no rail corridor linking the proposed repository site to the nation's rail system. While DOE has repeatedly indicated that a rail spur will be constructed as part of a Yucca Mountain repository project, the Department has barely begun planning for such a spur. The schedule for rail access is not only a factor in waste shipments, but it also affects project construction impacts. DOE has assumed (for example, in the Section 175 Report) that the rail spur would be available to support repository construction and that it could be used for transporting most of the required materials, supplies and heavy equipment to the site. If these materials must be transported by truck, repository development will cause additional adverse impacts to the southern Nevada transportation system, increasing the number of accidents and maintenance costs.

In February, 1990, DOE released a report titled "Yucca Mountain Project Preliminary Rail Access Study", identifying what DOE considered to be the most likely routes for a rail line to the
Yucca Mountain site. The report identified nine possible alternatives which DOE plans to investigate. Of these nine alternatives, three have been designated as "preferred" based on DOE's preliminary analysis:

- **The Jean Route** (Option # 3) which would be constructed from the Union Pacific main line south of Las Vegas north through Pahrump, Nevada, and then, northeast to Yucca Mountain (approximately 120 miles);

- **The Caliente Route** (Option # 7) which would be built from the Union Pacific main line in eastern Nevada at Caliente, around the Nevada Test Site and Nellis Air Force Base, then south to Yucca Mountain (approximately 400 miles); and

- **The Carlin Route** (Option # 8) from the Southern Pacific railroad just east of Elko, Nevada, south to Yucca Mountain (approximately 365 miles).

All of the routes identified contain impediments to the actual construction of a rail spur. For example, the Jean route, although the shortest alternative, requires crossing the Spring Mountains in southern Nevada and may, depending on its alignment, intrude upon potential wilderness areas and designated habitat for endangered species. It would also mean that most waste shipments would pass through downtown Las Vegas on the Union Pacific main line. The Caliente route is circuitous and must traverse a number of mountainous ridges, while the Carlin route is long, difficult to construct and must cross private and environmentally sensitive lands.

Conspicuously absent from the DOE rail spur analysis were any routes which reach Yucca Mountain from the east through the Nevada Test Site's "back door". The State and affected local governments have urged DOE to examine such a route, which would avoid almost all populated areas in the Nevada. DOE has cited potential institutional conflicts with the Department of Defense and the U.S. Air Force as reasons for not considering a route of this type.

In May 1990, YMPO released the route maps on which the Preliminary Rail Access Study was based. The cover letter (Gertz to Loux, May 17, 1990) confirmed earlier information that YMPO had selected the Caliente route for its first feasibility study: "The Caliente, Nevada, route has been selected as the first route to be looked at in more detail; however, at this stage in the evaluation there is no preferred route." YMPO provided the Agency with additional maps showing alternative routes for the Caliente option in August. Agency staff meet with YMPO staff and contractors to discuss the route proposals in April and August.

Taken together, the nine rail routes identified to date as potential future spurs to Yucca Mountain involve terrain in fifteen
of Nevada's seventeen counties. They also have implications for California, Utah and Arizona, since the choice of one rail route to Yucca Mountain over another would necessarily mean that transportation impacts would be felt differentially by neighboring states. Several of the routes would affect Nevada Indian tribes. In addition, the Jean route, depending on how it is aligned, or the alternative Crucero option, could cross into parts of eastern California, especially Inyo County.

(2) DOE's Highway Routing Activities

In April, 1989, DOE issued a report titled "Nevada Highway Routing Study", which attempted to identify, using existing U.S. Department of Transportation (USDOT) guidelines, the likely routes for nuclear waste shipments to a Yucca Mountain repository. The report described I-15 to U.S. 95 as the most likely route to be used, given existing regulations and in the absence of State-designated alternatives. It also indicated that shipments coming from the southeast could travel along I-40 and connect with I-15 at Barstow, California, or via U.S. 95 (through Henderson) or U.S. 93 (across Hoover Dam).

State and local reviewers of the report expressed concern that DOE continues to take a narrow approach to highway routing analysis by focusing only on USDOT routing criteria which result in interstate highways being the preferred routes. In Nevada, interstate alternatives are severely limited (i.e., to I-15 in the south and I-80 in the north). Both interstates transit major population centers of the State.

In its comments on the DOE report, the Agency for Nuclear Projects noted the need for a broader perspective and a more proactive approach to route analysis:

"The report itself contains nothing that was not known prior to its publication. The routing implications of existing U.S. Department of Transportation routing regulations for highway route controlled quantities of radioactive materials are well understood (even if they have not been accurately portrayed in this report) and have been examined in a number of studies (ref. DOE's Final EA for the Yucca Mountain site and the Agency for Nuclear Project's ACR 8 Report). Considering the nature of the topic and the importance of the issue, it would seem reasonable to expect that DOE would have attempted to prepare a comprehensive and substantive document. One is left with the impression, after reading the report, that a significant amount of editing and deleting has taken place. It is difficult to imagine a capable contractor submitting such a clearly insubstantial report as a final product or deliverable."
"The report gives the erroneous impression that I-80 in northern Nevada will not be used for nuclear waste transportation. The USDOT routing regulations (HM 164) do not automatically exclude the use of I-80 and, in fact, could allow carriers to utilize I-80 under a variety of conditions. The limited approach to routing contained in the report serves to distort both the problems and possibilities involved with routing for high-level waste shipments in Nevada.

"A much better approach would have been to analyze all possible routes within the State and make comparisons according to compatibility with existing regulations, highway conditions, risk factors, and other factors which bear directly upon the suitability and 'selectability' of various routes.

"An example of the type of routing absurdity that can insinuate itself into a report that has been prepared without adequate comment and input is the identification of US 93 across Hoover Dam as a possible transportation route (page 10). It is inconceivable that any reasonable analysis could acknowledge the potential for shipments across Hoover Dam and ignore other, more suitable (e.g., less risky) routes within the State. Had State and local entities been involved (as they should have been) in the development of the report, DOE would have understood the unacceptability of any routing scenario that results in shipments across the Dam.

"The report ignores completely one of the major concerns of the State and local governments with regard to the process used to select routes for HLW transportation. DOE has consistently asserted that it will abide by USDOT routing regulations in force at the time of shipment. However, the State and local governments have just as consistently pointed out that USDOT regulations allow carriers to select routes based on extremely flexible criteria. This procedure results in the possibility that less than acceptable routes will be chosen. We believe that it is essential for DOE to formally accept responsibility for the designation of routes to be used for repository-related shipments, and that such designation be done by means of comparative analyses of risk and other factors associated with the various routing alternatives. It is not acceptable to leave critical routing decisions to the whim of the carrier."

(Ref. State of Nevada Comments on DOE's Nevada Highway Routing Study - June, 1989.)

It should be pointed out that subsequent to the issuance of the report and following receipt of State and local government
comments, DOE indicated that "the Yucca Mountain Project has no plans to use the Hoover Dam route for highway route controlled shipments unless the State of Nevada designates the route for this use."

(3) DOE's Transportation Cask Design Activities

Another area where DOE has been active during the past two years is in the design of shipping containers or casks for use in transporting spent fuel from reactors to either a repository or interim storage facility such as an MRS.

DOE risk estimates for high-level waste transportation are based upon the assumption that shipping casks will prevent any release of radiation in the event of an accident and will successfully minimize radiation exposure resulting from routine (non-accident) transportation. Consequently, cask design activities are extremely important not only from an operational standpoint but also in the analysis of risk and the identification of worst-case situations that could arise.

In June, 1990, DOE released cask design reports for five types of potential shipping containers. Prior to issuing the report, DOE announced that it was proceeding with detailed design work on three of the proposed designs - two versions of a legal weight truck cask by General Atomic and a rail/barge cask by Babcock & Wilcox. At the time the Commission report was being prepared, the Agency for Nuclear Projects was in the process of completing a technical review of these preliminary cask designs. Initial comments prepared for the Agency for Nuclear Projects by three consulting engineers detail a number of potential logistical, safety and licensing problems with the proposed designs. These potential problems result largely from DOE's overall goal of minimizing cost rather than minimizing risk.

State and Local Government Transportation Efforts

(1) Nevada Department of Transportation Routing Study

The 1987 Legislature mandated that the Nevada Department of Transportation (NDOT) establish State-designated routes for highway route controlled quantities of radioactive materials. AB 47 provided funds for a routing study which NDOT used to contract with the University of Nevada Reno College of Engineering for study of various routing alternatives.

In December, 1989, NDOT published for public comment a report titled "The Statewide Radioactive Materials Transportation Plan", which summarized the results of UNR's work and identified several alternative routing scenarios. Potential routes identified include:
I-80 from the California border to the Utah Border
- U.S. 93 from Wells to the Idaho border
- U.S. 93 from Wendover to I-15
- U.S. 6 from Ely to Tonopah
- U.S. 95 between Tonopah and Las Vegas
- U.S 95 between the California border and Searchlight
- State Route 164 between Searchlight and the California border
- State Route 160 between I-15 and U.S. 95
- State Route 373 between the California border and U.S. 95 at Amargosa Valley

The Nevada Department of Transportation held a series of public hearings on the possible alternatives identified in the report and plans to make final designations sometime in late 1990 or early 1991.

The Nevada Department of Transportation has indicated that the current routing plan is intended for near-term shipments of radioactive materials and may need to be revisited in the event a repository is built in Nevada and repository-related nuclear waste shipments traverse the state. However, the precedent that is established by the formal designation of nuclear waste shipping routes will undoubtedly have a bearing on how the issue of repository shipments is treated. Absent unexpected changes in population distribution or physical infrastructure characteristics, the same route or routes designated for near-term shipments would likely be used for repository shipments.

