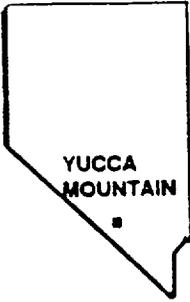


U.S. DEPARTMENT OF ENERGY

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YUCCA  
MOUNTAIN

**YUCCA MOUNTAIN**

**SITE CHARACTERIZATION**

**PROJECT**

# SOCIOECONOMIC PLAN

## REVISION 0



**MAY 1991**

UNITED STATES DEPARTMENT OF ENERGY

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YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT  
SOCIOECONOMIC PLAN

MAY 1991

Revision 0

Prepared by

U.S. Department of Energy  
Yucca Mountain Site Characterization Project Office

Prepared for the Yucca Mountain Site Characterization Project as part of the Civilian Radioactive Waste Management Program. The Yucca Mountain Site Characterization Project is managed by the Yucca Mountain Site Characterization Project Office of the U.S. Department of Energy (DOE). Yucca Mountain Site Characterization Project work is sponsored by the DOE Office of Civilian Radioactive Waste Management.

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## 1.0 INTRODUCTION

### 1.1 PURPOSE OF THE SOCIOECONOMIC PROGRAM

The Yucca Mountain Site Characterization Project (YMP) Socioeconomic Plan describes the socioeconomic program that the U.S. Department of Energy (DOE), Yucca Mountain Site Characterization Project Office (YMPO), will follow to ensure that adverse socioeconomic impacts that may result in Nevada from the scientific investigations program are identified and avoided or minimized to the maximum extent practicable. The primary purpose of the socioeconomic program is to avoid or minimize adverse socioeconomic impacts; the primary objective is to identify potential effects of YMP activities on socioeconomic characteristics of Nevada communities, counties, and the state before they become adverse impacts. This objective can be met by the following:

1. Communicating with individuals knowledgeable about their communities and state.
2. Gathering information from these individuals regarding services, facilities, and concerns in their communities.
3. Providing information to these individuals about aspects of the site characterization program that could cause adverse socioeconomic impacts or that could help alleviate socioeconomic impacts and concerns.
4. Avoiding impacts by conducting site characterization activities in a manner that takes into consideration the socioeconomic needs and concerns of local communities, counties, and the state.
5. Mitigating adverse socioeconomic impacts that cannot be avoided by minimizing impacts and by providing financial and technical assistance.

While a fundamental goal of the YMP socioeconomic program is to avoid or minimize adverse socioeconomic impacts, the DOE realizes it is also important to maximize those socioeconomic changes that are viewed as beneficial by the affected parties. The DOE will coordinate efforts with state and local representatives to identify YMP-related socioeconomic effects, to avoid adverse impacts, to minimize and mitigate unavoidable adverse impacts, and to maximize beneficial socioeconomic effects related to the YMP.

In the process of fulfilling the primary purpose of the program (i.e., to avoid or minimize adverse socioeconomic impacts), the program will ensure that programmatic commitments made by the DOE are met and that statutory and regulatory requirements of the Nuclear Waste Policy Act (NWPA), as amended, are fulfilled.<sup>1</sup>

The State of Nevada and Nye, Clark, and Lincoln counties have planned and implemented their own socioeconomic programs to fulfill their responsibilities to determine potential impacts and prepare requests for mitigation. The program developed by the State of Nevada, in cooperation with the affected counties, originally involved a comprehensive approach to socioeconomic impact assessment, including evaluation of effects related to

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1. The DOE recognized the special concerns of Native American groups located in the area and since 1987 has been working with Tribal representatives as part of a Native American Cultural Resources program. This program focuses on identifying and understanding Native American cultural ties to the Yucca Mountain area through direct consultation with Tribal representatives. The objective of the Native American component of the cultural resources program is to ensure that the activities of the YMP are carried out in a manner that addresses, to the maximum extent practicable, the special concerns of the Native Americans in the area (DOE, 1988d; DOE, 1989a; DOE, 1989b; DOE, 1990b).

population growth and studies of potential effects related to perception of risk. With passage of the Nuclear Waste Policy Amendments Act in 1987, the affected counties received grants to develop their own socioeconomic programs and they have continued the studies of potential impacts related to population growth. Coordination of the socioeconomic programs developed by the DOE, the State of Nevada, and the affected units of local government is necessary to minimize duplication of effort, but it is also important to note that the responsibilities of each party and the requirements of their programs are somewhat different.

The current DOE policy regarding studies of the perception of risk is that while the DOE will not conduct any primary research in that area, the State of Nevada and affected units of local government can assess those potential effects and provide the results to the DOE for evaluation and discussion.

The socioeconomic plan does not currently include any primary research and analysis of the potential loss of revenue and future economic growth due to the stigma effects of perception of risk that may be associated with the YMP. The DOE is reviewing current literature and methods of conducting such research to develop an analytic capability that can be used in evaluating risk perception studies prepared by the State of Nevada Nuclear Waste Project Office and by the affected units of local government. Also, the YMP socioeconomic monitoring program involves establishing close communication with affected parties, which will enable the DOE to identify and understand concerns regarding economic development in Nevada.

Many socioeconomic impacts, commonly associated with large-scale construction or mining projects, are the result of project-related demographic changes. These impacts, such as changes in demand for local services and facilities, may occur in nearby communities as a result of the YMP. Other socioeconomic changes, such as formation of local committees and development of state and local government agencies, may occur along with population-related impacts.

The tri-county southern Nevada region, which is comprised of Clark, Nye, and Lincoln counties, has experienced rapid population and economic growth over the past several decades. The majority of this growth occurred, and continues to occur, in the Las Vegas metropolitan area. Southern Nevada's rapid growth has primarily been generated by growth in the construction and trade sectors and the finance, insurance, and real estate sector, as well as the tourism sector.

Nye County is currently experiencing moderate growth, with much of this growth occurring in the communities of Pahrump and Beatty. The recent growth in Pahrump is attributable to the growing desirability of the community as a residential alternative to the Las Vegas metropolitan area. Mining activity in the area surrounding Beatty is the primary cause of the current boom in that community. Because of current growth patterns in these communities, some services and facilities, such as housing, are at full capacity.

The YMP Socioeconomic Plan addresses both socioeconomic impacts related to demographic changes and those impacts not directly associated with population growth. The success of the YMP socioeconomic program is dependent

on four interrelated processes: consultation, communication, coordination, and mitigation. Consultation is the process whereby the DOE and the affected parties solicit input from each other concerning their programs, explicitly consider that input, and either use the input or explain why the input will not be used. Communication is the process whereby the DOE and the affected parties share information, ideas, and concerns regarding technical and policy aspects of their programs. Coordination is the process whereby the DOE and the affected parties determine how their respective programs can best contribute to addressing the requirements of all of the parties. The program will succeed to the extent that it fosters these processes through the following:

1. Encourages consultation, communication, and coordination, between the DOE and local communities, counties, and the state so that potential socioeconomic impacts and concerns are identified as early as possible.
2. Provides, in a timely manner, the types of information needed by all affected parties within Nevada and the DOE so that everyone may plan their activities to avoid or minimize socioeconomic impacts.
3. Provides flexibility so that socioeconomic concerns that arise in the future may be addressed.
4. Provides the type of technical or financial assistance most appropriate to avoid or minimize socioeconomic impacts and to address socioeconomic concerns of Nevada residents.
5. Meets regulatory requirements of the NWPA and programmatic commitments made by the DOE.

1.2 DESCRIPTION AND LOCATION OF THE YUCCA MOUNTAIN SITE  
CHARACTERIZATION PROJECT

1.2.1 GENERAL DESCRIPTION OF THE REPOSITORY PROGRAM IN NEVADA

The purpose of a geologic repository is to permanently dispose of spent nuclear fuel and high-level radioactive waste. The conceptual design of the proposed repository facilities is described in the Site Characterization Plan (SCP) (DOE, 1988b).

The repository would consist of surface and subsurface facilities and shafts and ramps connecting these facilities. The surface facilities would be used to receive the packaged radioactive waste and to prepare it for permanent disposal underground. The surface facilities would be connected to the underground repository through ramps and/or shafts.

The underground repository, where the emplacement of the waste would occur, would be constructed more than 1,000 feet below the surface. The main component of the underground repository would be the emplacement panels, which consist of rock in which holes have been bored and into which the packaged waste would be placed.

The emplacement of waste will be designed to be retrievable for 50 years, after which time the repository will be prepared for permanent closure by backfilling the underground area and permanently sealing the shafts and ramps. The surface facilities would be decontaminated, decommissioned, and razed, and the site would be returned to a condition that is as close to its

natural state as practicable. Permanent site markers would be placed over or around the repository site.

Currently the repository program in Nevada involves research activities at the Yucca Mountain site (see Section 1.2.3 and Figure 1-2, page 1-11) and administrative and research activities at offices in the Las Vegas metropolitan area. The majority of YMP employees currently work and reside in the Las Vegas valley. The research activities focus on the Yucca Mountain site (e.g., geology and hydrology), but also address characteristics of the southern Nevada region and of the State of Nevada (e.g., socioeconomics and transportation).

#### 1.2.2 PHASES OF THE REPOSITORY PROGRAM IN NEVADA

There are four phases of the repository program in Nevada, and each phase is contingent on the preceding phase. The first phase, which is the phase we are in currently, is scientific investigation. The scientific investigations phase involves a program of studies directed at collecting scientific information necessary to determine the suitability of a site for development of a repository. The scientific investigations phase also includes a program of studies to design the repository and waste package, to prepare an environmental impact statement (EIS), and to obtain construction authorization from the U.S. Nuclear Regulatory Commission (NRC) (DOE, 1988a), as well as a reclamation program if the site is found to be unsuitable for repository development. Detailed descriptions of the studies to be conducted

during the scientific investigation program have been published in the SCP (DOE, 1988b), which has been reviewed by the NRC, the State of Nevada, and other interested parties. The program of studies under the scientific investigations phase is expected to last about ten years.

The other three phases of the project are construction, operations, and closure-decommissioning. If the site is determined to be suitable, the construction phase of the project would begin after receiving authorization from the NRC. The construction phase would last five to six years. The repository would be in the operations phase of the project for about 50 years. The operations phase consists of an emplacement period of 25 years, during which waste would be received, and a caretaker period of an additional 25 years, during which the repository would be monitored to determine if the facility is functioning according to design. During the entire operations phase, including both the emplacement and caretaker periods, the emplaced waste would be retrievable. The closure and decommissioning phase of the project would begin at the end of the caretaker period, and would last about six or seven years.

Recent projections (DOE, 1988c) indicate that more than 1,400 people may work in southern Nevada on scientific investigation activities during the next few years. Construction of the repository would require up to 2,800 workers in Nevada. Almost 2,000 workers will be needed in Nevada during the emplacement period of the operations phase, and about 500 workers will be needed during the caretaker period. More than 900 workers would be needed during the closure-decommissioning phase of the project. Many of these workers and their families may move to Nevada from elsewhere, thus increasing

the population of the area. In addition to YMP workers, other people may be drawn to the area in response to additional jobs generated by YMP workers spending their wages and salaries and by YMP procurement of materials and services.

### 1.2.3 LOCATION OF THE YMP

In 1987, the U.S. Congress passed, and the President signed into law, the Nuclear Waste Policy Amendments Act (Amendments Act), which amended the NWPA of 1982. The Amendments Act directed the DOE to conduct scientific investigations at the Yucca Mountain site only, and to terminate all activities related to the repository program, except reclamation, at the two other sites that had previously been under consideration.

Yucca Mountain is located in Nye County, Nevada, approximately 90 miles northwest of Las Vegas, in a sparsely populated, desert area of Nevada. The site is partially on land that is withdrawn from public use for the Nellis Air Force Range and the Nevada Test Site (NTS); the remainder of the site is on land administered by the U.S. Bureau of Land Management (Figure 1-1).