(2) Agency for Nuclear Projects Transportation Activities

The Agency for Nuclear Projects utilizes the University of Nevada Las Vegas College of Engineering Transportation Research Center (UNLV/TRC) for a number of important high-level waste transportation analysis functions. The UNLV/TRC has, under contract to the Agency, developed a Transportation Management Information and Analysis System (TMIAS) which will be used to evaluate transportation routes within the state and to provide access to necessary information and analysis capabilities relative to nuclear and hazardous materials transportation.

Using TMIAS capabilities, UNLV/TRC prepared a draft Preliminary Nevada High-Level Nuclear Waste Transportation Route Characterization and Risk Analysis. This report analyzes the two routes identified in the NDOT routing plan from Wendover to
Mercury. It also analyzes the three rail spur routes identified as preferred by DOE in its Preliminary Rail Access Study (see above). Using the information provided in the UNLV/TRC report, the State of Nevada will be better able to evaluate DOE's highway and rail work and assure that decisions by DOE will be consistent with public health and safety interests of the State and local Nevada communities. At the time the Commission report was being prepared, the UNLV/TRC draft report was undergoing review prior to issuance of a final document.

In addition to work done through the UNLV/TRC, the Agency has also undertaken a number of other studies designed to better understand nuclear waste transportation issues and evaluate key aspects of DOE's transportation work. These studies include:

- A study on human and social factors in HLW transportation.
- A critique of the Nuclear Regulatory Commission's modal study (the NRC study of cask performance under accident conditions).
- A review of several programs for transportation package testing in U.S. and abroad.
- A study of transportation issues associated with at-reactor spent fuel storage.
- A review of the physical protection (safeguards) requirements for spent fuel shipments.
- An appraisal of comprehensive risk assessment approaches in HLW transportation.
- An analysis of DOE's latest version of the RADTRAN computer risk assessment model.
- An analyses of sabotage involving explosives and the implications for HLW shipments.

Findings of the State's studies indicate that uncertainties in all areas of high-level waste transportation are not diminishing and that DOE efforts to address important transportation issues may be significantly deficient. For example, the failure to consider the implications of human error in the design of casks and in the operation of HLW transportation systems could result in significantly understated risk assessments. Likewise, reliance on NRC's modal study as the basis for confidence in the new generation of repository shipping casks may be insupportable given the limitations of the study and the considerable differences between reference casks in the study and the new, as-yet-undeveloped repository casks. Results of the State's transportation studies have been presented in several papers at major national technical conferences. Agency staff also presented an overview of the

Transportation analyses undertaken by the State of Nevada indicate that the Commission's concern about the adequacy of DOE's transportation efforts and decisions, voiced in its 1988 report, are well founded and that increased efforts by the Agency for Nuclear Projects and the Nevada Department of Transportation will be needed to oversee and evaluate the federal program and that the State and affected local communities will be adequately protected.

(3) Hazardous Materials Transportation Act Analysis

During 1990, Congress began moving towards developing legislation for reauthorizing the federal Hazardous Materials Transportation Act (HMTA). The HMTA is the federal law which governs transportation of dangerous and hazardous materials within the United States. Spent fuel and high-level nuclear waste are also covered by the HMTA.

A number of bills were introduced in the House of Representatives and the U.S. Senate to revise and reauthorize the HMTA. The Agency for Nuclear Projects, in conjunction with other affected State agencies (including the Nevada Public Service Commission, NDOT, the State Emergency Response Committee) and local governments, undertook a review of key aspects of these proposals in order to ascertain possible effects they might have on the State of Nevada and its efforts to evaluate repository-related nuclear waste transportation implications.

State reviewers noted that several of the proposals for HMTA reauthorization sought to further restrict states' roles in the regulation of hazardous and nuclear transportation. Especially significant in this regard were proposals to strengthen federal preemption in the areas of permitting, inspections and routing. Such increased preemption of state prerogatives could have serious implications for Nevada's efforts to assure safety in any future high-level waste shipments.

At the time the Commission report was prepared, no legislation reauthorizing HMTA had been passed by either the House or the Senate. The issue continues to be an important one with significant potential to affect repository-related and other radioactive materials shipments in Nevada.

Western Regional HLW Transportation Activities

Nuclear waste transportation is of serious concern to many states and communities which are located along potential shipping corridors, either highways or rail lines. The Western Governors Association (WGA) and the Western Interstate Energy Board (WIEB) have studied the issue and passed resolutions urging more expedient
and substantive DOE attention to key transportation matters. The WGA has adopted two resolutions that relate to transportation and other aspects of the high-level nuclear waste disposal program.

In December, 1989, the WGA passed a resolution, sponsored by Governor Miller, supporting the need for interim, at-reactor storage in the event that a geologic repository does not open on schedule and urging the NRC to adopt a statement of confidence in at-reactor passive storage, which NRC subsequently has done. (See Attachment III)

In July, 1990, WGA adopted a resolution urging Congress to act to reauthorize the Hazardous Materials Transportation Act in a form that ensures state authority in areas such as permitting and inspections of hazardous and nuclear shipments and which limits federal preemption of states' prerogatives and regulatory responsibilities. This resolution was co-sponsored by Governor Miller and Governor Goldsmith of Oregon. (See Attachment IV).

LOCAL GOVERNMENT AND TRIBAL ISSUES AND PROGRAMS

The Nuclear Waste Policy Amendments Act of 1987 acknowledged the special status of local governments most affected by the repository project. It provided that "affected units of local government" (i.e., either the situs local government of those governments contiguous with the situs jurisdiction and formally designated as "affected" by the Secretary of Energy) would have rights of participation and financial assistance similar to those formerly available only to affected states and Indian Tribes. In its budget authorization measure for FY '90, Congress provided a separate category of funds ($5 million) to be distributed by DOE among affected units of local government. At the time this report was being prepared, the Senate had adopted a measure that would provide $5.9 million for affected local government programs for FY '91. The full Congress has not yet acted.

In Nevada, Nye County, the situs jurisdiction, is automatically considered an "affected" government under the NWPA, as amended. In addition, Clark County and Lincoln County applied to the Secretary of Energy for "affected" status, and both counties were granted the designation. White Pine County, Esmeralda County and Eureka County in Nevada and Inyo County in California applied for affected unit of local government status and were rejected by DOE. Esmeralda and Inyo counties filed suit in the Ninth U.S. Circuit Court of Appeals contending that DOE acted arbitrarily and without foundation in rejecting the Esmeralda and Inyo applications while approving Lincoln and Clark for affected status. As of the writing of the report, the Ninth Circuit Court had heard oral arguments on the case and was in the process of rendering a decision.
In February, 1990, Eureka County requested that the Secretary of Energy reconsider the Department's refusal to grant the county affected status. In July, 1990, Secretary Watkins again denied Eureka County's application. Depending upon the outcome of the Esmeralda and Inyo counties' lawsuit, Eureka County might decide to seek redress of DOE's action in the future.

"Affected" Local Government Programs

(1) Nye County

For FY 1990, Nye County was awarded $2.5 million by DOE for nuclear waste oversight and impact assessment activities. In addition to providing for technical, socioeconomic, policy, and management/administrative advisors and support, the Nye County program consists of a series of studies to address nuclear waste issues of importance to the County. These studies include:

- Science Center Study: This is a study on the form, function and feasibility of a science center in the Lathrop Wells area, including an implementation plan which will involve architectural plans showing functional relationships, circulation, character of building(s) and site, etc.

- Town Base Mapping: A contractor was to prepare a street map for the town of Amargosa Valley (first professional street map to be prepared). Also, a contractor was to produce aerial photo mylars of varying scales for the Town of Pahrump and update the Town of Pahrump street map.

- Development of a Computerized Data Base/Impact Assessment/Management System: This study was intended to determine the need for a Nye County computerized data base/impact assessment/management system that will help the County assess, plan for and mitigate repository-related impacts and also help the County administer the DOE financial assistance grants awarded the County each year.

- Rail Access Study: A contractor was to assist the County with its review of the DOE Yucca Mountain rail access study and make recommendations relative to rail spur location(s), uses, problems, etc.

- Special Census of Population and Housing: This study involves a Nye County special census of population and housing, which is approved by the U.S. Bureau of Census and the State Demographer.

- Additional Analysis of the 1988 NTS Worker Survey: This study analyzes the 1988 NTS worker survey done as part of the State socioeconomic study for information relative to community
development potential in the Nye County towns near Yucca Mountain.

- Analyze Repository Workforce Requirements Vis-a-Vis Existing and Projected NTS Repository Hiring Practices: A contractor was to analyze repository workforce needs, likely DOE hiring practices, and attendant impacts on Nye County's residents/economy.

- Inventory Condition and Use of Southern Nye County Roads: This task was to design and create a system that provides information on the condition and use of southern Nye County roads and investigate the need for, and feasibility of, creating a computerized road maintenance/management system for southern Nye County roads.

- Utility Rate Study: A contractor was to prepare a utility rate study for the Beatty Sewer and Water District. This study involves sewer and water service projections for the next 15 years, with and without a repository at Yucca Mountain.

- Cost of Services Analysis: This study was intended to determine current (1989) levels of services (e.g., schools, police, fire protection, etc.) in the communities near Yucca Mountain and estimate likely levels of services (baseline and baseline-plus-repository) of these communities over the next 15 years.