Currently, entry to the Yucca Mountain site is through Mercury, which is a U.S. Government facility located at the southeastern corner of the NTS (Figure 1-2). Public access to Mercury and the NTS is restricted because of the classified nature of NTS activities. In the future, entry to the site is proposed to be through a gate at the Lathrop Wells-Amargosa Valley junction

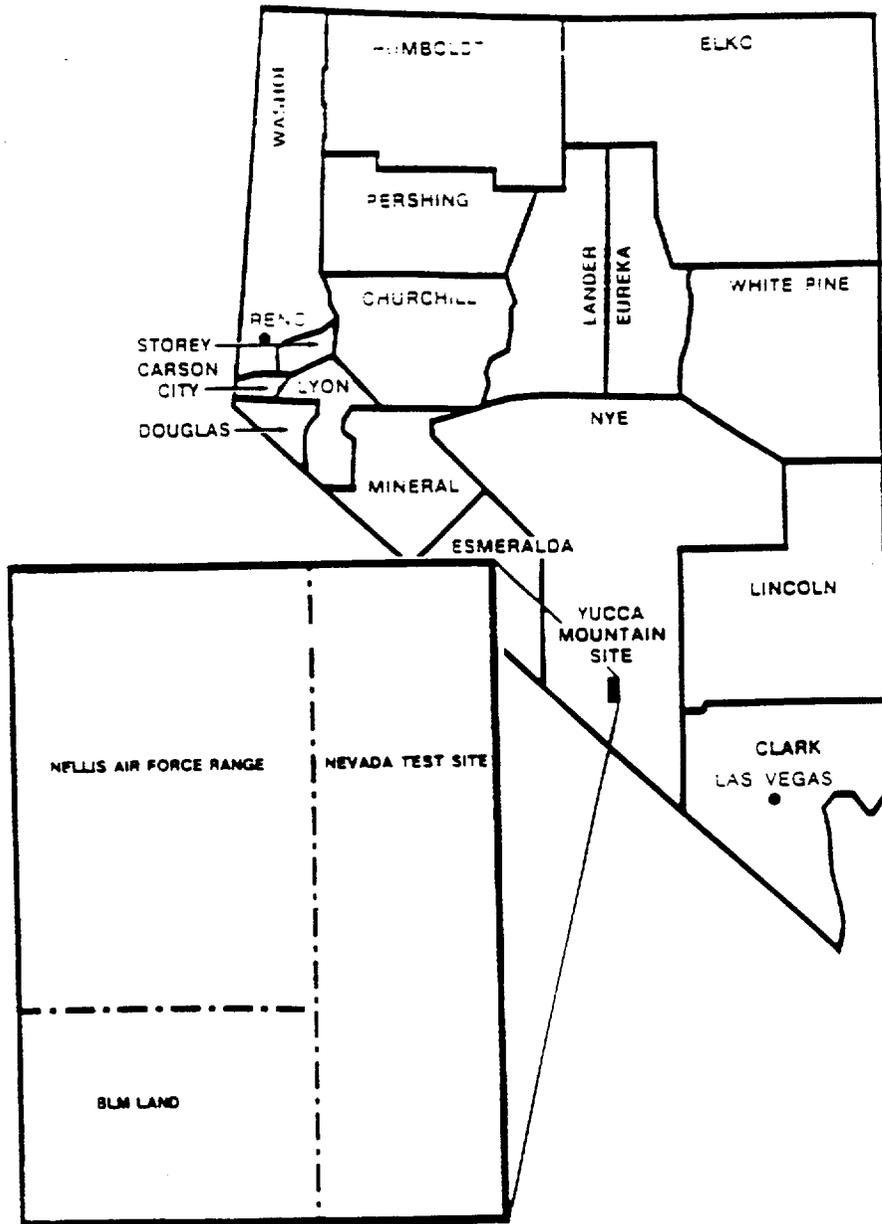


Figure 1-1. Counties of Nevada with Inset of Yucca Mountain Site

of U.S. Highway 95 and State Route 373 (Figure 1-2). Public access to the site, however, will continue to be restricted.

As is indicated in Section 1.2.1, the YMP involves research activities at the Yucca Mountain site, as well as administrative and research activities at offices in the Las Vegas metropolitan area. YMP research activities focus on the characteristics of the Yucca Mountain site, but also include other areas in the region and elsewhere in Nevada as described, for example, in the Site Characterization Plan (DOE, 1988b), the Yucca Mountain Site Characterization Project Radiological Monitoring Plan (DOE, 1990c), and the Preliminary Rail Access Study (DOE, 1990a).

### 1.3 SCOPE OF THE YMP SOCIOECONOMIC PLAN

#### 1.3.1 TEMPORAL SCOPE

The focus of the YMP socioeconomic program is currently on the scientific investigation phase of the YMP. Should the site be found suitable, the flexibility of the program allows it to span all phases of the YMP and to incorporate new concerns as they arise, or new commitments and regulatory requirements as they become effective. The program is designed to encourage consultation, coordination, and communication with affected parties so potential socioeconomic impacts and concerns are identified as early as possible. The YMP Socioeconomic Plan will be reviewed and revised

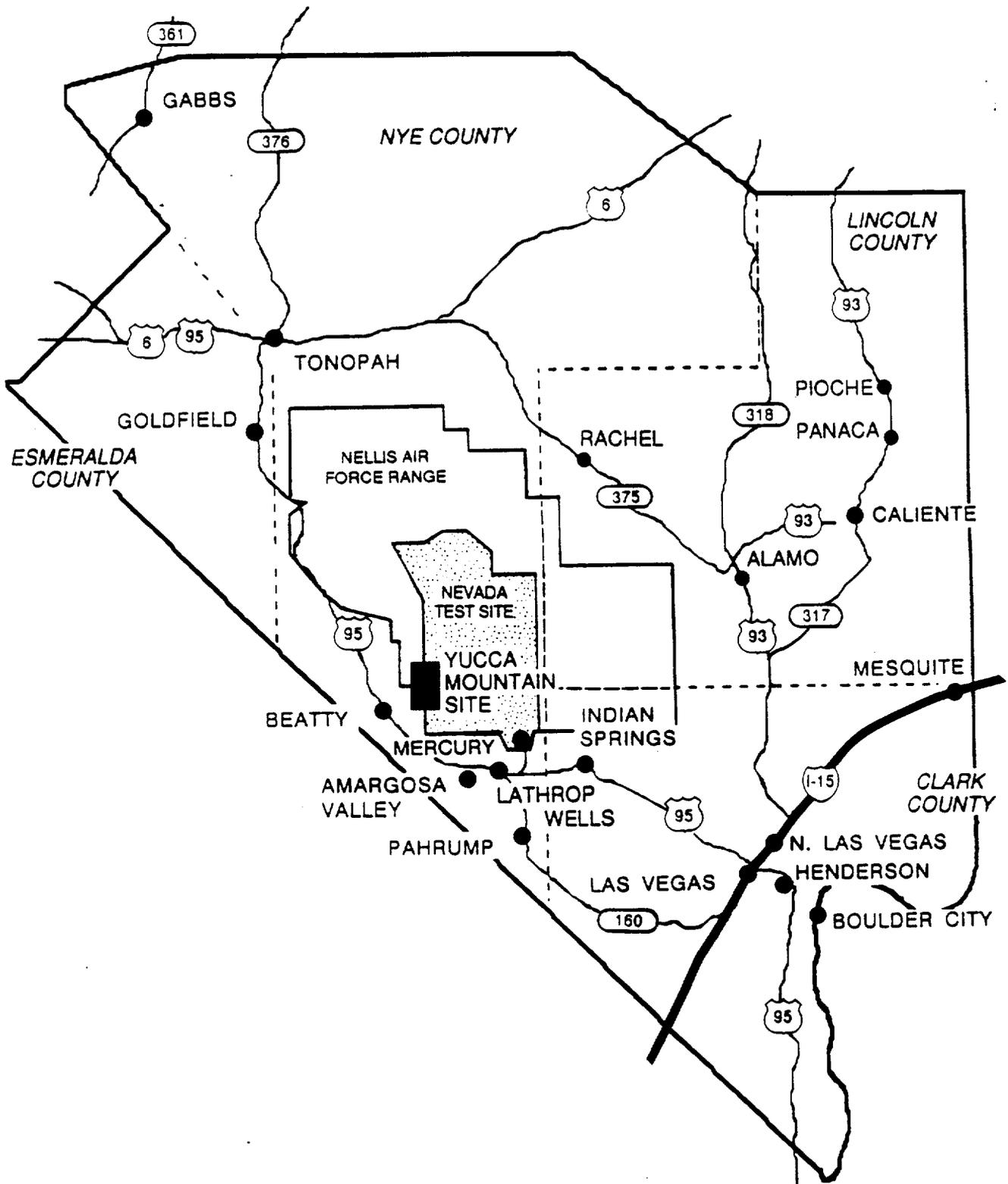


Figure 1-2. Southern Nevada Communities and Highway Network

periodically to reflect new socioeconomic issues and concerns identified in discussions with affected parties.

During the scientific investigations phase of the YMP, the suitability of Yucca Mountain for a repository will be assessed. After site suitability is determined, construction of a repository must be approved by the NRC. At any time during these studies, the site could be found unsuitable, in which case reasonable and necessary steps would be taken to reclaim the site and to mitigate any significant adverse environmental impacts caused by scientific investigation activities. Even though there is uncertainty about whether and when actual receipt of high-level radioactive waste at a repository may occur, the DOE is committed to addressing the socioeconomic impacts and the concerns of Nevada residents throughout the life of the YMP. In fact, the inherent uncertainties associated with the YMP may contribute to socioeconomic effects that must be understood and evaluated during all phases of the YMP.

The four processes that underlie the YMP socioeconomic program--consultation, communication, coordination, mitigation--will be used to address potential socioeconomic impacts and concerns of Nevada residents that arise during the course of the scientific investigation program. The interactions with Nevada residents described in Chapter 2 will ensure that the DOE is aware of potential socioeconomic impacts and concerns, and addresses them in the ongoing planning of the YMP.

### 1.3.2 GEOGRAPHIC SCOPE

The geographic scope for the YMP socioeconomic program encompasses (1) counties and communities in southern Nevada where population-related socioeconomic impacts may occur, and (2) areas of Nevada where impacts that are not related to population growth may occur as a result of scientific investigation activities. However, as the YMP socioeconomic program becomes more clearly defined through consultation with affected parties, the geographic scope may be modified to address additional concerns.

The geographic scope for population-related impacts includes Nye, Clark, and Lincoln counties and the communities in those counties, which could experience adverse socioeconomic impacts as a result of population growth associated with the YMP. The communities nearest Yucca Mountain are Amargosa Valley, Beatty, and Pahrump in Nye County, and Indian Springs in Clark County (Figure 1-2). These communities are within 50 miles of the Mercury entrance to the NTS and the Lathrop Wells-Amargosa Valley entrance, which are the nearest entry points to Yucca Mountain. In a recent DOE analysis of potential socioeconomic effects that may result from the scientific investigation (DOE, 1988c), these towns were identified as the most likely communities to experience a substantial increase in population, relative to their current population, as a result of YMP workers moving to the area.

The geographic scope for nonpopulation-related impacts (including the YMP-related needs of state and local governments and changes in the economic structure of areas affected by YMP activities) consists of the state as a

whole; Nye, Clark, and Lincoln counties; and the communities in those counties.

#### 1.4 QUALITY ASSURANCE REQUIREMENTS

Based on the YMP process for establishing QA requirements for specific elements of the YMP, it has been determined that the socioeconomic program is not directly related to the radiological safety of YMP workers or to the operational reliability of YMP safety systems. However, the socioeconomic program has been determined to have programmatic importance to the YMP and, therefore, is subject to management oversight and controls utilizing the appropriate Quality Assurance program criteria. This oversight and control is accomplished by conducting socioeconomic activities in accordance with the general YMP requirements concerning organization and the QA program, as well as complying with the requirements of plans, procedures, and instructions regarding data acquisition, analysis, documentation, and reporting. The socioeconomic program is subject to management reviews to verify compliance.

While it is unlikely that the socioeconomic program will be a critical component of the licensing process, socioeconomic data and analyses, provided to the DOE by the State of Nevada and affected units of local government, are subject to the aforementioned management oversight and control requirements.

## 1.5 ORGANIZATION OF THE SOCIOECONOMIC PLAN

The YMP Socioeconomic Plan describes the process of consultation, communication, coordination, and mitigation that the DOE will follow to ensure that potentially adverse socioeconomic impacts resulting from the site characterization program are avoided or minimized to the maximum extent practicable, and that social and economic concerns of Nevada residents are known and considered.

Some aspects of this plan are not completely defined at this time, which highlights the importance of interacting with residents of Nevada. As the program of consultation, communication, coordination, and mitigation proceeds, and the concerns of Nevada residents are understood, further details of the plan will emerge.

This chapter has established the framework and basic philosophy for the socioeconomic program. Chapter 2 describes development of the socioeconomic program through a process of interactions with communities, counties, and the state to identify issues of concern to them, their information needs, and appropriate techniques for sharing information that is needed by the DOE and Nevada residents to manage social and economic impacts. Chapter 2 also describes programmatic commitments, statutory and regulatory requirements, and the DOE siting guidelines used to guide development of the socioeconomic monitoring program described in Appendix A. Chapter 3 briefly describes the data collection program, the types of analyses to be conducted, and reports to be written under the socioeconomic program. Chapter 4 describes how these analyses will be used to avoid or minimize socioeconomic impacts and comply

with regulatory requirements. Chapter 5 describes resources available to mitigate impacts and the mitigation approach that will be used. Appendix A provides a proposed program for monitoring YMP and community characteristics to be used as a starting point in discussions with community, county, and state representatives to develop a broad socioeconomic monitoring program that will meet the needs of all interested parties.

## 2.0 SOCIOECONOMIC PROGRAM DEVELOPMENT

### 2.1 INTERACTIONS WITH NEVADA RESIDENTS

Development of the socioeconomic program is based largely on the concept of interacting with Nevada residents, including service providers, and representatives of the state, local communities, and counties, to identify socioeconomic issues and information needs of affected parties. The proposed process of interaction described in the following sections guides the development of the socioeconomic program and addresses the methodology that will be used to modify the program to meet present and future needs of Nevada residents.

#### 2.1.1 IDENTIFICATION OF ISSUES, INFORMATION NEEDS, AND METHODOLOGIES OF INTEREST TO AFFECTED PARTIES

Recent projections of population growth resulting from the YMP (DOE, 1988c) indicated that the Nye County communities of Beatty, Amargosa Valley, and Pahrump, and the Clark County community of Indian Springs may experience sufficient YMP-related population growth to cause impacts on the provision of services and facilities to residents in these communities.

Local service providers, planners, officials, and residents in areas that might experience socioeconomic effects need to know about various aspects of the YMP in order to identify service and nonservice-related needs

and effectively plan for these needs. These aspects include the current number of YMP workers, workers' residential locations, number of school-age children in workers' households, types of materials and services procured for the YMP, and short-term forecasts of these characteristics. The DOE needs to know the capacities of locally provided services and facilities, current problems in providing services, planned expansions, other service-related information, and nonpopulation-related needs of the state and local governments.

The DOE needs frequently updated information to monitor changes and avoid impacts that may result from scientific investigation activities and to provide technical assistance to service providers and other affected parties if requested. The DOE recognizes the the roles and responsibilities of the State of Nevada and the affected units of local government in this process. In some instances the necessary information is being collected as part of the State and local socioeconomic programs. To avoid unnecessary duplication of effort and to minimize the burden on local officials and service providers who provide the information, the DOE is committed to coordinated efforts to develop and maintain a comprehensive socioeconomic data base.

The types of information that are needed by the DOE and that are frequently needed by service providers in order for them to plan their service environments are listed in Appendix A. Appendix A serves as a starting point for discussions with local service providers and other interested parties in the study area. Consultation, communication, and coordination with service providers, county steering or impact alleviation committees, and the State of Nevada will be necessary to refine the

categories of YMP characteristics, population-related services and facilities, and nonpopulation-related characteristics that need to be monitored to ensure that socioeconomic impacts are avoided or minimized to the maximum extent practicable.

The DOE proposes the following interactions with service providers, county steering or impact alleviation committees in Nye, Lincoln, and Clark counties, and the State of Nevada as part of the socioeconomic program. As indicated above, the DOE will work with representatives of the affected parties to determine how best to address the requirements of all the socioeconomic programs while minimizing both duplication of effort and the burden on local officials and service providers.

#### 2.1.1.1 Service Providers

Representatives of the YMP will visit service providers in Nye, Clark, and Lincoln counties who have responsibility for providing services and facilities in communities that may experience substantial population growth associated with the YMP. At the initial meeting with each service provider, the specific characteristics that the service provider believes warrant monitoring will be determined. The types of YMP-related information that the service provider needs from the DOE in order to adequately plan for changes in service demand and facilities requirements will also be determined. Based upon these initial meetings, the DOE will modify the monitoring program

described in Appendix A of this plan to reflect the information needs of the DOE, local service providers, the state, and units of local governments.

After the initial meeting with service providers, a representative of the YMP will contact each provider quarterly to provide the YMP-related information, receive the service-related information, and discuss changes in the information requirements of the service provider or the DOE.

Additionally, if the service provider believes that socioeconomic impacts are imminent, or may result from upcoming changes in YMP characteristics, possible methods of avoiding or minimizing the potential impact will be discussed. The results of the discussions between service providers and the DOE will form the basis for quarterly meetings with county steering or impact alleviation committees.

#### 2.1.1.2 County Steering or Impact Alleviation Committees

These committees will be visited initially and the socioeconomic program plan will be discussed with them. Their suggestions will be incorporated into the plan to the extent that the changes are feasible and practical. Ongoing work, plans, and needs of the committees will be discussed. Ongoing work, technical capabilities, computer hardware and software, and economic demographic modeling efforts of the DOE will be discussed with the county steering and impact alleviation committees in an effort to define mutual

needs and goals. Technical assistance to achieve these mutual needs and goals will be offered by the DOE.

Quarterly, after the initial meeting with these committees, representatives of the YMP will meet with each committee to report summaries of the monthly and quarterly discussions with service providers. If, during the course of ongoing discussions with service providers, a potential socioeconomic impact is identified in the interim between quarterly meetings with the committees, a special meeting may be requested by the service provider, the committee, or the DOE.

The quarterly meetings with each county steering or impact alleviation committee will provide a forum to discuss modifications to the socioeconomic monitoring program. The DOE will inform the committees of expected changes in YMP characteristics that may occur during the foreseeable future and that may affect the socioeconomic characteristics in their communities or counties. Additional areas of socioeconomic concern to local committees will be identified. Plans to modify the socioeconomic monitoring program will be developed to meet the information needs identified by the service providers, steering or impact alleviation committees, and the DOE.

The results of the quarterly meetings with each county steering or impact alleviation committee will be summarized in the Socioeconomic Monitoring Report to be presented to the state, as discussed below.

### 2.1.1.3 State of Nevada

Semiannually, the State of Nevada will be invited to a socioeconomic progress meeting, at which the DOE will present the Semiannual Socioeconomic Monitoring Report. The progress meeting will occur within 30 days of the most recent quarterly coordination and planning meeting with county steering or impact alleviation committees. The Monitoring Report will summarize the information exchanged with the service providers in Nye and Clark counties and will report the outcomes of the joint planning sessions. The monitoring report will identify the DOE's understanding of local socioeconomic concerns, areas of mutual information needs, joint programs that were undertaken during the previous six months or that will be initiated in the following six months, actions that the DOE and others have taken to avoid or minimize socioeconomic impacts, and technical assistance that the DOE has provided or will provide to local communities in Nye and Clark counties.

## 2.2 USING PROGRAMMATIC COMMITMENTS, STATUTORY AND REGULATORY REQUIREMENTS, AND SITING GUIDELINES TO GUIDE SOCIOECONOMIC PROGRAM DEVELOPMENT

Certain components of the YMP socioeconomic program are directed at fulfilling statutory and regulatory requirements associated with the NWPA and meeting programmatic commitments made by the DOE. As noted in Section 2.1, the list of information types presented in Appendix A describes YMP information that the DOE will provide and information concerning affected units of local government that the DOE needs for its socioeconomic program.

The list was compiled for use as a starting point in discussions with representatives of the State of Nevada and affected units of local government to identify socioeconomic issues and concerns, to define information needs, and to establish coordinated efforts to address those needs. The list was developed using programmatic commitments, the DOE siting guidelines, and applicable statutory and regulatory requirements as guides in determining which data categories to include. Programmatic commitments, siting guidelines, and statutory and regulatory requirements applicable to the YMP socioeconomic program are described in the following sections.

#### 2.2.1 PROGRAMMATIC COMMITMENTS PRESENTED IN THE SECTION 175 REPORT

The Section 175 Report (DOE, 1988c) was submitted to Congress in 1988 pursuant to requirements of the NWPA. Congress directed the DOE to address the potential impacts in Nevada on 14 categories of services and facilities that may be affected by siting a repository at Yucca Mountain. Those categories include the following:

1. Education.
2. Public health.
3. Law enforcement.
4. Fire protection.
5. Medical care.
6. Cultural and recreational needs.
7. Distribution of public lands.

8. Vocational training and employment services.
9. Social services.
10. Transportation.
11. Equipment and training for management of accidents involving high-level radioactive waste.
12. Availability of energy.
13. Tourism and economic development.
14. Other needs of state and local governments.

The DOE has committed to a continuing program to monitor socioeconomic changes related to these categories. The DOE has also committed to provide short-term projections of economic and demographic changes that may result from the YMP. These changes are projected on the basis of YMP employment, demographic characteristics of YMP workers, and expenditures in Nevada for materials, equipment, and services procured for use on the YMP.

#### 2.2.2 NUCLEAR WASTE POLICY ACT

The NWPA provides the DOE with authority to address the socioeconomic concerns of the State of Nevada and affected units of local government. Applicable provisions of the NWPA are described below.

#### 2.2.2.1 Section 113(a) of the NWPA

The DOE is required under Section 113(a) to conduct site characterization activities in a manner that minimizes, to the maximum extent practicable, and in consultation with the Governor of the State of Nevada, any significant adverse environmental impacts. Socioeconomic impacts are included in the category of environmental impacts for purposes of the repository program, and the DOE will conduct site characterization in a manner that minimizes, to the extent practicable, adverse socioeconomic impacts.

#### 2.2.2.2 Section 116 of the NWPA

Section 116(c) of the NWPA requires the DOE to provide the State of Nevada and affected units of local government with grants to enable them to participate in the program at Yucca Mountain, with financial and technical assistance to mitigate impacts, and with grants equal to the amount that would be received if the jurisdictions were authorized to tax site characterization activities.

Section 116(c)(1)(B) of the NWPA:

Under Section 116(c)(1)(B), the DOE provides grants to the State of Nevada and any affected unit of local government for them to determine potential impacts related to site characterization activities, develop a

request for impact assistance, monitor and evaluate the repository program, provide information to Nevada residents regarding program activities, and request information from and make recommendations to the Secretary of Energy.

Section 116(c) (2) (A) of the NWPA:

Under Section 116(c) (2) (A), the DOE will provide financial and technical assistance to the state and any affected unit of local government that requests such assistance to mitigate impacts that occur as a result of the repository program and that cannot be mitigated by changing the manner in which site characterization activities are conducted.

Section 116(c) (3) (A) of the NWPA:

The DOE will make tax-like payments, labeled payments-equal-to-taxes (PETT), to the State of Nevada and affected units of local government. These payments will equal the amount they would respectively receive if authorized to tax site characterization activities at the Yucca Mountain site, and to tax the development and operation of the repository, as nonfederal real property and industrial activities are taxed within the state or affected unit of local government.

#### 2.2.2.3 Section 117(b) and 117(c) of the NWPA

Under these sections of the NWPA, the Secretary of Energy will consult and cooperate with the Governor and legislature of Nevada in an effort to resolve concerns regarding public health and safety, and environmental and economic impacts associated with the repository program. The Secretary of Energy will consider these concerns, to the maximum extent feasible, as they are specified in written agreements between the Secretary and the State of Nevada. Such agreements, labeled Consultation and Cooperation Agreements, may specify that the DOE consider socioeconomic concerns not otherwise addressed. The DOE has offered to enter into negotiations with the State of Nevada to develop a written agreement pursuant to Section 117(c), but no such agreements exist at this time.

#### 2.2.2.4 Section 113(b) (1) (A) (iii) of the NWPA

The DOE will develop a plan under this section of the NWPA for the decontamination and decommissioning of the Yucca Mountain site in the event that the site is determined to be unsuitable for the location of a repository. The plan would be developed in consultation with the appropriate Federal agencies, the State of Nevada, and affected units of local government as described in the SCP (DOE, 1988b). Mitigation of any significant adverse environmental or socioeconomic impacts caused by site characterization activities will be addressed and conducted according to the plan for decommissioning. Socioeconomic studies that may be required as a result of

discontinuing repository-related activities at Yucca Mountain will be addressed in the program-wide decommissioning plan for Yucca Mountain.