- Town Oral/Photo Histories: This task continues work on the Nye County Town Oral/Photo History Project initiated in 1987. Work tasks include the following: (1) securing oral histories of current and past Nye County officials (e.g., District Judge, County Administrator, County Commissioners, etc.) in order to better understand the County's origin, history and traditions, (2) preparing photo histories of Nye County communities, and (3) preparing histories of communities considered important in the development of Nye County's cultural and economic makeup or characteristics.

- Economic/Demographic/Social Monitoring Systems: A contractor was to design and implement a system to monitor the economic/demographic/social baseline information collected by the State and DOE (SAIC) for southern Nye County communities.

- Implement the GETT Provision of the NWPA of 1982: This task involves the valuation of the federal Yucca Mountain Repository Project. Section 116(c)(3) of the NWPA of 1982 requires the County to incur expenses for work (e.g., appraisal of federal land, federal structures, and federal site selection work never conducted by the County, but now required by the Act).
- Implement the County's Procurement Outreach Program: This task provides for implementation of the County's Procurement Outreach Program. Work tasks include the following: (1) establish and maintain a qualified vendor list, (2) obtain and review repository and other federal program solicitations, (3) assist prospective vendors with bid preparation, and (4) plan procurement contracting workshops.

- Conceptual Development Plan for Amargosa Valley, Beatty, and Pahrump: A conceptual development plan for the Towns of Amargosa Valley, Beatty and Pahrump was to be developed. The development plans will serve as a guide for future growth in these towns over the next 10 to 15 years. These plans will provide DOE and its contractors a basis for providing financial support to improve Town services, facilities and amenities, and encouraging repository-related businesses and workers to locate in these communities.

- Public Information Program: This task involves preparation of educational material (primarily a newsletter) documenting repository topics that are relevant and timely and the coordination and dissemination of repository program (federal, State and local government) information.

- Initiate a Repository Program History: This study is intended to begin preparation of a contemporary or living history of the federal repository program. This history will be of value to current and future repository program participants (Congressional, federal, State, and local government) and observers since it will document the Congressional, federal, and State and local government efforts relative to siting a repository at Yucca Mountain. Issues such as intergovernmental relations; national policy on the disposal of nuclear waste; implementation of the Nuclear Waste Policy Act of 1982, and its amendments; regional equity; compensation; etc., need to be documented in an objective way since the history of the repository program is, and will be, a major part of the history of Nye County and Nevada. Also, an objective look at the past may help participants and observers address current and future repository issues.

- Radiological Health Investigation: A study to assess potential environmental and public health impacts from radiation associated with siting a repository at Yucca Mountain and transporting nuclear waste through the County was to be initiated. The initial efforts will be to produce a report similar to the DOE-endorsed Report of the Hanford Health Effects Review Panel and Recommendations of the Sponsoring Agencies.
(2) Clark County

Clark County applied for and was granted "affected unit of local government" status by DOE in April, 1988. While the County is on record as opposing the location of the repository in Southern Nevada, the Board of County Commissioners has recognized the need to define potential impacts from the program and determine the cost (both present and future) to the community. The Clark County Yucca Mountain program will perform the needed socioeconomic studies consistent with the stand of the Board.

The Clark County Board of Commissioners' responsibilities include the need to plan for other future County requirements, such as roads, sewer and fire protection. The Board must also consider the implications of a proposed repository on the communities in Southern Nevada. Whatever the level of impact, the NWPAA provides local governments with the opportunity to define these impacts. Impacts also must be evaluated in the context of ongoing growth and needs, (e.g., will these potential impacts cause us to modify other planning horizons?).

The program that has been developed by the County, includes the following:

- A Division has been created within the Department of Comprehensive Planning to implement program requirements. Staff has been added, equipment purchased for analysis purposes, and office space leased.

- A Steering Committee was established with representation from the incorporated communities, Regional Transportation Commission UNLV, the Clark County Paiutes and a citizen member, to ensure that significant issues, as defined by Clark County governments, are addressed. The State, Nye County and Lincoln County are ex-officio members of the Committee. The Committee deliberated and approved the Clark County work programs for FY 1990 and 1991.

- The County applied for a grant from DOE and received $3.2 million in funding to implement FY 1990 grant activities. Clark County has applied for $4.1 million in funding for FY 1991.

- After a national search, the firm of Impact Assessment Inc. (IAI) was retained to implement the Clark County socioeconomic work plan. IAI has considerable experience with nuclear waste issues, having developed a research design for the State of Washington Hanford Program (which was eliminated by Congress as a potential site). Potential impacts to be considered by IAI include impacts on services (sewer, fire, police), transportation, and fiscal considerations. A draft research design will be available for review by December 1990.
A key component of this year's nuclear waste repository program effort is the design of a data base to determine potential program impacts. Clark County has retained the firm of Environmental Systems Research Institute (ESRI) to assist in data organization and design issues for the study. ESRI staff will be coordinating with program specialists to define data requirements for each program task. An important segment will be the utilization of a Geographic Information System (GIS) to organize information and to enable geospatial data to be displayed. In addition, ESRI is also examining existing Clark County data for use in the program, as well as providing recommendations for GIS staffing and hardware/software requirements.

A coordination plan is being developed to ensure that Clark County and the State of Nevada can coordinate work efforts. It is the intent of the Clark County program to maximize the use of existing information (including that developed by the State) as well as to enable both studies, where possible, to be complimentary.

An important part of the Clark County socioeconomic program is being able to translate impact into cost to the community. In accomplishing this, County consultants are developing fiscal assessment systems to be employed by individual entities in assigning cost to impact.

(3) Lincoln County/City of Caliente

Like Clark County, Lincoln County was also designated an "affected unit of local government" by DOE. The County was awarded $540,000 for oversight and impact assessment for FY 1990. Lincoln County and the City of Caliente implement the Nuclear Waste Program by means of a joint agreement that provides for participation by both the City and County.

The County/City program includes ongoing review of DOE, State and other local government programs, issue evaluation, and monitoring activities. In addition, the FY '90 program involved the following:

- Continuation, at a full-time level, the implementation of a local procurement outreach program.

- Development of an environmental impact statement (EIS) issues scoping report for use by the County and City of Caliente in preparing for and participating in the DOE repository EIS scoping meetings scheduled for next year.
- Evaluation of repository related socioeconomic impacts to tourism, business development, and in-migration within Lincoln County and the City of Caliente.

- Evaluation of the probable distribution of repository-related benefits and cost between Lincoln County/City of Caliente and other areas.

- Identification and analysis of mitigation and compensation strategies.

- Participation by key local elected officials and members of the Joint County/City Joint Impact Alleviation Committee in a tour of European nuclear waste management facilities and meetings with representatives of European host and transportation corridor communities.

For FY 1991, Lincoln County is preparing to expand its program and has requested $644,461 from DOE. The expanded program would involve the following elements:

- Continuation on a part-time level of the local procurement outreach program.

- Development of an impact issues scoping report derived largely through a review and synthesis of previously completed impact studies by federal and State entities.

- Identification of study needs and available methods to evaluate possible repository related socioeconomic impacts to tourism, business development, and in-migration to Lincoln County and the City of Caliente.

- Continued work to evaluate local resident perceptions of repository-related risks to public health, safety, and welfare. Work during the proposed budget period will include evaluation of resident perceptions of alternate mechanisms to mitigate and/or compensate for said risks.

- Continued work to identify and evaluate factors which have historically contributed to the establishment or loss of local public acceptability of noxious facilities.

- Participation by key local elected officials and members of the Joint County/City Impact Alleviation Committee in tours of existing radioactive waste management facilities and meetings with local representatives of host jurisdictions.

- Evaluation of County and City masterplans against anticipated repository program induced land use, transportation, safety, and public welfare related issues.
- Design and implementation of a local public information program.

County work tasks also involve cooperative efforts with DOE to evaluate alternative rail routes through Lincoln County to the Yucca Mountain site.

Other Local Government and Indian Tribe Programs/Activities

Several local governments and Indian Tribes operate nuclear waste programs which are funded through the Agency for Nuclear Projects. These include cities which are not eligible for "affected" status from DOE and counties which have not been granted such status by DOE but which are, nevertheless, potentially affected by repository-related activities. They also involve Indian Tribes which have not been officially designated as "affected" under the Nuclear Waste Policy Act, but which stand to be impacted by a repository.

Agency funding for potentially affected jurisdictions has been a priority State activity since 1984, well before "official" recognition of local governments'/tribes' roles in the repository program was written into the 1987 Amendments Act.

Local government/Indian Tribes participating in the repository program through Agency-provided resources include:

(1) City of Las Vegas

The City of Las Vegas employs a full-time nuclear waste program manager and a full-time technical coordinator to provide for City participation in repository oversight and impact assessment. In addition to management/administrative tasks associated with the project, the City of Las Vegas program includes the following:

- Review of existing information generated by DOE, other states, the State of Nevada, and other governmental entities related to the high-level nuclear waste plans for Southern Nevada.

- Research and review of new information generated by the various entities involved in the high-level waste program.

- In view of the City of Las Vegas' close proximity to ground and air access routes to the Yucca Mountain area, the city must continuously focus on transportation issues as they pertain to the DOE's programs and studies on high-level nuclear waste matters.

- Since the City of Las Vegas is the largest city in the State and closest to the proposed site at Yucca Mountain, focus must
also be directed to public communication issues regarding a potential repository at Yucca Mountain.

- Coordination with city-wide committees, local jurisdictions and specific interest groups in the community, such as Chamber of Commerce, Downtown Progress Association, etc., to discuss and obtain views and documentation thereto.

- Coordination of actions with DOE and other states, where appropriate.

- Coordination of activities with the State of Nevada Agency for Nuclear Projects, and where appropriate, establish dialogue with other Nevada cities, counties, and State government entities.

- Review, evaluation, and preparation of comments on all aspects of the issue of Grant Equal to Taxes.

- Oversight and comment on all route selections to transport nuclear waste which will pass through southern Nevada.

- Determination of modifications to any City "emergency plan" that could be affected by the transportation of nuclear waste through the boundaries of the City of Las Vegas.

- Review and preparation of appropriate comments on any DOE environmental or technical documentation on the Yucca Mountain site that are of importance to the City.

- Review and preparation of comments on any DOE socioeconomic impact studies/analyses relative to locating a high-level waste repository at Yucca Mountain.

- Evaluation of alternative transportation routes and capabilities to minimize potential hazards to the populated Las Vegas metropolitan area.

The City of Las Vegas nuclear waste program operates as part of the City Manager's Office and was budgeted at $275,000 for FY 1990.

The City also receives funds from the Clark County Nuclear Waste Program for participation in the County's information system/GIS activities. These aspects of City nuclear waste efforts are conducted by the City's Planning Department.

(2) City of North Las Vegas

Like Las Vegas, the City of North Las Vegas receives funds from both the State and Clark County for nuclear waste-related activities. During FY 1990 the City of North Las Vegas continued
as a member of the State and Local Planning Group, providing input to the State from its (local) perspective with regard to all facets of the repository siting issue. In addition, the City conducted an evaluation of the socioeconomic impacts of the repository as these relate to economic development and the existing business community.

The City has also been engaged in the following activities using Agency-provided resources in the amount of $157,000:

- Provide ongoing liaison with federal, State and local agencies as to the application of federal regulatory standards, technical criteria and other guidelines for the transport of materials for the construction and operation of the site, and for the future retrieval of stored wastes.

- Participate in appropriate technical workshops and meetings conducted by the Department of Energy, the Nuclear Regulatory Commission, or by other affected or involved entities to ensure continued local input during the selection and the development and operation phases.

- Coordinate and relate the concerns and comments of the North Las Vegas City Council to the Clark County Comprehensive Planning Department to the State of Nevada Nuclear Waste Project Office and to the Department of Energy.

- Participate with lead agencies in planned public information programs for dissemination of significant issues and for citizens' discussion and input.

- Participate in interagency and intergovernmental activities and agreements.

- Analyze key legal issues which may impact the city and provide input to the State Attorney General's Office and to other appropriate agencies, including but not limited to recommended legislation regarding the provision for grants equal to taxes.


- Review the final environmental assessment, the Mission Plan, the Final Siting Guidelines, the Site Characterization Plan, the Transportation Plan and other similar documents prepared by the Department of Energy and formulate a comprehensive response.

- Participate in the State/Local Socioeconomic Impact Assessment, providing input to the contractor as appropriate.
and reviewing work task products. Assist in developing monitoring and mitigation strategies.

- Accurately define and describe the City's existing economic base to provide a benchmark for modeling, business projections and future impact analysis.

- Develop an ongoing "objective/work task" refinement process to reflect identified needs which may be discernible only as the project proceeds.

- Assess transportation routes that minimize potential impact.

- Provide input into the development of a coordinated emergency management plan for the "worst-case" possibility of accident during transport, storage or retrieval of nuclear waste materials.

City activities funded by the Clark County nuclear waste grant included participation in County information system/GIS development and evaluation of emergency response/emergency management needs in coordination with the County.

(3) City of Henderson

The City of Henderson, through the City's Planning Department, operates a nuclear waste program aimed at assuring City input into State, Clark County and federal repository programs. The Agency for Nuclear Projects provided the City of Henderson with $44,440 for FY 1990 activities. The City's program includes:

- Coordination efforts with other local government representatives and the study group contracted for the State Socioeconomic Impact Assessment study which address impacts of the proposed high-level nuclear waste repository at Yucca Mountain.

- Participation in all issues related to the Site Characterization Plan, Monitoring and Mitigation Plans, including coordination with the Department of Energy (DOE) and DOE Contractors as required.

- Other related study, research, and workshops which will be required by the State's Technical Review Committee overseeing the prime contractor for the State's socioeconomic study.

- Assistance in the continued collection of financial, economic, demographic, social, risk and health data related to the City of Henderson.

- Participation in and/or attendance at conferences, technical seminars, workshops, and public hearings to assure a full
awareness of issues important to the citizens of the City of Henderson regarding the proposed repository.


- Analysis of legal issues which may impact the City and, after consultations with the City Attorney, provide input to the State Attorney General's Office and to other appropriate agencies.

- Preparation and delivery of testimony before both the State Legislative Committee and the Nevada Commission on Nuclear Projects which address nuclear waste issues pertinent to the City of Henderson.

- Review and comment on all proposed transportation routing for hazardous/nuclear waste material as applicable to the City of Henderson and other local jurisdictions.

- Review of socioeconomic study work task deliverables and other related data which affect Henderson and other local communities, and provide advice and information to designated City officials and citizens of Henderson.

- Conduct of other activities which become necessary to assure that the City of Henderson's interests are represented as the project progresses.

The City of Henderson also participates in the Clark County nuclear waste program and receives funds for information system/GIS development and coordination and for emergency response/emergency management activities.

(4) Esmeralda County

As noted above, Esmeralda County has applied to DOE for "affected" status under the Nuclear Waste Policy Act and has been denied. The County filed litigation in the Ninth U.S. Circuit Court of Appeals seeking reversal of DOE's denial. As of the date of this Report, the case was awaiting decision.

Esmeralda County stands to be impacted, perhaps significantly, by waste transportation to a potential Yucca Mountain repository site. Potential highway and rail routes traverse the County. Rail spur construction could result in relatively large numbers of workers residing in the County during the construction phase, resulting in the potential for a boom-bust economic cycle.

In recognition of Esmeralda County's potential vulnerability to repository-related impacts, the Agency for Nuclear Projects has,
since 1989, provided funds to the County for participation in State and federal activities affecting the County and for socioeconomic and transportation impact identification. During FY '90, the County was allocated $37,500 in nuclear waste funds through the Agency. County activities, in addition to management and administrative functions, include:

- Review and analysis of existing and planned socioeconomic and transportation data and studies relative to the impacts of a high-level nuclear waste repository and related activities as these pertain to Esmeralda County.

- Formation of a local advisory committee and other mechanisms for informing citizens about the repository project and involving them in relevant aspects of the State and federal programs.

- Monitoring of DOE activities with special attention to the effects of DOE activities on Esmeralda County.

- Keeping the Esmeralda County Commission and other officials informed relative to the repository project.

- Participation in State and local government activities relative to the repository project and provide input and information from the Esmeralda County perspective.

- Participate in and provide input to the activities of the University of Nevada-Las Vegas Nuclear Waste Transportation Research Center.

- Working with the U.S. Department of Energy to achieve "affected unit of local government" status.

Esmeralda County is also working with Nye County's socioeconomic contractor to develop fiscal and facilities and services data for the County. The close linkage between the Nye and Esmeralda economies makes such joint efforts important in understanding the economies of both counties and in assessing potential repository-induced effects upon those economies.

(5) Western Shoshone

A number of Native American communities in Nevada stand to be affected by the proposed repository. In order to provide for Native American participation and input into State and federal programs, the Agency has contracted with two tribal organizations and has included a number of other communities in the Native American studies component of the State socioeconomic study.

The Western Shoshone have long-standing treaty claims to land on which a Yucca Mountain repository would be located. While these
claims have been in dispute for many years, the Western Shoshone communities, through the Western Shoshone National Council, have consistently sought recognition of their rights for participation in the federal repository program. The Duckwater Shoshone Tribe has twice applied for and been refused "affected Indian Tribe" status under the Nuclear Waste Policy Act.

To provide the Western Shoshone resources for participating in the repository program and to obtain Shoshone input in State activities, the Agency contracts with the Western Shoshone National Council for a variety of activities. During FY 1990, the Agency made available $58,940 for Western Shoshone programs, which include the following:

- Identification, compilation, and review of existing literature relevant to the DOE's plans for locating a high-level radioactive waste repository at Yucca Mountain.
- Development and refinement of key issues relating to potential impacts to Western Shoshone citizens, and continuously review DOE plans.
- Coordination of the responses or position of the Western Shoshone National Council to DOE actions at Yucca Mountain with DOE, Tribal, State, other governmental and associated entities.
- Attendance at DOE briefings, meetings, and related federal, Tribal, State, and local government activities in the United States as appropriate.
- Provision of periodic status reports to Western Shoshone membership.
- Provision of assistance to the Nevada Agency for Nuclear Projects with regard to socioeconomic, transportation, archaeological and environmental studies with local data and perspectives.
- Correlation of workshops on high-level waste handling, transportation, socioeconomic, cultural, and archaeological impacts with Western Shoshone communities, and committees to provide local data and perspectives.
- Review and preparation of appropriate comments on various draft documents/reports specific to Yucca Mountain and undertake technical analyses as appropriate.