### 2.2.3 DOE SITING GUIDELINES

The General Guidelines for the Recommendation of Sites for Nuclear Waste Repositories are published in the Federal Register (10 CFR Part 960). The general guidelines contain 11 technical guidelines organized into four categories relative to site suitability. These categories are qualifying conditions, favorable conditions, potentially adverse conditions, and disqualifying conditions. The two guidelines directly related to socioeconomics are presented in 10 CFR 960.5-2-1 and 10 CFR 960.5-2-6.

#### 2.2.3.1 Population Density and Distribution (10 CFR 960.5-2-1)

This siting guideline addresses population density and distribution surrounding the site for a repository. Favorable conditions for a site include low population density in the general region of the site and remoteness of the site from highly populated areas. Potentially adverse conditions include high residential, seasonal, or daytime population density within the projected site boundaries and proximity of the site to highly populated areas, or to areas containing 1,000 or more persons in an area 1 mile by 1 mile. The disqualifying conditions are the following: (1) any

surface facility that would be located in a highly populated area, (2) any surface facility that would be located adjacent to an area 1 mile by 1 mile having a population of not less than 1,000 individuals, or (3) the DOE could not develop an emergency preparedness program that meets the requirements of DOE Order 5500.3 and related guides or 10 CFR 60, Subpart I, "Emergency Planning Criteria."

#### 2.2.3.2 Socioeconomic Impacts (10 CFR 960.5-2-6)

The qualifying condition for this guideline specifies that any significant adverse social and/or economic impacts induced in communities and surrounding regions by repository-related activities can be offset by reasonable mitigation or compensation as determined by a process of analysis, planning, and consultation among the DOE, the State of Nevada, and affected units of local government.

Favorable conditions are specified as follows:

1. Ability of the affected area to absorb YMP-related population changes without significant disruptions of community services and without significant impacts on housing supply and demand.
2. Availability of an adequate labor force in the affected area.
3. Projected net increases in employment and business sales, improved community services, and increased government revenues in the affected area.
4. No projected substantial disruption of primary sectors of the economy of the affected area.

Potentially adverse conditions are specified as follows:

1. Potential for significant repository-related impacts on community services, housing supply and demand, and the finances of state and local government agencies in the affected area.
2. Lack of an adequate labor force in the affected area.
3. Need for repository-related purchase or acquisition of water rights, if such rights could have significant adverse impacts on the present or future development of the affected area.
4. Potential for major disruptions of primary sectors of the economy of the affected area.

The disqualifying condition is specified as follows:

The site will be disqualified if repository construction, operation, or closure would significantly degrade the quality, or significantly reduce the quantity, of water from major sources of off-site supplies presently suitable for human consumption or crop irrigation and such impacts cannot be compensated for, or mitigated by, reasonable measures.

Water resource issues will be addressed in the Environmental Field Activity Plan for Water Resources, which is currently being developed.

#### 2.2.4 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

The Council on Environmental Quality (CEQ) published guidelines in the Federal Register (40 CFR Parts 1500-1508) for preparing an EIS in accordance with the NEPA of 1969. The NEPA requires all federal agencies to use a systematic, interdisciplinary approach in planning and decision making that ensures the integrated use of the natural and social sciences and the

environmental design arts. Should the site be found suitable for a repository and an EIS is prepared, socioeconomic effects of the YMP will be addressed in the EIS for a repository at Yucca Mountain. The socioeconomic issues and concerns that will be addressed in the EIS will be identified during the public scoping process.

#### 2.2.5 RADIOLOGICAL MONITORING PROGRAM (RadMP)

The RadMP is designed to address preclosure radiological safety in a circular area that extends 84 km in every direction from the Yucca Mountain site. Economic and demographic information specific to this area is needed to support radiological dose calculations and analyses. Socioeconomic information relevant to the RadMP is described in the Yucca Mountain Site Characterization Project Radiological Monitoring Plan (DOE, 1990c).

### 3.0 SOCIOECONOMIC DATA COLLECTION, ANALYSES, AND REPORTING

#### 3.1 DATA COLLECTION

An essential component of the socioeconomic program is a comprehensive data base that will provide information necessary for the analyses of socioeconomic effects that may result from the YMP. The socioeconomic data base will be developed from data collected under the socioeconomic monitoring program (SMP) and will be updated on a routine basis. The data base will provide the DOE, the State of Nevada, and affected units of local government with current information about the socioeconomic conditions of the study area; data for use in developing economic and demographic projections; data to support analyses of socioeconomic effects; and data to support impact assessment studies conducted by the state and affected units of local government. Communication and coordination among the DOE, the State of Nevada, and the affected units of local government is necessary for efficient development and maintenance of a comprehensive socioeconomic data base.

Socioeconomic data will be provided to the state and affected units of local government in a timely manner so that they may conduct informed planning, determine which socioeconomic effects warrant mitigation, and request technical and financial assistance to mitigate socioeconomic impacts, if necessary.

The socioeconomic data base that is developed also will allow the DOE to identify and understand socioeconomic effects related to the YMP. The DOE is committed to understanding changes, such as population growth and

requirements for additional services and facilities, which are often identified as costs to the affected communities. Other socioeconomic effects, such as employment opportunities, local economic activity resulting from YMP-related procurement of materials and services, and the changes in tax revenue associated with those effects, will also be identified and evaluated.

Data categories that will be included in the SMP will be determined through interactions with local service providers, county and community groups, and the state as discussed in Section 2.1 of this plan. The proposed characteristics for monitoring that will be used as a starting point in discussions with Nevada residents have been classified into two broad categories, YMP characteristics and characteristics of the study area.

YMP characteristics are as follows:

1. Actual and planned YMP expenditures for equipment, materials, and services (including location where purchases are used).
2. Actual and planned YMP employment.
3. Occupational characteristics of the YMP work force.
4. Wage and salary payments to the YMP work force.
5. YMP total labor costs (including fringe benefits and overtime pay).
6. YMP-related immigration.
7. Residential locations and other demographic characteristics of the YMP work force and their families.
8. YMP management policies and practices (e.g., busing program, on-site housing availability)

Characteristics of the study area are as follows:

1. Population estimates.
2. Education.
3. Public health.
4. Law enforcement.
5. Fire protection.
6. Medical care.
7. Cultural and recreational needs.
8. Social services.
9. Availability of energy.
10. Housing.
11. Distribution of public lands.
12. Transportation.
13. Government administration.
14. Fiscal.
15. Economic development.
16. Training and employment services.

A detailed discussion of each category proposed for the SMP, specific data to be collected for each category, data collection methods, and the sources from which data will be obtained is presented in Appendix A. Full implementation of the SMP will begin after the initial meetings are held with local service providers, county and community groups, and the state.

## 3.2 DATA ANALYSES

Analyses of the socioeconomic data will be conducted in support of the programmatic objective to avoid or minimize socioeconomic impacts that may result from the YMP and in support of statutory and regulatory requirements. These analyses will be documented in periodic monitoring reports and issued to the state and affected units of local government on a timely basis. Additional analyses will be conducted in support of other YMP tasks, such as preparation of the EIS, and will be included in the documents produced as a result of those tasks.

### 3.2.1 ANALYSES UNDERTAKEN IN SUPPORT OF SOCIOECONOMIC PROGRAMMATIC OBJECTIVE

Data analyses that will be undertaken in support of the programmatic objective of avoiding or minimizing socioeconomic impacts resulting from the YMP include analyses of direct YMP-related effects and secondary effects associated with the program, as well as developing short-term (5 to 10 years) projections of socioeconomic effects that may be associated with the YMP. The analysis will be developed in consultation with the State of Nevada and affected units of local government.

Direct effects resulting from the YMP will be monitored by collecting data on YMP characteristics and analyzing these data to determine the amount of direct YMP-related employment and income generated in Nevada; procurement of equipment, materials, and services intended for use in Nevada; population

growth in communities in which immigration of YMP workers and their families occurs; and the direct effect of YMP-related population growth on local services and facilities, such as education.

Secondary effects cannot be monitored, per se, but will be estimated through the use of economic and demographic projections prepared with a model developed by Regional Economic Models, Inc. (REMI). The DOE is working with REMI to provide more complete documentation of the model and to refine and enhance the model's capabilities for use in southern Nevada. Data collected on YMP-related employment, wage and salary payments, and procurement of equipment, materials, and services will be used as inputs to the REMI model. Information developed by the DOE and the affected parties concerning other industrial activities in the study area, such as mining and manufacturing, will also be input to REMI in an effort to differentiate between economic and demographic effects of those activities and the YMP. Analyses of YMP-related secondary effects will focus on identification of potential effects on services and facilities in Nye, Clark, and Lincoln counties and the communities closest to the Yucca Mountain site.

The short-term projections of potential socioeconomic effects for counties and communities in Nevada will be based on the data provided by the monitoring program and will be developed in consultation with the State of Nevada and affected units of local government. The projections will allow the DOE and affected parties to anticipate socioeconomic effects and to avoid or minimize adverse socioeconomic impacts.

### 3.2.2 ANALYSES UNDERTAKEN IN SUPPORT OF STATUTORY AND REGULATORY REQUIREMENTS

Data analyses that will be undertaken to support the requirements of federal statutes and regulations that are outlined in Section 2.2 include analyses of direct and secondary YMP-related effects described in Section 3.2.1, as well as additional analyses of local demographic characteristics and the occupational requirements of the YMP. Analyses of direct and secondary effects will support requirements of the NWPA and the socioeconomic siting guidelines (10 CFR 960.5-2-6) by providing information for use in identifying potential impacts on services, housing, and state and local finances. Initial evaluation of impacts should be made by the state and affected units of local government. However, analyses of potential impacts will be prepared for use by the DOE to facilitate the review of requests for technical and financial impact assistance. Additional analyses to support 10 CFR 960.5-2-6 will consist of evaluating the occupational requirements of the YMP and the occupations of immigrant YMP workers to determine the adequacy of the southern Nevada labor force to meet the needs of the YMP.

Analyses to support the population density and distribution guideline (10 CFR 960.5-2-1) will consist of evaluating demographic data to identify the proximity of the Yucca Mountain site to a highly populated area or to an area containing 1,000 or more persons in one square mile. A highly populated area is defined in 10 CFR 960.2 as any incorporated place, recognized by the decennial reports of the U.S. Bureau of the Census, of 2,500 or more persons.

The specific analyses required to support preparation of an EIS and issues of water quality and quantity addressed in 10 CFR 960.5-2-6 will be determined during the EIS scoping process and documented in revisions of the YMP Socioeconomic Plan and the Environmental Field Activity Plan for Water Resources, respectively.

### 3.3 REPORTING

Socioeconomic data and data analyses will be documented in socioeconomic data reports, socioeconomic monitoring reports, socioeconomic program progress reports, and other documents, such as the EIS.

#### 3.3.1 SOCIOECONOMIC DATA REPORT

The primary reporting document for the socioeconomic program is the socioeconomic data report, which will be issued quarterly. Data reports will be used to present, in summary form, the data generated by socioeconomic monitoring activities and will be distributed to local service providers, units of local government, local county and community groups, and the State of Nevada.

### 3.3.2 SOCIOECONOMIC MONITORING REPORTS

Socioeconomic monitoring reports, which will be issued semiannually, will be used to document the results of economic/demographic forecasts, modifications made to the monitoring program, and mitigation measures that may have been implemented during the period. The monitoring reports will also include a summary of data collected during the period. These documents will be presented to the state at the semiannual socioeconomic progress meeting and also be issued to the public for use in planning for and evaluating socioeconomic effects.

### 3.3.3 SOCIOECONOMIC PROGRAM PROGRESS REPORTS

Socioeconomic Program Progress Reports, which will be issued annually, will be used to document interactions with affected parties, to summarize activities of the previous period, and to summarize activities planned for the upcoming period. Progress reports will be distributed to the State of Nevada, affected units of local government, and upon request to all other interested parties.

## 4.0 APPLICATION OF SOCIOECONOMIC PROGRAM RESULTS

### 4.1 APPLYING PROGRAM RESULTS TO AVOID OR MINIMIZE IMPACTS

Results obtained from data collection activities and analyses will be used to avoid or minimize adverse socioeconomic impacts resulting from the YMP through the selection and implementation of appropriate mitigation measures. Specific mitigation strategies will be determined through interaction and consultation with affected parties. Mitigation strategies will include consideration of adjusting YMP activities to avoid the impact, assisting local communities in planning for potential effects that cannot be avoided, and providing technical and financial assistance to mitigate actual impacts.