(6) Moapa Band of Paiutes

Located in eastern Clark County, the Moapa Paiute Reservation is situated along potential highway (I-15) and rail (Union Pacific
main line) routes to the proposed Yucca Mountain repository. As such, Moapa stands to experience impacts in a variety of areas, including effects on the reservation's economy, impacts on emergency response requirements and capabilities, etc.

Like the Western Shoshone, the Moapa Band of Paiutes has not been afforded "affected Indian Tribe" status. Nevertheless, the Agency for Nuclear Projects has recognized the potential for impacts on the reservation and has provided resources for participation and input into State and federal programs. For FY 1990, the Agency allocated $25,000 for Moapa nuclear waste activities which include:

- Coordination with the State's socioeconomic impact study to provide reservation data and perspectives.
- Participation in meetings and hearings of the Nevada Commission on Nuclear Projects.
- Participation in meetings and hearings of the Nevada Legislature's Committee on High-Level Radioactive Waste in Nevada.
- Participation in regional meetings of Western Interstate Energy Board's Committee on High Level Radioactive Waste and other conferences, workshops and meetings relevant to Moapa issues and concerns.
- Planning and conduct of independent studies of potential impacts on the reservation of the transportation of high level radioactive waste to a Yucca Mountain repository.

The Moapa Band of Paiutes also participates in the Clark County repository program as a member of Clark County's steering committee, which provides a vehicle for Moapa input into Clark County activities.

PUBLIC INFORMATION PROGRAMS

Much of the Agency for Nuclear Projects' public information work is handled by the Nevada Nuclear Waste Task Force, a non-profit organization contracted by the Agency to develop and implement a program which promotes public participation in the U.S. Department of Energy's high-level nuclear waste program in Nevada.

Work began on February 9, 1988, with the opening of a public information office in Las Vegas. A library of resource material is maintained and inquiries by telephone and walk-in traffic are handled every work day. This feature is popular with students from junior high through college level. Many such inquiries from out of state are processed. Several thousand people have sought information and have been added to the Agency's mailing list. A
newsletter is issued at least quarterly for distribution to addresses on the Agency's mailing list.

The Task Force, in cooperation with other civic organizations such as the League of Cities and the League of Women Voters, has presented ten major informational programs around the state. The programs were designed to ensure a balanced presentation with ample opportunities for citizens to ask questions and engage in open discussion with program speakers.

Three major "haznuke"/hazardous materials workshops pertaining to the transportation issue have been conducted in rural Nevada.

Task Force personnel have presented numerous talks to fraternal and civic groups, groups in the health community, and high schools around the state. Demand for this service is steadily increasing.

Informational booths were manned at six major public events - fairs, home shows, and environmental events held on university campuses.

Invitations have increased for Task Force personnel to be guests on radio and television talk shows. An estimated 50 to 60 interviews were granted to a variety of media across the nation. More than 20 media contacts are maintained.

Task Force personnel attend three to four pertinent meetings monthly to keep abreast of events and disseminate the most current information about the high-level nuclear waste issue.

The three formally-designated "affected units of local government" (Nye, Clark and Lincoln counties) are developing public information programs as part of their DOE grant activities. All three local programs are aimed at providing objective information to citizens regarding the nuclear waste program. Close coordination is expected among the various State and local efforts once local programs are more fully developed.

LEGAL ISSUES

On September 19, 1990, the Ninth Circuit Court of Appeals in San Francisco, California, entered an opinion and judgment in two of five lawsuits brought by the State of Nevada challenging actions by the Secretary of Energy in pursuing the federal repository program at Yucca Mountain. See Case Nos. 86-7308 and 90-70004 in the summary below. The Court rejected the State's statutory and constitutional based claims that the selection of the Yucca Mountain site had been vetoed by the 1989 Nevada Legislature or was otherwise disqualified by technical disqualifying flaws from further consideration. Attorney General Brian McKay announced that
his office would seek review of the Court's decision before the United States Supreme Court.

Another case, No. 89-15272, challenging the "right of way reservation" awarded to DOE by BLM, was argued on August 16, 1990, with the two which were decided, but is still pending. Two additional cases will have been briefed by December 5, 1990 and await the scheduling of oral arguments by the Ninth Circuit Court of Appeals. See Case Nos. 85-3308 and 86-7309 in the summary below. A sixth case brought by the United States against the State of Nevada, Case No. CV-S-90-065-HDM.RJJ, was stayed in the United States District Court in Las Vegas pending the outcome of the Ninth Circuit Court of Appeals in Case No. 90-7004 and during an appeal that may be taken to the United States Supreme Court.

A summary of the cases is set forth below:

(1) **Nevada, et. al., v. Watkins**, (Case No. 86-7308) asserts that prior to characterizing Yucca Mountain, DOE must first withdraw land for the site pursuant to the Federal Land Policy and Management Act (43 U.S.C. 1701) and obtain an appropriate cession of jurisdiction from the Nevada Legislature. By Assembly Joint Resolution 6, the 65th session of the Nevada Legislature in 1989 denied a cession of jurisdiction. The case thus turns on whether the DOE may demonstrate compliance with the Nuclear Regulatory Commission's jurisdiction and control requirement in 10 C.F.R. 60.121 given the AJR 6 denial of consent or cession of jurisdiction.

(2) **Nevada v. Watkins**, (Case No. 90-70004) challenges the Secretary of Energy's refusal to recognize Nevada's transmittal of a notice of disapproval (veto) represented by Assembly Joint Resolution 4 (AJR 4) and AJR 6 of the 1989 Legislative session. It alleges that the Yucca Mountain site should have been disqualified by the Secretary based upon the notice of disapproval and because of the existence of certain technical disqualifying conditions which the Secretary has failed to evaluate or to establish procedures for their evaluation.

(3) **Nevada v. Jamison**, (CV-S-88-203PMP; Case No. 89-15272 on appeal) challenges the legality of the "right-of-way reservation" awarded to DOE to carry out site characterization studies at the site. The State contended in the District Court that the Federal Land Policy and Management Act does not provide for such a land withdrawal mechanism and that DOE and BLM are attempting to circumvent the law by creating a special permit classification for DOE. The District Court ruled that the State of Nevada lacked standing to seek a review of the BLM's actions. The State appealed to the Ninth Circuit Court of Appeals. On appeal, the issue is whether the State of
Nevada has standing as the result of an injury traceable to the BLM's action.

Cases awaiting oral argument before the Ninth Circuit Court of Appeals:

(4) **Nevada v. Watkins**, (Case No. 85-7308) challenges the validity of DOE's guidelines for siting and evaluating nuclear waste repositories. Under the Nuclear Waste Policy Act, DOE is required to develop guidelines which govern the selection and evaluation of repository sites. The State contends that the guidelines, which DOE promulgated in late 1984, do not conform to the requirements of the Act.

(5) **Nevada, et. al., v. Watkins**, (Case No. 86-7309) seeks review of the adequacy of DOE's Environmental Assessment in relation to the requirements of the Nuclear Waste Policy Act. The action challenges the conformance of the EA to the provisions of law and also the application of the siting guidelines within the EA.

The case stayed before the District Court:

(6) **United States v. Nevada**, (Case No. CV-S-90-065-HDM.RJJ) is a challenge brought by the United States on DOE's behalf to Nevada's notice of disapproval and to the Nevada Attorney General's opinion that further action on certain applications filed by the DOE with Nevada water and environmental agencies is unnecessary because the applications were mooted by the notice of disapproval represented by AJR 4 and AJR 6. The case was stayed because the State had effected a preemptive filing with the Ninth Circuit Court of Appeals a month before the District Court case was filed and the major issues were the same.
ATTACHMENT I

INTERIM STATEMENT OF THE
TECHNICAL REVIEW COMMITTEE
INTERIM STATEMENT
OF THE
TECHNICAL REVIEW COMMITTEE
ON THE
YUCCA MOUNTAIN SOCIOECONOMIC
PROJECT

JANUARY 1990
This statement by an independent review committee offers comments on the quality and possible national significance of studies undertaken by the State of Nevada on socioeconomic aspects of the proposed Yucca Mountain repository for high-level nuclear waste. The Committee believes that the studies deserve careful appraisal by officials responsible for the nuclear waste disposal program and by other concerned people in Nevada and wherever nuclear waste is stored or likely to be transported in the United States. 

Gilbert F. White  
Chair, Technical Review Committee
Interim Statement of the Technical Review Committee on the Yucca Mountain Socioeconomic Project

Introduction and Overview

The present uncertain state of knowledge about the likely impacts of constructing a national repository for high level nuclear waste makes it timely to comment on the status of current studies by the State of Nevada on the socioeconomic dimensions of the repository effort and the implications for national and state policy. In light of the 10,000 year time horizon, the hazardous nature of the material to be stored, and the intrinsic uncertainties associated with a project of such unprecedented scope, it will be important to the nation for all parties involved in nuclear waste program planning to study carefully the insights gained from socioeconomic as well as environmental impact studies. These studies, whether carried out by the facility developer or by other national or state entities, can contribute to the development of public trust as well as to the identification of impacts and the measures needed to address them.

From the evidence now available, it appears that the designation of Yucca Mountain as the site for a repository has already had significant socioeconomic impacts on Nevada, and that, depending upon numerous decisions not yet made by federal, state, and local agencies as well as public reactions to future events, the development of the repository could have a profound effect upon the economy and quality of life of people of the region. This conclusion arises in part from observation of the effects on the political and social fabric of Nevada over the fourteen years since investigations commenced at Yucca Mountain, and in part from emerging findings related to public perceptions of the risks of waste transportation, storage, and disposal. In addition to the effects on Nevada, the consequences may also be large for other parts of the nation. With no alternatives to Yucca Mountain under study, communities across the nation may increasingly be concerned with the prospects for transport of waste through their areas, or with the possibility that they may be obliged to store mounting volumes of high-level waste locally in temporary facilities for an indefinite period.

Role of the Technical Review Committee in the Yucca Mountain Socioeconomic Project

The Nuclear Waste Policy Act of 1982 and its 1987 Amendments give the State of Nevada authority to conduct independent assessments of the socioeconomic impacts of the repository project at Yucca Mountain. These assessments are distinct from socioeconomic studies required of the Department of Energy (DOE)
as part of its responsibility for evaluating the site. In April 1986, the State hired Mountain West Research to carry out its studies, and created the Technical Review Committee (TRC) to provide independent review and comment on the scope, methodology and findings of these studies. In June 1989, Mountain West presented to the Nevada Nuclear Waste Project Office (NWPO) its "Interim Report on the State of Nevada Socioeconomic Studies."

The TRC has met regularly since 1986 to examine work in progress and to provide comments, criticisms, and suggestions to the NWPO and Mountain West. The TRC would like to stress the independent nature of its review. It understands itself to be responsible for appraising the technical validity of the studies, their usefulness to policy planners, and their contribution to scientific knowledge. The TRC commends the NWPO for seeking such outside review, and believes that its comments have been seriously considered by the NWPO and Mountain West and largely incorporated in the studies. The TRC is, however, an advisory committee; the NWPO and Mountain West are responsible for the study efforts and their findings.

This statement by the TRC is intended to provide to interested parties the perspective of an independent body concerning the quality and significance of the socioeconomic studies conducted to date. The TRC's comments and views are provided below in four categories:

(1) the sources of uncertainty that surround estimates of socioeconomic impacts from this unprecedented project,

(2) the validity of the methods employed and findings reached to date,

(3) the components of the current situation that will make it difficult to reach sound conclusions, and

(4) the steps that appear essential to arriving at reasonable, accurate, and reliable findings from the studies now underway or projected.

Sources of Uncertainty

Uncertainty is inherent in any attempt to estimate the impacts of a unique project of the magnitude, complexity and time horizon of the proposed Yucca Mountain repository. Given the potential for human error, the novelty of some aspects of the technology, and an extended time horizon that is twice as long as recorded human history, it is inevitable that the actual impacts -- physical, biological, social, psychological, and economic -- will differ from the best of impact projections. It is important to understand that much of the uncertainty cannot be reduced to probability estimates.
Estimates of probability, if they are sound, must be based upon experience. When experience is lacking, grounds for calculating probabilities are deficient and uncertainty is compounded.

Even for the foreseeable future, there are at least three categories of uncertainty that can significantly alter socioeconomic impacts. First, there are uncertainties that flow from the simple condition of indecision. For instance, DOE plans for transporting nuclear waste from storage sites to the repository remain unformulated: we do not know at this time whether waste shipments will be made by truck or rail, over which routes, with what frequency or safeguards, and when they will begin. In the face of these uncertainties, it is difficult, if not impossible, for the state of Nevada, corridor states or the Department of Energy to make realistic projections of risks and their probabilities, to prepare to respond to public perceptions and actions, or to develop specific mitigation policies.

Second, the policies to be followed by state and local governments and the future behavior of individuals in response to the project are largely unknown, and they could have a powerful influence on impacts. The nature of the materials to be stored, the apprehension of the public concerning such materials, and phenomena involving the social amplification of risks, all combine to create uncertainty regarding human and institutional responses to the repository.

Third, there will continue to be external perturbations and surprises that may cause the repository development to differ from anything that can be foreseen at this time. Unforeseen events occurring throughout the 10,000 year life of the repository will continue to surround future repository development, operation and storage with irreducible uncertainty. The most sophisticated projections will not be predictions, and are virtually certain to require modification in response to events over the course of time.

The nuclear waste repository is an unprecedented undertaking for humanity, and the extreme uncertainty that surrounds its impacts should not be minimized. The state's studies have made a strong case for the importance of assessing uncertainty, and the TRC believes it would be imprudent to ignore the effects of uncertainty in any studies carried out by the state, the Department of Energy, or other public and private agencies. Careful studies with appropriate caveats, like those undertaken by Nevada, can provide insights concerning the range of future impacts and management options, and can be helpful in informing the near-term choices and decisions that face the state and nation. The state is to be commended for developing a set of studies that begin to deal systematically with the irreducible uncertainties of the project.
Validity of Methods Employed and Findings to Date

In the opinion of the TRC, the Executive Summary of the Interim Report is an accurate, carefully stated, and appropriately qualified summary of the major issues uncovered by the study and the findings reached to date. The TRC considers the most significant observations in the Executive Summary to be:

- Disposal of high level nuclear waste presents society with one of its most complex social and technological challenges.

- Widespread public concerns over the hazards of radioactive waste disposal create a special context for Nevadans, one which generates discussion, debate and conflict.

- The nature of future events and the types and magnitudes of the consequences will depend heavily upon future conditions that cannot be fully anticipated.

- The greatest potential socioeconomic difficulty of the proposed repository stems from the intense negative imagery associated by the public with a high-level radioactive waste repository, combined with the vulnerability of the Nevada economy to changes in its public image. Because of the high profile nature of the whole nuclear waste disposal program, the potential exists for Nevada to become associated with this negative imagery to the detriment of its attempts to attract tourists, conventions, migrants, and new industry to the state.

- The results of the many different research efforts indicate that the state and local governments must work under the assumption that the high level radioactive waste repository proposed at Yucca Mountain has the potential to result in significant negative impacts for the state's economic base, revenues, public services, and community life. Such impacts could more than offset any expected benefits to be derived from employment and income generated by the project.

Regarding the last two findings given above, the TRC believes that the research conducted to date indicates that risk-induced behavioral effects, called "special effects," may result in significant negative socioeconomic impacts much larger than any positive impacts resulting from "standard effects" of the repository project. Although it is also plausible that the special effects may turn out to be small in their overall impact and/or temporary in their duration, the TRC believes that the State cannot afford to ignore the potential consequences for its economy and society of these special effects. The magnitude of impacts will depend in part on the accidents and events that occur on the
treatment of such events by the media, and on the management policies of the federal, state and local governments.

Although negative imagery from public perceptions of risk could potentially cause socioeconomic difficulties of significant magnitude, as suggested in the findings above, the physical effects of potential accidents should not be minimized in estimations of impacts. While the physical effects of the most serious credible accidents involving spent nuclear fuel transported to and stored at a repository would not be as severe as the most serious accidents that might befall an operating nuclear power plant, a major accident could have severe repercussions upon the society and economy of the state.

The body of the Interim Report presents the current stage of development of several innovative approaches to understanding the consequences of a project for which there are no direct parallels. Separating the studies into analysis of standard impacts, which are treated in conventional studies of all major projects, and the analysis of special effects, associated with the risk aspects of a repository is an important contribution of the current effort. By segmenting the investigations into these categories, competent researchers have been able to pursue important avenues of inquiry on the factors influencing public perceptions of the risk associated with the repository, about which little was previously known. The study has demonstrated the importance of considering potential risk-induced consequences of repository development. It has also shown that the political climate within which repository siting decisions have been made can affect public perceptions of risk and is directly relevant to the assessment of the socioeconomic impacts.

In terms of methods, the analysis of standard effects represents the state of the art. Considerable effort has been expended to develop tools and to obtain data bases to evaluate standard economic/demographic impacts. Data collection and calibration of models have been completed in a rigorous, unbiased, and scientifically defensible manner. One particularly important finding is that the repository will result in negative fiscal balances to state and local governments. Because of the tax structure in Nevada, growth from any project that does not generate a commensurate increase in gaming or tourism tax revenues will have this result.

There are, of course, significant uncertainties associated with the results of the analysis of standard effects. Most of the uncertainties involve the adequacy of the project description and the validity of the projections of baseline conditions over time, particularly with regard to rapid growth rates currently being experienced in Clark County. Although these uncertainties are not atypical of analysis of standard impacts employed in other major studies, the much longer than normal time frame under analysis in
this study increases the potential for uncertainty. The findings on standard effects point to significantly increased demands on state and local government facilities and services. If there is a deficiency in the analysis of standard economic/demographic impacts, it results from the lack of a complete base of reliable information on the project, including descriptions of the nuclear waste transportation network and the management system that will be employed by DOE to construct and operate the repository.

Many changes in design and operational concepts will result from discoveries during site characterization, additions to regulatory requirements, and changes in technology in the future. Project uncertainties and problems may contribute to schedule delays, construction layoffs while problems are investigated and solved, or delays in the commencement of operations once construction is completed. Recent examples of such delays have occurred for both the Yucca Mountain Project and the Waste Isolation Pilot Project in New Mexico. Socioeconomic impact assessments cannot be expected to predict reversals and delays in a project. Such problems, however, can create serious dislocations in the affected communities, causing impacts much more severe than originally predicted. The sudden termination of the Exxon Colony Oil Shale project in Colorado, which was abandoned by its developers when the oil market shifted, provides a good example of how radical changes in projects can overwhelm impact assessments and mitigation efforts. At best, a socioeconomic study might provide a warning of the potential for drastic changes when an unstable environment internal or external to the project is foreseen, as with the repository project. Good impact assessments can also analyze the impacts of specific events, such as cancellation of the project, that are usually not considered by developers.