### 4.2 APPLYING PROGRAM RESULTS TO COMPLY WITH STATUTORY AND REGULATORY REQUIREMENTS

The above application of program results to avoid or minimize adverse socioeconomic impacts also satisfies compliance with statutory requirements by supporting Section 113(a) of the NWPAA, which requires that the DOE, to the maximum extent practicable and in consultation with the Governor of the State of Nevada, "...conduct site characterization activities in a manner that minimizes any significant adverse environmental impacts." Additionally, by providing technical and financial assistance to mitigate impacts, the DOE complies with Section 116 of the NWPAA, under which the state and affected

units of local government may request and receive impact assistance from the DOE. The results of data analyses will also be used to determine if unfavorable or disqualifying socioeconomic conditions of the siting guidelines of 10 CFR Part 960 are present.

#### 4.3 APPLYING PROGRAM RESULTS TO MODIFY SOCIOECONOMIC MONITORING ACTIVITIES

Data analyses and interactions with state and local units of government and service providers will be used to modify socioeconomic monitoring activities, as appropriate. Modifications include expanding data collection activities to address additional concerns of affected parties, to address additional geographic areas, to resolve questions identified during data analyses, to respond to changes in the schedule or scope of YMP activities, and to monitor the effectiveness of mitigation measures that have been implemented.

## 5.0 IMPACT MITIGATION

### 5.1 MITIGATION RESOURCES

The provisions of the NWPA authorize the Secretary of Energy to mitigate impacts that may occur as a result of the repository program. Under Section 113(a), the DOE is required to avoid or minimize significant adverse impacts to the maximum extent practicable. As indicated in chapters 3.2 and 4.1, the DOE, in consultation with the State of Nevada and affected units of local government, will monitor socioeconomic characteristics of the region, will develop short-term projections of economic and demographic changes, and is committed to work with affected parties to identify potential impacts. This basis of information will enable the DOE to conduct site characterization activities in a manner that avoids or minimizes socioeconomic impacts.

In addition to the requirement to avoid or minimize socioeconomic impacts, the DOE is authorized to address impacts that cannot be adequately minimized or avoided through modifications to the conduct of DOE's activities. Section 116(c)(2) of the NWPA enables the DOE to address YMP-related impacts by providing financial and technical assistance to the State of Nevada and affected units of local government. The requirements of this section of the NWPA define a process that specifies:

1. The Secretary of Energy shall provide financial and technical assistance to the State of Nevada and any affected unit of local government requesting such assistance.
2. The assistance shall be designed to mitigate YMP-related impacts on the state or affected unit of local government.
3. The assistance shall commence upon the initiation of site characterization activities.

4. The State of Nevada or affected units of local government may request assistance by submitting a report on the "...economic, social, public health and safety, and environmental impacts that are likely to result from site characterization activities at the Yucca Mountain site."
5. The Secretary of Energy shall seek to enter into a "binding agreement" that specifies the amount of assistance to be provided to the state or affected unit of local government and the procedures to be followed in providing such assistance.

The activities and employees associated with the YMP, particularly over the long-term, also will generate taxes and other additional revenues that the State of Nevada and affected units of local government may use to address the additional costs of providing services and facilities that may result from YMP-related population growth.

In addition to the provisions for impact mitigation outlined in Section 113(a) and Section 116, the NWPA provides another mechanism to address impact mitigation. Under Section 170, the state may agree to enter into a Benefits Agreement. Such an agreement would provide for annual payments to the state in accordance with the schedule provided in Section 171 of the NWPA.

## 5.2 IMPACT MITIGATION PROCESS

The impact mitigation process proposed by the DOE consists of a series of steps that include identification and evaluation of the impact, review of potential strategies to mitigate the impact, discussions with affected parties regarding the preferred mitigation option or options, and implementation of mitigation. This process will enable the DOE to comply

with the Section 113(a) requirement to avoid or minimize socioeconomic impacts, as well as work with the State of Nevada and affected units of local government to address remaining impacts in compliance with Section 116(c)(2) of the NWPA. This impact mitigation process is based on commitments expressed in the Section 175 Report (DOE, 1988c), which states that consultation and coordination among the DOE, the State of Nevada, and the affected units of local government is necessary to develop effective impact mitigation programs. The SMP and short-term projections of potential socioeconomic effects provide basic information that must be cooperatively evaluated by all parties to determine which changes constitute adverse socioeconomic impacts and how those impacts can most effectively be mitigated.

Upon receipt of a request for impact assistance, the DOE will evaluate the request based on the current data from the SMP, the most recent economic and demographic projections, and information provided by the affected units of local government and the state during the meetings and informal discussions held with them.

Once there is agreement among parties on categories likely to be impacted, the DOE will determine whether changing the manner in which site characterization activities are conducted would mitigate the impact and whether such a change is practicable. If the impacts cannot be mitigated by changing site characterization activities, the DOE will evaluate the reasonableness of the mitigation requested by the affected parties, examine the estimated cost of the mitigation program, and review other potential mitigation strategies.

After the impact assistance request and impact mitigation strategies have been reviewed, informal discussions will be held with affected parties to determine the preferred combination of mitigation options available under Section 113 and Section 116 of the NWPA. Once this process is complete, the DOE will implement appropriate changes in site characterization activities and, as necessary, provide financial and technical assistance to affected parties. If additional documentation is needed to evaluate mitigation preferences and requests, the DOE will request such documentation from the state and affected units of local government.

The DOE approach to impact mitigation is designed to ensure that socioeconomic impacts are identified and addressed in an appropriate and timely manner, to ensure compliance with the requirements of Section 113(a) and Section 116(c)(2) of the NWPA, and to maintain communication with the State of Nevada and affected units of local government.

## 6.0 REFERENCES

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## APPENDIX A

### SMP DATA CATEGORIES, COLLECTION METHODS, AND DATA SOURCES

#### A.1 YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT CHARACTERISTICS

Data collected on YMP characteristics will support the socioeconomic program requirements to measure the direct effects of the YMP on Nevada and to update projections of direct and secondary economic and demographic changes.

##### A.1.1 MONITORING OF EQUIPMENT, MATERIALS, AND SERVICES

YMP procurement data will be collected from the accounting records of the YMP participants by use of a Procurement Data Reporting Form (PDRF). Procurement data from YMP participants and their subcontractors will reflect purchases of equipment, materials, and services intended for use in Nevada, whether these purchases were subject to state and county taxes, and where in Nevada the equipment, materials and services are used. All expenditures will be reported in the aggregate by category and subcategory (see Table A-1, page A-10). The PDRF will be completed monthly by the YMP participants and submitted to the DOE quarterly.

Three-year estimates of future YMP expenditures in Nevada in each of the procurement categories will be obtained annually from the YMP participants.

These estimates will be used in conjunction with detailed work force estimates (see Section A.1.2) and updated information concerning the YMP schedule and policies (e.g., availability of busing and on-site housing, and work schedules) to forecast potential economic and demographic effects of the repository program in Nevada.

#### A.1.2 EMPLOYMENT AND DEMOGRAPHIC MONITORING

Two methods will be used to collect data on the characteristics of the YMP work force and accompanying household members. The primary method is collection of data from the administrative records of the YMP participants and their subcontractors by use of a Worker Data Reporting Form (WDRF). YMP participants will collect data from their organization and subcontractors and consolidate the data onto the WDRF. The WDRF will be completed monthly and submitted to the DOE quarterly. Data that will be collected on the WDRF are discussed in detail in the following sections.

Since all worker characteristics are not available from the administrative records of the YMP participants or their subcontractors, an additional collection method is necessary. Specific data concerning the demographic characteristics of immigrating employees and their families will be collected with the use of an entry questionnaire that each new immigrating employee working on the YMP in Nevada will be asked to complete. These questionnaires will be submitted to the DOE quarterly.

To enhance the DOE's ability to respond to changes in YMP activities, six-month estimates of future YMP employment in Nevada will be collected from the YMP participants. These estimates will be reported on the Worker Projection Reporting Form (WPRF) and submitted to the DOE quarterly. In addition to six-month estimates, three-year estimates of future YMP employment in Nevada will be obtained annually from the YMP participants. The three-year estimates will be used to forecast potential short-term economic and demographic effects of the repository program in Nevada.

#### A.1.2.1 YMP Employment

YMP employment characteristics that will be monitored include the size of the work force, the number of full-time equivalents (FTEs) working on the YMP, the number of YMP new hires, and the number of long-term commuters. All YMP employment data will be obtained from the administrative records of the YMP participants and reported on the WDRF.

Data to be collected on the size of the YMP work force will include the number of YMP employees and FTEs working at the Yucca Mountain site and other areas of the Nevada Test Site (NTS) where activities for the repository project are performed; the number of employees and FTEs working in Nye County, Nevada, other than on the NTS; the number of employees and FTEs working in Clark County, Nevada; and the number of employees and FTEs working in states other than Nevada.

Because many DOE contractors are supporting both the YMP and U.S. Department of Defense (DOD) programs, persons working on the repository program may also spend time working on defense-related activities. Although it is important for the DOE to recognize defense-related effects, the SMP focuses on repository-related socioeconomic effects only. Collection of data on FTEs allows for differentiation between YMP and DOD programs and allows for a more accurate assessment of population driven effects attributable to the YMP. Data on the number of FTEs is available from the YMP participants and their subcontractors and will supplement data collected on the size of the YMP work force.

The number of YMP new hires, both within the tri-county southern Nevada labor market and from locations outside this area, will be monitored. The tri-county region is comprised of Clark, Lincoln, and Nye counties. "New hires" are those persons hired to work on the YMP who were not already employed by the YMP participants or their subcontractors on other contracts. Data collected on the number of new hires will reflect the amount of additional direct employment generated by the YMP in southern Nevada.

The number of long-term commuters employed by the YMP will be monitored by occupation. Long-term commuters are those repository program workers who have been assigned to work in southern Nevada for extended periods of time, defined as one month or longer, and who choose not to relocate to Nevada on a permanent basis. These workers maintain a permanent residence outside southern Nevada and utilize temporary housing while working in Nevada. Long-term commuters create different economic, demographic, and socioeconomic effects than new permanent residents and, therefore, it is important to

differentiate between long-term commuters and permanent residents. Data on long-term commuters will be collected from the administrative records of the YMP participants and their subcontractors and reported on the WDRF.

#### A.1.2.2 Occupational Characteristics of the YMP Work Force

Projections of economic effects of the repository program are developed partially by using estimates of the occupation mix employed on the program. Additionally, potential effects on the adequacy of the labor force requires information on occupational requirements of the YMP. Therefore, data will be collected on the occupational characteristics of YMP employees for use in recalibrating and refining projections, and for addressing labor force requirements of the repository program.

Occupational data collected for the SMP will include the occupations of repository employees working in Nye County, Nevada, repository employees working in Clark County, Nevada, and long-term commuters. These data will be obtained from the administrative records of the YMP participants and their subcontractors and reported on the WDRF. In addition, the occupations of immigrant YMP workers will be collected from the employee entry questionnaire.

The occupational categories for the YMP include but are not necessarily limited to:

1. Engineers - aeronautical, astronautical, chemical, civil, electrical and electronic, industrial, mechanical, metallurgical and materials, mining and petroleum, nuclear, and sales engineers.
2. Computer specialists - programmers, systems analysts, and other computer specialists.
3. Engineering and science technicians - agricultural, biological (except health), chemical, draftsmen, electrical and electronic engineering technicians, industrial engineering technicians, mechanical engineering technicians, mathematical technicians, engineering and science technicians not elsewhere classified.
4. Writers and artists - editors, reporters, public relations and publicity writers, other writers and artists.
5. Professionals and technicians not elsewhere classified - accountants, architects, lawyers, librarians, archivists, curators, social scientists, life and physical scientists, mathematical specialists, operations and systems researchers and analysts, personnel and labor relations workers, and health professionals.
6. Managers and administrators.
7. Clerical.
8. Construction craftsmen - electrical power linemen, electricians and apprentices, telephone installers, linemen, and other construction craftsmen not elsewhere classified.
9. Craftsmen, except construction - forgemen and hammermen, furniture and wood finishers, machinists, mechanics and repairmen, printers and typesetters, sheet metal workers, tool and die makers, and other craftsmen, except construction, not elsewhere classified.
10. Transportation equipment operatives - bus drivers, truck drivers, and other transportation operatives.
11. Operatives, except transportation - precision machine operators, textile operatives, and other non-transportation operatives.
12. Laborers.
13. Cleaning, food, personal, and protective service workers.

#### A.1.2.3 Wage and Salary Payments

Information concerning total YMP labor costs and work locations in Nevada, as well as average wage and salary data for each occupation group employed on the YMP in Nevada will be collected from the YMP participants and their subcontractors. Average wage and salary payments by work location, residential location, and for long-term commuters can be calculated by multiplying the average occupational wage and salary payment by the number of YMP workers in these categories. Wage and salary data will be obtained from the administrative records of the YMP participants and their subcontractors and reported on the WDRF.

#### A.1.2.4 Yucca Mountain Site Characterization Project-Related Immigration and Demographic Characteristics of the Employees and Their Families

Many of the potential effects on services and facilities from site characterization at Yucca Mountain result primarily from population growth due to immigration. This immigration includes YMP employees and their families who move to southern Nevada from other states, as well as those who relocate from one Nevada community to another. The demographic characteristics of this immigrant population are also a determinant of potential effects, especially potential effects on the provision of county or community services. Thus, data will be collected on the amount of YMP-related population growth and the demographic characteristics of this new population.

The number of immigrant workers and the number of accompanying persons will be monitored. Immigrant workers are YMP workers who relocate to Clark, Nye, or Lincoln counties as a result of being employed on the YMP. Accompanying persons are those who relocate, or intend to relocate, with immigrant workers. These data will be collected from the immigrant entry questionnaire.

In addition to collecting data on repository-related population growth, the SMP will monitor the demographic characteristics of YMP workers and repository-related immigrants. Demographic data to be collected includes the residential locations, age, and gender of all YMP workers, residential locations of immigrant workers and their families, and the ages of persons accompanying employees immigrating to southern Nevada.

The ages of persons accompanying employees immigrating to southern Nevada will be collected from the employee entry questionnaire. These data will be used to assess the direct effects of the repository program on certain services and facilities, such as the provision of education, in each of the communities included in the socioeconomic study area (Section A.2).

Residential data to be collected include the residential locations of YMP workers and their families living in Nevada and the residential locations of YMP-related immigrants to Nevada. These data will be used to develop community level forecasts of economic and demographic change. Residential data will be collected by community for the Las Vegas urban area, North Las Vegas, Henderson, Boulder City, and Indian Springs in Clark County; for Pahrump, Amargosa Valley, Beatty, Tonopah, and Mercury in Nye County; for

Caliente and Alamo in Lincoln County; and for other Nevada counties. Residential locations in Nye, Clark and Lincoln county communities that are not specifically listed will be included in an "all other" category for each county. Residential data will be collected from the administrative records of the YMP participants and their subcontractors and reported on the WDRF.

Over the course of the repository program, YMP workers and their families may choose to relocate within Nevada. To monitor this type of relocation activity, the YMP participants will be asked to update employee addresses annually and report the updated residential locations on the WDRF. If warranted by the amount of relocation activity occurring, a YMP employee survey will be implemented to collect demographic data on relocating employees and their families. These data will provide additional information with which to assess the direct effects of YMP-related population growth in southern Nevada counties and communities.

#### A.1.3 Summary of Yucca Mountain Site Characterization Project Characteristics

Table A-1 presents a summary of the data items discussed in Section A.1 and that will be collected to monitor YMP characteristics, as well as the method that will be used to obtain each item.

Table A-1. Data items for use in monitoring project procurement, YMP employment, worker immigration and the demographic characteristics of YMP employees and their families (page 1 of 3)

Monitored Characteristic	Data Category	Data Collection Method
Procurement for Use in Nevada	<ol style="list-style-type: none"> <li>1. Equipment and Machinery               <ol style="list-style-type: none"> <li>a. Nonelectrical mach.</li> <li>b. Motor vehicles</li> <li>c. Electric and electronic equipment</li> <li>d. Instruments and related products</li> </ol> </li> <li>2. Construction Materials               <ol style="list-style-type: none"> <li>a. Lumber and wood products</li> <li>b. Stone, clay, glass, and concrete products</li> <li>c. Primary metal products</li> <li>d. Fabricated metal products</li> </ol> </li> <li>3. Construction Services               <ol style="list-style-type: none"> <li>a. Building construction</li> <li>b. Heavy construction</li> <li>c. Special trade construction</li> </ol> </li> <li>4. Chemical Products</li> <li>5. Petroleum and Coal Products</li> <li>6. Furniture and Fixtures</li> <li>7. Food and Related Products</li> <li>8. Paper Products</li> <li>9. Printing and Publishing</li> <li>10. Transportation Services               <ol style="list-style-type: none"> <li>a. Air transportation</li> <li>b. Trucking and warehousing</li> </ol> </li> <li>11. Communication Services</li> <li>12. Utility Services               <ol style="list-style-type: none"> <li>a. Electricity and gas</li> <li>b. Water and sewer services</li> </ol> </li> <li>13. Business Services               <ol style="list-style-type: none"> <li>a. Banking</li> <li>b. Insurance</li> <li>c. Legal</li> <li>d. Miscellaneous business services</li> </ol> </li> <li>14. Travel               <ol style="list-style-type: none"> <li>a. Hotels</li> <li>b. Eating and drinking places</li> <li>c. Car rental services</li> </ol> </li> <li>15. Miscellaneous Purchases (not included above)               <ol style="list-style-type: none"> <li>a. Purchases from retailers</li> <li>b. Purchases from wholesalers</li> </ol> </li> </ol>	Procurement Data Reporting Form (PDRF)
		PDRF

Table A-1. Data items for use in monitoring project procurement, YMP employment, worker immigration and the demographic characteristics of YMP employees and their families (page 2 of 3)

Monitored Characteristic	Data Category	Data Collection Method
Employment Characteristics	<ol style="list-style-type: none"> <li>1. Size of Work Force               <ol style="list-style-type: none"> <li>a. Total workers</li> <li>b. Workers at Yucca Mountain and other NTS areas</li> <li>c. Workers in Nye County other than on NTS</li> <li>d. Workers in Clark County</li> <li>e. Workers in other states</li> </ol> </li> <li>2. Full-time Equivalent (FTEs)               <ol style="list-style-type: none"> <li>a. Total FTEs</li> <li>b. FTEs at Yucca Mountain and other NTS areas</li> <li>c. FTEs in Nye County other than on NTS</li> <li>d. FTEs in Clark County</li> <li>e. FTEs in other states</li> </ol> </li> <li>3. New Hires Since Last Reporting Period               <ol style="list-style-type: none"> <li>a. From Nye, Lincoln, and Clark counties</li> <li>b. From elsewhere in Nevada</li> <li>c. From outside Nevada</li> </ol> </li> <li>4. Long-term Commuters by Place of Work</li> <li>5. Occupation by Place of Work</li> <li>6. Occupation by Residential Location</li> <li>7. Occupations of Long-term Commuters</li> </ol>	Worker Data Reporting Form (WDRF)
	8. Occupations of Immigrant YMP Workers	Immigrant entry questionnaire
	<ol style="list-style-type: none"> <li>9. Average Wages and Salaries By Occupation</li> <li>10. Total Labor Costs by Location</li> </ol>	WDRF
	11. Estimates of Future Employment	Worker Projection Reporting Form (WPRF)

Table A-1. Data items for use in monitoring project procurement, YMP employment, worker immigration and the demographic characteristics of YMP employees and their families (page 3 of 3)

Monitored Characteristic	Data Category	Data Collection Method
Immigration	1. Number of Immigrant Workers Since Last Reporting Period	WDRF
	2. Number of Persons Accompanying Immigrant Workers	Immigrant entry questionnaire
Demographic	1. Ages of Persons Accompanying Immigrant Workers	Immigrant entry questionnaire
	2. Residential Locations of Immigrant Workers and Accompanying Persons	WDRF
	3. Residential Locations of YMP Employees Living in Nevada	WDRF
	4. Changes in Residential Locations of YMP Workers Living in Nevada	

## A.2 CHARACTERISTICS OF THE STUDY AREA

The DOE identified potential effects on services and facilities in several small communities in Nye and Clark counties where population growth may occur as a result of the YMP, (DOE, 1988c). Monitoring activities relevant to study area characteristics will focus on Nye, Clark, and Lincoln counties and these communities, which include Pahrump, Amargosa Valley, and Beatty in Nye County, and Indian Springs in Clark County. As discussed in previous sections of the YMP Socioeconomic Plan, the efficient development and maintenance of a comprehensive socioeconomic data base to identify and address potential adverse impacts must be a coordinated effort involving the DOE, the State of Nevada, and the affected units of local government.

Analyses of study area data in conjunction with YMP data and economic demographic projections will allow the state and affected units of local government to estimate when the need for additional services and facilities will be required to support direct and secondary YMP-driven population growth.

Data collected on study area characteristics will be community specific. If community specific data is not available, or applicable, county level data will be obtained. Data will be collected through a combination of published reports and informal discussions with service providers and other knowledgeable individuals. For example, county school districts keep enrollment and capacity records that provide information on educational services. For the most part, data items will be collected quarterly. Items that are not available quarterly will be collected annually.

### A.2.1 POPULATION

Population estimates prepared by the Nevada Department of Taxation provide county and select community-level population data for the State of Nevada. However, community-level estimates are only provided for incorporated cities. Since many of the communities in the tri-county area are unincorporated towns, particularly Pahrump, Beatty, Amargosa Valley, and Indian Springs, population estimates from the Department of Taxation are not available for these communities.

The Clark County Department of Comprehensive Planning prepares population estimates for the county and communities within the county. Population estimates for Indian Springs will be collected annually from the Department of Comprehensive Planning.

Sources of population estimates for unincorporated places in Nye County are unknown at this time. Population estimates for Pahrump, Beatty, and Amargosa Valley can be calculated by applying the most current "persons per household" ratio to the number of estimated housing units located in each community. Monitoring activities relevant to housing are addressed in Section A.2.10.

Population estimates will also be collected for Nye and Lincoln counties from the Nevada Department of Taxation and for Clark County from the Clark County Department of Comprehensive Planning.

## A.2.2 EDUCATION

Data will be collected for the school districts in Nye, Clark, and Lincoln counties and for each of the schools located in Indian Springs, Pahrump, Amargosa Valley, and Beatty. There are a total of eight schools in those communities.

1. Indian Springs Elementary School.
2. Indian Springs Junior/Senior High School.
3. Pahrump Valley Grade School.
4. Pahrump Valley Middle School.
5. Pahrump Valley Intermediate School.
6. Pahrump Valley High School.
7. Beatty School.
8. Amargosa Valley Elementary School.

In addition to information concerning the entire school districts, the monitoring program will collect data on the number of students enrolled in each grade at each school, average daily memberships for each school, the number of teachers per school, the number of administrative and support personnel per school, the seating capacity of each school, the percent of capacity utilized, county school district budget allocations for individual schools (when available), and any planned or actual additions to facilities.

Additions to facilities include increased classroom, office, and playground space and the addition of capital equipment for use in the classroom, administrative offices, or on the playground. Additions to capital equipment will also include the purchase of buses. All data collected as indicators of educational services will be obtained from Nye, Clark, and Lincoln county school districts and the individual schools listed above.

### A.2.3 PUBLIC HEALTH

Public water and wastewater systems are available in many southern Nevada communities. However, water and sewer services in some towns are provided by private wells and septic systems. Data that will be collected from service providers in Nye, Clark, and Lincoln county communities will include the total number of water and sewer hookups; daily water demand or sewer flow, in millions of gallons per day (mgd); peak water demand or sewer flow, in mgd; and water system capacity or sewer treatment capacity. Information relative to planned and actual upgrading of facilities, such as the addition of wastewater treatment ponds, will be acquired from service providers as well. Monitoring efforts in areas with private wells and septic systems will focus on the possible provision of public water and sewer systems in the future. This information will be obtained from discussions with community leaders.

### A.2.4 LAW ENFORCEMENT

The County Sheriff's Department is the principal law enforcement agency in Nye County and operates substations in Pahrump, Beatty, and Amargosa Valley. The Las Vegas Metropolitan Police Department is responsible for law enforcement in rural areas of Clark County and a Resident Officer Program provides personnel and limited substation office space at Indian Springs. In Clark County the cities of Henderson, North Las Vegas, and Boulder City also maintain municipal police departments. In Lincoln County law enforcement is

provided by the County Sheriff's Department and the City of Caliente Police Department.