The standard social/cultural analyses have employed advanced research methods consisting of field interviews, survey research, and ethnographic investigations. These efforts have resulted in important findings including differences in perceptions about the repository across communities in rural areas of southern Nevada. The western part of the study area is less opposed to the repository than the eastern part, and the rural communities are less opposed than the urban area. Rural communities in the eastern part, which experienced downwind effects of atomic testing, have exhibited stronger opposition to the repository than communities in the west where employment at the Nevada Test Site has been an influential factor. The studies have shown that, even before any physical development at the site, very powerful political-social effects have been spawned by the differences of opinion on the project, as with the temporary creation of a new county surrounding Yucca Mountain that generated intense intra-state conflict. The studies have employed ethnographic approaches to assessing impacts of the repository on Native Americans as well as on the rural and urban populations in the affected region. The studies are an
effort to identify and analyze likely impacts on social structure as well as issues of concern to the citizens of Nevada. As the studies have shown, "there is potential for conflict, a decrease in community satisfaction, and divisive political issues in response to the repository program."

The "special effects" analyses have been innovative. Some of the researchers in the country have been involved in the studies of risk perception, risk management, and risk assessment. Through continuous refinement, the methods have reached a stage of development such that the preliminary results can, given the careful caveats and qualifiers stated in the reports, be accepted with reasonable confidence. In particular, the possibility can no longer be ignored that the intense negative imagery surrounding the repository may cause significant impacts on Nevada's economy and social life.

The methods of investigating special effects consist of essentially three approaches: survey research, imagery analysis, and analogous case studies. Survey research has been applied extensively, especially early in the study effort. However, important questions exist about the reliability of "hypothetical perception" research (e.g., survey research that asks "what would you do if ..." questions) as a predictor of future human behavior, especially with unfamiliar situations. The study team has directed more of its recent efforts to imagery analysis as a way of examining how future behavior might be affected by risk perceptions. This approach builds on the well-established connection between people's images of a product and their behavior as consumers in traditional advertising research. The use of imagery analysis in the Nevada study, correlating people's ratings of their perceptions about places and situations with their past and future actions, provides what may be a more reliable indicator of people's future intentions than "hypothetical" survey research. The purpose of the imagery analysis has been to examine how perceptions about the repository might affect tourism, migration, convention bookings, and industrial location decisions in Nevada. Although more work is needed, this approach helps to resolve the methodological concerns about having people respond to hypothetical questions about their prospective behavior.

Recognizing that no other situation is directly comparable to the Yucca Mountain project, the detailed study of a number of analogous cases by the research team supports the finding that risk-induced behavior could result in significant negative impacts. Substantial evidence points to the existence of risk-induced behavioral effects and indicates that negative imagery associated with a waste repository could become associated with Nevada and Las Vegas. However, it is also possible that the effects could be small or of temporary duration, depending on the nature of events and of government and media responses to them. Additional studies, especially of analogous cases in which actual behavior could be
observed, should be undertaken to refine our understanding of the likelihood and extent of risk-induced effects.

**Constraints in the Current Situation**

A number of issues surrounding the current and future evolution of the nuclear waste program are likely to make it difficult to reach sound conclusions from socioeconomic studies of this unique project. Some of these issues are: (1) the relationship of the socioeconomic studies to the unfinished studies on physical and biological impacts, (2) the lack of comprehensive studies of the effects of transport of waste to Yucca Mountain from sites outside of Nevada, (3) the ways in which the continually accumulating storage of high-level waste at presently dispersed sites might influence decisions about research and development at Yucca Mountain, (4) the possibility that further technological research may alter radically the prevailing assumption as to opportunities to treat, reprocess, and store high-level waste, and (5) the circumstances in which the allocations of funds for studies have been and are being made by the Congress and the Department of Energy.

The repository project is now in the very beginning of the characterization stage. Several years, and perhaps many years, of detailed characterization of the site underground will be required for a license application, and several years of review of the license application by the Nuclear Regulatory Commission (NRC) will be required before a decision is made about whether or not to construct the facility. Major uncertainty exists at this time concerning the results of the geological, hydrological, and other physical and biological studies at the Yucca Mountain site. These uncertainties are a frequent focus of media attention.

Significant uncertainties also exist regarding the future interpretation of regulations developed by the NRC to protect human health and the environment for the next 10,000 years. Additional engineering safeguards may be required and further technological research may alter radically the current design for engineered barriers and waste preparation. Because all these uncertainties concerning site characterization and licensing are greater than originally anticipated, DOE recently postponed its projected opening date from 2003 to 2010. It is also quite possible that, after several years of investigation, the Yucca Mountain site will be found to be unsuitable for geologic isolation, requiring the site to be abandoned.

The transport mode, routes, and number of shipments are also uncertain. The role of above-ground, monitored, engineered storage as a part of, or as an alternative to, the geologic repository has not been determined. Because of the delays in the repository, the debate over the location of temporary storage, either at reactors
or at a central facility, may have a significant effect on research and development activities at Yucca Mountain. Moreover, further technological research and changes in resource economics and environmental policy may in time significantly alter assumptions about storage, treatment, and reprocessing of high-level waste. Because of all these significant uncertainties associated with the physical system, magnified by the volatility of the political system which has already changed the direction of the repository program several times over the past two decades, it will be very difficult to reach reliable projections about socioeconomic impacts beyond the near-term horizon. Nevertheless, making wise decisions will require our best efforts at understanding the range of possible impacts.

Congress recently decided to reduce funding for completion of Nevada's socioeconomic and transportation assessments. The practical result of this action is a drastic reduction in the resources available to complete the final year of the study. While much has been learned to date, the reduction in effort will make it difficult to reach reliable conclusions in a number of areas.

One area in which this difficulty is clearly evident is transportation impact assessment. There is a consensus on the TRC that DOE's transportation plans are so ill-defined with regard to choice of mode, routes and containment systems that a meaningful and convincing transportation impact assessment has yet to be conducted -- by DOE or anyone else. The transportation issues are nevertheless of great concern to citizens and local governments in Nevada and in the corridor states. To deal with these concerns, the State has embarked upon a program to put in place the resources, in the form of professional staff, databases, and analytical models, to review future DOE transportation studies and plans and to perform credible independent analyses. This work is just now reaching the stage where some meaningful preliminary transportation impact assessments can be made. The uncertain funding outlook threatens to abort these efforts before useful results can be generated. The TRC finds these efforts to be important and worthy of continued support.

Because of the funding reductions, the plans to complete the gathering and updating of economic, demographic, community services, and fiscal information necessary for the county and subcounty level impact projections have been virtually halted for FY 1990. Analysis of social-cultural and Native American databases has been scaled back significantly, the ongoing effort to chronicle events in communities has been deferred indefinitely, and the important work on risk-induced behavior has had to be reprogrammed and stretched out over a longer time frame. The major task of designing and implementing monitoring systems to maintain databases and to monitor impacts has had to be postponed.
The TRC believes that the repository program is of such unprecedented scope and longevity and is so fraught with uncertainties that it is imperative to have a well-structured monitoring program in place at the very start of the project to collect the baseline economic data needed to track the project's impacts and to chronicle social and cultural developments in affected communities. Many of the Nevada studies are designed to provide the requisite baseline data. Curtailing the studies severely compromises this objective. Further, the lack of a sound monitoring program will make it very difficult to measure the actual impacts of the project as they occur and to recalibrate the State's analytical tools to project more accurately the impacts in later years.

Essential Steps for Reaching Reliable Findings

The research carried out to date is very promising. The reduction in funding for the final year, however, has required hard choices concerning priorities. The value of the body of findings and information that was expected from the study in 1990 will be lessened because of the deferral of the monitoring effort and other studies, and the constraints on the transportation assessments. Among the investigations that appear essential for testing some of the significant preliminary findings and reaching reasonable final conclusions are:

1. performing additional surveys and analysis to examine linkages between images and actual behavior at the national and local level,

2. continuing development of data on current conditions in Nevada that are needed to make projections relative to population-driven effects of the repository, especially in regard to the very rapid growth rates in Clark County.

3. performing additional analysis on analogous case studies, which in a qualitative way provide an extraordinarily rich source of information of how human beings react to risk and their perceptions of risk,

4. performing additional analysis of surveys of risk perceptions in rural and urban areas, and

5. developing a sound monitoring program, including the chronicling of events as they occur.

Regarding the fourth item, the preliminary report of the Nevada urban risk surveys shows data that are extremely rich, complex, and challenging. For example, an early picture that
emerges is of people satisfied with their lives and communities; despite some wariness of the repository and being very negative about it if asked directly, they give it very low salience among the problems with which they are concerned; they are fatalistic about its coming into being, and very distrustful of authorities, especially federal authorities involved in dealing with it and/or the problems that may arise from it. There are many seeming paradoxes and compelling questions raised by these initial results that deserve further analysis if the research is to provide an understanding of baseline conditions and a basis for speculating intelligently about future special effects. The data on experiences with and reactions to the Nevada Nuclear Test Site might be useful in this endeavor, although the Test Site is not an analogous facility to a repository and the socio-political circumstances surrounding the repository are different from those that surround the Test Site.

The TRC hopes that the monitoring effort will be restarted since it is much easier to collect the data through a monitoring program than to attempt to reconstruct data for past years. The planned monitoring system would have provided data at a fraction of the cost it will require to collect the data at some time in the future.

The TRC expects that, if the State of Nevada is provided adequate funding to complete the ongoing work program, the study effort can produce a balanced, insightful, and incisive analysis of the socioeconomic impacts that might be expected to result from this unprecedented national undertaking. The uncertainties about future impacts will be enormous, but the importance to Nevada and the nation of safely managing the risks and fairly mitigating the negative impacts requires our best attempt at understanding the range of future possibilities.
TECHNICAL REVIEW COMMITTEE

Gilbert F. White
(Chairman)
Gustavson Professor Emeritus of Geography,
University of Colorado

Michael S. Bronzini
Professor and Head,
Department of Civil Engineering,
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Energy, Environment and Resources Center,
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Roy A. Rappaport
Leslie A. White Collegiate Professor of Anthropology,
University of Michigan
ATTACHMENT II

SELECTED NEVADA STATE SURVEY DATA
The last session of the Nevada Legislature passed a law making high-level nuclear waste disposal in Nevada illegal.

Do you favor such a law?

- Favor: 74%
- Oppose: 18.4%
Do you believe the State should stop its opposition and make a deal, or Do you think the State should continue to do all that it can to oppose the repository even if that means turning down benefits that may be offered by the federal government?
The State of Nevada should do all that it can to stop the federal government from locating a high-level nuclear repository in the state.
If the repository were eventually built, I believe the benefits would outweigh the possible risks or harms.
Suppose the Department of energy selected the Yucca Mountain site for the nation's first high-level radioactive repository, but it wouldn't be located there unless state residents voted in favor of it. If this were the case, would you vote for it, against it, or wouldn't you vote on this issue?
No trust/trust on a 0 to 10 scale. How much trust do you have in each of these entities to do what is right with regard to a nuclear waste repository?
ATTACHMENT III

WESTERN GOVERNORS' ASSOCIATION

COMMERCIAL SPENT FUEL STORAGE RESOLUTION
A. BACKGROUND

1. Through the Nuclear Waste Policy Act of 1982 the Federal Government has the responsibility to provide for the permanent disposal of spent nuclear fuel.

2. Through the Nuclear Waste Policy Act, Congress found that the owners and operators of nuclear power reactors have primary responsibility for providing interim storage of spent nuclear fuel. The Act requires that federal officials expedite the effective use of existing reactor storage facilities and the addition of needed new storage capacity, consistent with:

   a. the protection of public health and safety, and the environment;
   b. economic considerations;
   c. continued operation of such reactor;
   d. any applicable provisions of law; and
   e. the views of the population surrounding such reactor.

3. The U.S. Department of Energy (DOE) originally projected that a geologic repository will be available for acceptance of spent nuclear fuel in 2003. Recently DOE revised their schedule to project the repository will not be available until at least 2010.

4. Since the repository will not be available for spent fuel disposal in 2003, commercial nuclear reactors in the nation will require additional spent fuel storage capacity beyond that which is, or can be made available in existing spent fuel storage pools at the individual reactor sites.

5. Both DOE and the Nuclear Regulatory Commission (NRC) have determined that technology for safe, cost effective, dry cask, at-reactor storage exists, and some designs are currently licensed and in use in this country and abroad.

6. The Monitored Retrievable Storage Review Commission has concluded that a Monitored Retrievable Storage System is not justified as conceived under current law. They further concluded that spent fuel storage away from the reactor site should be available for health and safety emergencies. For circumstances which threaten the continued operation of reactors, a User-Funded Interim Storage facility (UFIS) should be built. The costs of such a facility should be incurred by the rate payers.
B GOVERNORS' POLICY STATEMENT

1. It is the objective of the Western Governors' Association to support the national policy for permanent, safe geologic disposal of spent nuclear reactor fuel. Congress and the Federal Government must anticipate that, if the permanent geologic repository does not open on schedule, most reactors will need interim storage. It must be assured that any interim storage is safe, cost effective and fiscally equitable to the rate payers.

2. The Western Governors' Association encourages the NRC to adopt, as recommended by the NRC staff and the NRC's Advisory Commission on Nuclear Waste, a statement of confidence in at-reactor passive storage. If the NRC finds such confidence, and the permanent geologic repository is not available, the Western Governors' Association endorses at-reactor dry storage, where such storage is permissible under state law, as an acceptable means of interim storage until a permanent geologic repository becomes available.

C. GOVERNORS' MANAGEMENT DIRECTIVE

1. The Western Governors' Association shall convey this resolution to the appropriate members and committees of Congress, the Secretary of the Department of Energy, and the Nuclear Regulatory Commission.

2. The Western Governors' Association and the Task Force on Nuclear Waste are to work with Congress, the Nuclear Regulatory Commission, the U.S. Department of Energy and the Utility Waste Management Group to develop the appropriate elements of policy to anticipate the need for interim storage.

Passed Unanimously, December 1, 1989.
ATTACHMENT IV

WESTERN GOVERNORS' ASSOCIATION

HMTA RESOLUTION
Western Governors' Association  
Resolution 90-005  

SPONSOR:  Governor Miller  
SUBJECT: Hazardous Materials Transportation Act  

A. BACKGROUND  

1. The Hazardous Material Transportation Act of 1974 (HMTA) is the basis for federal regulation of the transportation of hazardous and radioactive materials. The HMTA was scheduled to expire in 1989, but Congress extended the deadline to allow time for debating various proposals for reauthorization.  

2. Over the past decade, a number of states have sought congressional action to amend the HMTA. States have been particularly concerned about federal preemption of state regulatory authority, radioactive materials transportation, routing, emergency response planning and training, inspection and enforcement, and rail shipments of hazardous materials.  

   a. Federal Preemption: Many states believe that the U.S. Department of Transportation (USDOT) has extended federal preemption of state authority far beyond the original intent of Congress through the inconsistency ruling process.  

   b. Radioactive Materials Transportation: Numerous gaps exist in the current federal regulations, especially regarding applicability to U.S. Department of Energy (DOE) shipments, the selection of the safest transport mode, the selection of routes for rail shipments, and inspections.  


   d. Emergency Response Training: The overwhelming majority of first responders are neither adequately trained nor equipped to respond to hazardous materials incidents.  

   e. Emergency Response Information: Personnel responding to a hazardous materials incident need information both to identify the specific hazardous material involved and to provide guidance on the most appropriate response measures.  

   f. Enforcement: Federal inspection manpower has been decreasing at the same time the number of shipments of hazardous materials have been increasing.  

   g. Rail Safety: Rail shipments of hazardous materials have increased markedly since the original passage of the HMTA.  

B. GOVERNORS' POLICY STATEMENT  

1. The western governors believe that the western states are especially vulnerable to adverse effects resulting from the shipment of hazardous materials due to the economic, demographic and geographic characteristics of the western United States.  

2. The western governors believe that reauthorization of the Hazardous Materials Transportation Act, with necessary revisions, is of paramount importance for assuring the safe transportation of hazardous and radioactive materials on the nation's highways and railroads.  

3. Western governors are increasingly concerned about the tendency of the federal government to undercut states' regulatory authority while failing to enforce existing federal regulations.
States acknowledge the need for uniform transport safety standards. But the federal standards must be more receptive to positive ideas originating at the state and local levels of government. The western governors believe that more state authority is needed to allow states to adequately assure public health and safety and effectively manage the shipment of hazardous materials.

The western governors believe that any reauthorization of the Hazardous Materials Transportation Act should include the following provisions:

Federal Preemption

- There should be a roll-back of federal encroachment on state authority in areas where states have legitimate needs and interests involving the safety of hazardous materials transportation. Specifically, the law should be amended to allow states to require reasonable permits, fees inspections, and prenotification necessary for inspections, to establish safety regulations in response to local conditions not addressed by federal regulations.

- The law should maintain the current U.S. Department of Transportation inconsistency ruling process as an advisory rather than a binding process, with added procedural safeguards.

Radioactive Materials Transportation

- The current state authority to designate alternative highway routes must be maintained.

- Provisions of the law must be extended to apply to all federal shipments of radioactive materials.

- Additional regulations are needed regarding selection of rail routes, rail and truck operating guidelines, and inspections.

Highway Routing

- States should be formally authorized under federal law to designate routes for most hazardous materials shipments, in consultation with local governments, Indian tribes, and adjacent states.

Emergency Response Training

- The law should provide for a cooperative effort among state and federal agencies and industry and labor organizations to establish a comprehensive emergency response training program for hazardous materials, including appropriate educational standards for various categories of personnel, certification of training programs, and enforcement of minimum training requirements.

Emergency Response Information

- The Secretary of USDOT should, by rulemaking, direct improvements in the current system of placarding for hazardous materials, in consultation with state and local governments.

- The law should require a feasibility study of a computerized information center using satellite communications which would provide real-time information on shipment contents and appropriate response measures to first responders, to be completed within one year of enactment.
Enforcement

- The primary emphasis in the law should be on authorizing and funding state inspectors to enforce federal and state regulations, through cooperative agreements between the states and the federal government.

Rail Safety

- The Secretary of USDOT should, in consultation with state and local governments, undertake a comprehensive rulemaking to establish regulations ensuring safe rail transportation of hazardous materials.

C. GOVERNORS' MANAGEMENT DIRECTIVE

1. The WGA shall convey this resolution to the Speaker of the House of Representatives, the President Pro Tempore of the Senate, and the chairmen of committees of the House and Senate addressing hazardous materials transportation legislation and the western delegation.

2. WGA shall transmit this resolution to the Secretaries of Transportation and Energy.

Adopted unanimously.

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