Law enforcement data will be collected for the three counties, the incorporated cities, and the towns of Pahrump, Beatty, Amargosa Valley, and Indian Springs. The information collected will include the number of sworn officers; the number of reserve officers; the number of support personnel; the number and types of calls received; the number of holding or jail cells available per area and the capacity of each; the average response time; and changes in the average response time. Law enforcement data for Pahrump, Beatty, and Amargosa Valley will be obtained from the Nye County Sheriff's Department substations in the respective communities. Data for Indian Springs will be collected from the Indian Springs substation and the Las Vegas Metropolitan Police Department. Additional information will also be acquired from these sources concerning planned and actual purchase of capital equipment and upgrading of existing facilities. Data will also be collected from the Nevada Highway Patrol on the number of officers assigned to areas in Nye, Clark, and Lincoln counties.

#### A.2.5 FIRE PROTECTION

Fire protection in many southern Nevada communities is provided by volunteer fire departments. Pahrump, Beatty, and Amargosa Valley fire departments each have one paid fireman in addition to volunteer members. The Indian Springs Fire Department is operated by the Clark County Fire District

and has an entirely volunteer staff. However, the more populous areas in the Las Vegas Valley are served by the county fire department and by municipal fire departments.

Fire protection data that will be collected for use in the monitoring program include the number of paid personnel; the number of volunteer and reserve personnel; the number of calls received; the average response time; and changes in the average response time. Data for the tri-county area will be obtained from the individual fire departments. Additional information concerning planned or actual purchase of fire equipment and upgrading of existing facilities, such as the addition of fire hydrants, will also be acquired from the appropriate fire department.

#### A.2.6 MEDICAL CARE

Medical care in small, southern Nevada communities is often provided by medical clinics staffed with either a physician or physician's assistant. The Central Nevada Rural Health Consortium maintains a clinic in Amargosa Valley and Beatty and staffs each with physician's assistants. Two medical clinics operate in Pahrump and each is staffed with a physician. In addition, a community health nurse is available in Pahrump. Volunteer ambulance services are provided in Pahrump, Beatty, and Amargosa Valley and Flight for Life service is available in these communities, as well as in Indian Springs. Ambulance services in Indian Springs are provided by the

Indian Springs Fire Department. Nye County and Lincoln County each have one county hospital to serve the surrounding areas. In Clark County, the Las Vegas metropolitan area serves as a regional medical center with many hospitals and specialized facilities.

Medical services in the three counties and in Pahrump, Beatty, Amargosa Valley, and Indian Springs will be monitored by collecting data from each medical clinic or hospital and emergency transport service. The number of private physicians and dentists serving each community and the services provided by the Community Health Nurse in southern Nye County will be monitored as well.

Data that will be collected from medical clinics and hospitals include the number and type of staff members, the number of patients utilizing services, the types of equipment and services available at each facility, and planned and actual additions or modifications to facilities.

Data collected from emergency transport services will include the number of emergency transport vehicles utilized by each service provider, the number of paid and volunteer staff members, the number of calls received by each ambulance service, the average response time and changes in the average response time, the number of patients requiring transport to a hospital, and the number of Flight for Life transports from the study area.

#### A.2.7 CULTURAL AND RECREATIONAL NEEDS

Numerous parks and recreational facilities are available in Nye, Clark, and Lincoln counties and in the communities of Pahrump, Beatty, Amargosa Valley, and Indian Springs. Maintenance of these facilities is provided by community volunteers and, in some instances, paid staff. Data collected on parks and recreational facilities will include the number of paid staff, the types of services available, the type of maintenance (volunteer or paid) provided for each facility, use records for the various facilities (when available), and allocation of resources by county and local governments for recreational services. Additional information regarding planned or actual expansion of facilities and services will be acquired as well. Data and information will be obtained from the appropriate local and county entities responsible for managing the facilities and annual county and community budgets.

Library facilities are available most southern Nevada communities, including Pahrump, Beatty, Amargosa Valley, and Indian Springs. Library services in Indian Springs are provided by the Clark County Library. Library facilities in the three Nye County communities are managed by town library boards. In addition, the Beatty library is subsidized by the Nye County School District. All four libraries have full-time or part-time employees.

Data collected on library services throughout the tri-county area will include the number of personnel, operating hours, allocation of resources for library services by local or county governments, use records (when available) and the number of books and periodicals in each library. Library data will be obtained from individual libraries.

#### A.2.8 SOCIAL SERVICES

Social services in Pahrump, Beatty, and Amargosa Valley are administered by the Nye County Health and Welfare Department located in Tonopah. There is a small branch office located in Pahrump, which administers the Medical Indigents Assistance Program for southern Nye County. Social services in Lincoln County are administered by the State of Nevada and county agencies. Residents of Indian Springs utilize county-wide social services, most of which are provided in Las Vegas. Data collected on social services will include the allocation of resources in each county or community, the types of services offered, the number of persons utilizing services, and the types of requests for various services. These data will be obtained from appropriate state, county, and municipal agencies providing the services.

#### A.2.9 AVAILABILITY OF ENERGY

Efforts to monitor the availability of energy will focus on the small communities closest to the Yucca Mountain site rather than including the entire three county area. Electrical service to Pahrump, Beatty, and Amargosa Valley is provided by the Valley Electric Association. Electrical service will be monitored in these communities by collecting data on total power memberships and the cost of electricity. Data on the total number of memberships will include the number of commercial/industrial memberships, the number of irrigation memberships, and the number of residential memberships. These data will be obtained from the Valley Electric Association. Electrical service to Indian Springs is provided by the Nevada Power Company. Since data specific to Indian Springs is unavailable, electrical service in this community will not be monitored at this time.

#### A.2.10 HOUSING

Housing in the rural areas of the three counties and particularly in Amargosa Valley, Beatty, Pahrump, and Indian Springs will be monitored by collecting data on the stock and value of available housing. Data collected on the housing stock will include the number of occupied and unoccupied units. Local contacts will be established to identify changes in the housing stock and provide data on the number of housing starts. An informal reporting process will be implemented to collect housing information from

these contacts on an ongoing basis. Data collected on housing values will include the monthly median contract rent and the median value of owner occupied housing units. Housing value data will be obtained through informal discussions with local investors and realtors.

Housing availability and costs for the urban component of the study area, particularly the Las Vegas metropolitan area, also will include the number of occupied and unoccupied units, the number of housing starts, and indicators of housing costs. These data will be collected from the appropriate county agencies and offices and from discussions with local realtors.

#### A.2.11 DISTRIBUTION OF PUBLIC LANDS

Efforts to monitor the distribution of public lands will focus on the small communities closest to the Yucca Mountain site rather than including the entire three county area. Pahrump, Amargosa Valley, Beatty, and Indian Springs are bordered by lands administered by the U.S. Department of Interior's Bureau of Land Management (BLM). The distribution of public lands will be monitored by collecting data on the transfer of land ownership to the state, local governments, and private individuals, including the location, acreage, value, and intended use of the parcel. In addition, planning documents that address future land use throughout the tri-county area will also be collected. Data on the distribution of public lands will be collected from the BLM.

A.2.12 TRANSPORTATION

Transportation data that will be included in the monitoring program will focus on the highway system during the scientific investigations phase. When the rail spur and routes are determined, the rail system will be added to the monitoring program, as well. Potential effects on highway transportation are divided into two categories: (1) effects on highway users, and (2) effects on highway facilities. Potential effects in either category can be caused by repository-related changes in traffic patterns on individual highway segments within the SMP study area. These highway segments are listed in Table A-2 and their locations in southern Nevada are shown in Figure 1-2.

Table A-2. Nevada highway segments included in the SMP study area

Highway	Segment	Phase Potential Effects May Occur
US-95	Amargosa Valley to SR-160	Scientific Investigation
US-95	SR-160 to Mercury Interchange	Scientific Investigation
US-95	Mercury Interchange to Indian Springs	Construction/Operation
US-95	Indian Springs to Rancho Road	Construction/Operation
US-95	Rancho Road to Rainbow Avenue	Construction/Operation
SR-160	Pahrump to US-95	Construction/Operation

To monitor potential effects on highway users, data will be collected from the Nevada Department of Transportation (NDOT) on traffic counts, vehicle speed, and accident rates, when available, for the six highway segments within the study area. Traffic count data will be collected by time of day, when available, to determine peak traffic hours.

Data that will be collected to monitor potential effects on highway facilities include maintenance costs and schedule changes, the number of trucks hauling equipment and materials to the Yucca Mountain site, and the number of buses transporting YMP workers. Maintenance data will be obtained from NDOT; data on the number of trucks will be collected from the records of freight deliveries maintained by Reynolds Electrical and Engineering Company, Inc. (REECo); and data collected on the number of buses will be obtained from NTS busing records, also maintained by REECo. The mode of travel of YMP workers to and from the work site will also be monitored. Busing records maintained by REECo will provide data on the utilization of buses by YMP employees. An estimate of the number of private vehicles will be made based on data collected for busing, total vehicle counts, and YMP employment at Area 25 and other areas of the NTS where activities for the repository program are performed. In addition, these data will be used to determine if repository workers utilize buses to the same extent as NTS workers.

#### A.2.13 MANAGEMENT OF ACCIDENTS INVOLVING HIGH-LEVEL RADIOACTIVE WASTE

The State of Nevada has overall responsibility on nonfederal lands for emergency preparedness and accident management and coordinates its emergency preparedness planning, inspection, and training activities through its Division of Emergency Management (DOE, 1988c). County emergency management councils prepare emergency plans for each type of disaster, run drills, and

ensure that emergency response agencies maintain their equipment (DOE, 1988c). In addition, the Federal Emergency Management Agency (FEMA) and the DOE, provide a series of radiological emergency response training courses in Nevada.

Data that will be collected on emergency preparedness will include the state emergency plan, county emergency plans for Nye and Clark counties, training activity schedules, and the types of emergency equipment available in Nye and Clark counties. When the rail spur and routes for shipment of high-level radioactive waste are determined, the monitoring program will be modified to include other Nevada counties, as appropriate. The state emergency plan will be obtained from the Nevada Division of Emergency Management and county data will be obtained from the Nye and Clark county emergency councils. Schedules for FEMA/DOE training courses will be obtained from the DOE.

#### A.2.14 OTHER YMP-RELATED NEEDS OF STATE AND LOCAL GOVERNMENTS

Monitoring of other YMP-related needs of the State of Nevada, the three counties, and the communities in those counties will initially focus on provision of general government services that are not addressed in sections of this document. General government functions in Pahrump, Beatty, and Amargosa Valley are provided by Nye County from county offices located in Pahrump and from the county seat in Tonopah. In addition, community planning

is provided by the Town of Pahrump Planning Department located in Pahrump. General government functions in Indian Springs are provided by Clark County from locations in Las Vegas. Repository-related administrative needs of state and local governments will be monitored by collecting data on administrative services, such as tax assessment, permitting, planning, or engineering, that are currently offered by county offices and agencies and the possibility of establishing county offices to provide administrative services in Beatty, Amargosa Valley, and Indian Springs in the future. The collection of data will include the types of administrative offices present, changes in the administrative services offered, and the number of employees at each office.

Administrative needs will also be monitored by collecting data on grants issued by the DOE to state and local governments for studies relevant to the YMP. Data collection will include the dollar amounts of grants or payments received by state, county, and local units of government and reports resulting from such studies. These data will be obtained from YMP records.

#### A.2.15 FISCAL

Annual budgets are prepared by counties, incorporated cities, school districts, and special districts. Budget funding for unincorporated towns and many special districts in Nevada is provided through the counties. Beatty and Amargosa Valley receive budget funding from Nye County with advisory assistance from Town Advisory Boards. Pahrump also receives budget

funding from Nye County, however, Pahrump's annual town budget is set by the Town Board and forwarded to the Nevada State Department of Taxation for approval (PIC, 1988). Indian Springs receives budget funding from Clark County. Clark County determines the budget and provides budget funding to Indian Springs with advisory assistance from the Town Advisory Board.

The allocation of resources and expenditures will be monitored by collecting town budgets for Pahrump, Beatty, Amargosa Valley, and Indian Springs; county budgets for Nye, Clark, and Lincoln counties; municipal budgets for the cities of Las Vegas, North Las Vegas, Henderson, Boulder City, and the City of Caliente; the Nye, Clark, and Lincoln county school district budgets; and the budget for the State of Nevada. Community, county, school district, and state budgets will be obtained annually from the State of Nevada, local town boards, and from city, county and school district officials.

#### A.2.16 ECONOMIC DEVELOPMENT

Economic development will be monitored in the entire tri-county area and particularly in Pahrump, Amargosa Valley, Beatty, and Indian Springs and surrounding areas in Clark and Nye counties. Monitoring activities will focus on identifying major economic sectors in each community and county and monitoring changes in those sectors. New economic activities and displacement of existing activities will also be monitored. Information on economic development will be obtained from local community and county

representatives and from publications, such as the Nevada Employment Security Department (NESD) Quarterly Economic Update, newspapers and minutes of town meetings. When the route for the rail spur for shipment of high-level radioactive waste is determined, monitoring of economic development will be modified to include other areas of Nevada along the designated route, as appropriate.

#### A.2.17 VOCATIONAL TRAINING AND EMPLOYMENT SERVICES

Vocational schools in the southern Nevada labor market area, Southern Nevada Community College, and continuing education courses offered through the county school districts support training programs for occupations that are likely to be required by the repository program. Many repository-related occupations are supported by apprenticeship training programs administered by the various unions located in Clark County. In addition, the state operates the State Job Training Office and the Employment Security Department to provide training, job searches, and placement services to Nevada residents.

Data to be collected on vocational training and employment services will include the types of apprenticeship programs, training, and employment services available. Data on vocational training and employment services will be collected from various publications issued by the NESD.

#### A.2.18 SUMMARY OF STUDY AREA CHARACTERISTICS

Numerous study area characteristics were considered for the monitoring program. The availability of data was investigated and a determination of which indicators to monitor was made. Table A-3 provides a summary of specific data to be collected for each study area category and the sources of the data.

Table A-3. Socioeconomic Monitoring Program  
 study area characteristics, data categories, and sources of data (Page 1 of 11)

Study Area Characteristic	Data Category	Data Source
Population	● Annual population estimate	Nevada Department of Taxation, Clark County Department of Comprehensive Planning, local officials
	● Change in annual population estimate	Calculate
Education	● Number of students enrolled in each grade at each school	Nye, Clark, and Lincoln County school districts, individual schools within the districts
	● Average daily membership for each school	
	● Number of teachers per school	
	● Number of administrative and support personnel	
● Capacity of each school and percent of capacity utilized	● Additions to facilities, planned and actual	Annual Nye, Clark, and Lincoln county school district budgets
● School district budget allocations, if available		
● Change in average annual enrollments	● Student/teacher ratio	Calculate

Table A-3. Socioeconomic Monitoring Program  
 study area characteristics, data categories, and sources of data (Page 2 of 11)

Study Area Characteristic	Data Category	Data Source
Public Health Water Systems Sewer Systems	<ul style="list-style-type: none"> <li>● Provision of public water and wastewater systems in areas without public systems</li> </ul>	Discussions with community leaders
	<p>For communities with public systems:</p> <ul style="list-style-type: none"> <li>● Number of water and sewer hookups per community</li> <li>● Daily and peak water demand-mgd</li> <li>● Daily and peak sewer flow-mgd</li> <li>● Water and sewer system capacities</li> <li>● Estimate of the number of private wells and septic systems per community</li> <li>● Additions/modifications to facilities, planned and actual</li> </ul>	Local officials or managers of the public utilities
	<ul style="list-style-type: none"> <li>● Quarterly change in the number of hookups per community</li> </ul>	Calculate

Table A-3. Socioeconomic Monitoring Program  
 study area characteristics, data categories, and sources of data (Page 3 of 11)

Study Area Characteristic	Data Category	Data Source
Law Enforcement	<ul style="list-style-type: none"> <li>● Number of sworn officers and reserve officers assigned to each community</li> <li>● Number of support personnel assigned to each community</li> <li>● Number and types of calls received at each substation</li> <li>● Additions/modifications to facilities, planned and actual</li> <li>● Purchase of equipment</li> <li>● Average response time</li> <li>● Change in average response time</li> </ul>	Nye County and Lincoln County Sheriff's Departments and substations, City of Caliente Police Department, Las Vegas Metropolitan Police Department and substations, North Las Vegas, Henderson, and Boulder City Police Departments
	<ul style="list-style-type: none"> <li>● Number of Nevada Highway Patrol personnel assigned to the SMP study area</li> </ul>	Nevada Highway Patrol
	<ul style="list-style-type: none"> <li>● Quarterly change in the number of calls received by each substation</li> </ul>	Calculate

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Table A-3. Socioeconomic Monitoring Program  
 study area characteristics, data categories, and sources of data (Page 4 of 11)

Study Area Characteristic	Data Category	Data Source
Fire Protection	<ul style="list-style-type: none"> <li>● Number of paid firemen per fire department</li> <li>● Number of volunteer firemen and reserve firemen per fire department</li> <li>● Number of calls received per fire department</li> <li>● Additions/modifications to facilities, planned and actual</li> <li>● Purchase of equipment</li> <li>● Average response time</li> <li>● Change in average response time</li> </ul>	Municipal, county, and volunteer fire departments
	<ul style="list-style-type: none"> <li>● Quarterly change in number of calls received per fire department</li> </ul>	Calculate

Table A-3. Socioeconomic Monitoring Program  
 study area characteristics, data categories, and sources of data (Page 5 of 11)

Study Area Characteristic	Data Category	Data Source
Medical Care Medical Facilities Transport Services Other Medical Services	Medical Facilities <ul style="list-style-type: none"> <li>● Patient load per facility</li> <li>● Number and types of staff members available at each facility</li> <li>● Type of equipment and services at each facility</li> <li>● Additions/modifications to facilities, planned and actual</li> </ul>	Hospitals and clinics
	Emergency Transport Services <ul style="list-style-type: none"> <li>● Number of emergency transport vehicles utilized by each transport service</li> <li>● Number of paid and volunteer staff members</li> <li>● Number of calls received per transport service</li> <li>● Number of patients transported to a hospital</li> <li>● Average response time</li> <li>● Change in the average response time</li> </ul>	Ambulance services, fire departments, Flight for Life Emergency Helicopter
	Other Medical Services <ul style="list-style-type: none"> <li>● Number of physicians and dentists practicing in each area</li> </ul>	Discussions with professional associations and community leaders

Table A-3. Socioeconomic Monitoring Program  
 study area characteristics, data categories, and sources of data (Page 6 of 11)

Study Area Characteristic	Data Category	Data Source
Medical Care Medical Facilities Transport Services Other Medical Services (Continued)	<ul style="list-style-type: none"> <li>● Services offered by the Public Health Nurses</li> <li>● Number of patients visiting the Public Health Nurses</li> </ul>	Public Health Nurses
Cultural and Recreational Needs  Recreation Libraries	Parks and Recreation <ul style="list-style-type: none"> <li>● Number of paid staff members</li> <li>● Types of services and facilities available</li> <li>● Type of maintenance provided (paid or volunteer)</li> <li>● Use records per facility (when available)</li> <li>● Additions/modifications to facilities, planned and actual</li> <li>● Expansion of services, planned and actual</li> </ul>	Community and county officials
	<ul style="list-style-type: none"> <li>● Allocation of resources for parks and recreation</li> </ul>	Annual budgets for communities and counties

Table A-3. Socioeconomic Monitoring Program  
 study area characteristics, data categories, and sources of data (Page 7 of 11)

Study Area Characteristic	Data Category	Data Source
Cultural and Recreational Needs Recreation Libraries (continued)	Libraries <ul style="list-style-type: none"> <li>● Operating hours of each library</li> <li>● Number of staff members employed per library</li> <li>● Additions to facilities, planned and actual</li> <li>● Expansion of services, planned and actual</li> <li>● Use records per library (when available)</li> <li>● Number of books and periodicals in each library</li> </ul>	Community and county officials, local libraries
	<ul style="list-style-type: none"> <li>● Allocation of resources per library (when available)</li> </ul>	Annual budgets for communities and counties
Social Services	<ul style="list-style-type: none"> <li>● Types of services offered in each community</li> <li>● Expansion of services offered in each community</li> <li>● Types of services requested in each community</li> <li>● Number of people utilizing services</li> </ul>	State and county social service agencies, local community centers
	<ul style="list-style-type: none"> <li>● Allocation of resources for social services</li> </ul>	State and county budgets

Table A-3. Socioeconomic Monitoring Program  
 study area characteristics, data categories, and sources of data (Page 8 of 11)

Study Area Characteristic	Data Category	Data Source
Availability of Energy	<ul style="list-style-type: none"> <li>● Number of power memberships per community:               <ul style="list-style-type: none"> <li>residential memberships</li> <li>commercial/industrial memberships</li> <li>irrigation memberships</li> </ul> </li> <li>● Cost of energy per unit per type of membership</li> <li>● Change in number of memberships</li> </ul>	Valley Electric Association
Housing	Housing Stock <ul style="list-style-type: none"> <li>● Number of occupied housing units</li> <li>● Number of unoccupied housing units</li> <li>● Number of housing starts</li> </ul>	Local contacts in the communities, county planning departments
	Housing Values <ul style="list-style-type: none"> <li>● Monthly median contract rent</li> <li>● Median value of owner occupied units</li> </ul>	Discussions with local investors and realtors and real estate listings
Distribution of Public Lands	<ul style="list-style-type: none"> <li>● Land ownership transfers</li> <li>● Legal description of transferred land</li> <li>● Acreage of land transfer</li> <li>● Value of transferred land</li> <li>● Land use planning documents</li> <li>● Intended use of transferred land</li> </ul>	Bureau of Land Management, county assessors, local realtors

Table A-3. Socioeconomic Monitoring Program  
 study area characteristics, data categories, and sources of data (Page 9 of 11)

Study Area Characteristic	Data Category	Data Source
Transportation Road Characteristics YMP-related Characteristics	Road Characteristics <ul style="list-style-type: none"> <li>● Annual traffic counts by road segment and time of day</li> <li>● Accident rates by county</li> <li>● Highway maintenance costs</li> <li>● Changes in the schedule for highway maintenance</li> </ul>	Nevada Department of Transportation
	Project-related Characteristics <ul style="list-style-type: none"> <li>● Travel characteristics of repository employees traveling to Yucca Mountain</li> </ul>	Estimate
	<ul style="list-style-type: none"> <li>● Number of trucks hauling equipment and materials to the Yucca Mountain site</li> </ul>	Freight delivery records (REECO)
	<ul style="list-style-type: none"> <li>● Number of buses transporting workers to the Yucca Mountain area</li> </ul>	NTS busing records (REECO)
Management of Accidents Emergency Planning Emergency Response Capabilities	<ul style="list-style-type: none"> <li>● Emergency plans</li> <li>● Emergency response equipment</li> </ul>	State and county emergency response agencies and officials

Table A-3. Socioeconomic Monitoring Program  
 study area characteristics, data categories, and sources of data (Page 10 of 11)

Study Area Characteristic	Data Category	Data Source
Other YMP-Related Needs of State and Local Governments	<ul style="list-style-type: none"> <li>● Types of administrative services available</li> <li>● Number of employees per administrative service</li> <li>● Provision of administrative services in each community</li> </ul>	Discussions with county and community leaders
	<ul style="list-style-type: none"> <li>● Dollar amount of grants received from DOE by state and local units of government</li> <li>● Reports resulting from studies funded by DOE</li> </ul>	Yucca Mountain Project Records
Fiscal	<ul style="list-style-type: none"> <li>● Resources</li> <li>● Expenditures</li> </ul>	Annual budgets from the State of Nevada, counties, cities, communities, and school districts
Economic Development	<ul style="list-style-type: none"> <li>● Identify major economic sectors in each community and surrounding areas</li> <li>● New business activity in each community and surrounding areas</li> <li>● Displacement of existing business activity in each community and surrounding areas</li> </ul>	Discussions with local community leaders, county and community publications, Nevada Employment Security Department (NESD)

Table A-3. Socioeconomic Monitoring Program  
 study area characteristics, data categories, and sources of data (Page 11 of 11)

Study Area Characteristic	Data Category	Data Source
Vocational Training and Employment Services	<ul style="list-style-type: none"> <li>● Types of apprenticeship programs, training, and employment services available</li> <li>● Changes in services offered</li> </ul>	Nevada Employment Security Department