

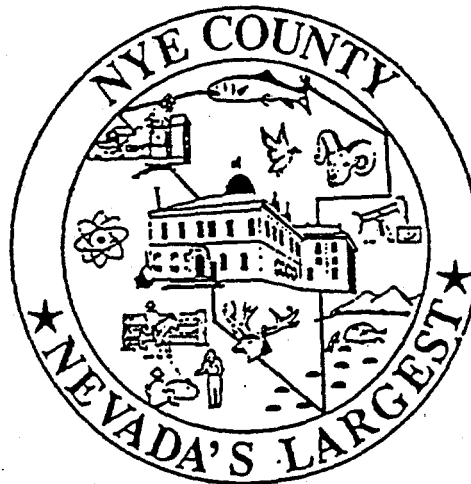
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**NYE COUNTY, NEVADA  
1992 NUCLEAR WASTE REPOSITORY PROGRAM**

**PROGRAM OVERVIEW**

FINAL REPORT



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# NYE COUNTY NUCLEAR WASTE REPOSITORY PROGRAM

## PROGRAM OVERVIEW

### 1.0 INTRODUCTION

#### 1.1 Purpose

The purpose of this document is to provide an overview of the Nye County FY92 Nuclear Waste Repository Program (Program). A more detailed description is provided in the report entitled "Nye County, Nevada, 1992 Nuclear Waste Repository Program Description." Funds to pay for Program costs will come from the Federal Nuclear Waste Fund. The Fund was established under the Nuclear Waste Policy Act of 1982 (NWPAA) by adding a customer surcharge to each kilowatt/hour of electricity generated by nuclear power. Congress annually appropriates money from the Fund to cover the cost of implementing the NWPAA.

#### 1.2 History

In early 1983, the Secretary of the U.S. Department of Energy (DOE) identified Yucca Mountain, located in south-central Nye County, as a potentially suitable site for the nation's first geologic repository for spent reactor fuel and high-level radioactive waste. Later that year, the Nye County Board of County Commissioners (Board) established the capability to monitor the Federal effort to implement the NWPAA and evaluate the potential impacts of repository-related activities on Nye County. Over the last eight years, the County's program has grown in complexity and cost in order to address DOE's evolving site characterization studies, and prepare for the potential for facility construction and operation. Changes were necessary, as well, in response to Congress's redirection of the repository program specified in the amendments to the NWPAA approved in 1987.

In early FY 1991, the County formally established a project office to plan and implement its program of work. The Repository Project Office's (RPO) mission and functions are provided in Section 2.0. The RPO organization structure is described in Figure 1 and Section 3.0.

### 2.0 POTENTIAL REPOSITORY-RELATED RISKS AND IMPACTS

#### 2.1 Repository-related Risk Exposures in Nye County

As has been previously stated, Yucca Mountain is located in Nye County. As the situs jurisdiction, Nye County must be prepared to address potentially serious and irreversible threats to the public's health and safety and to the environment. Also at risk could be the community's social well-being, economic future, and quality of life.

**2.1.1 Air Transport of Radionuclides.** Two potential mechanisms could result in radionuclide contamination being transported by air, to the detriment of Nye County residents.

- All nuclear waste shipments to the repository will converge in Nye County by truck and/or rail; whether from reactors or a Monitored Retrievable Storage Facility. An accident causing a cask to breach while it is being transported to the repository site, although a low probability event, could have a significant health, safety, fiscal and environmental impact on County residents. This possibility must be considered, evaluated and prepared for.
- The air could also transport radionuclides off the surface of Yucca Mountain, should radionuclides vent from storage casks at the surface facility or travel upward through rock fractures from the repository.

**2.1.2 Groundwater Transport of Radionuclides.** The horizon for the candidate site for the repository is located in the unsaturated zone under Yucca Mountain. However, the Amargosa Valley hydrologic system runs below the unsaturated zone, as does the volcanic tuff system. These two shallow systems may have a hydraulic relationship with the deeper Paleozoic carbonate aquifer system, which has discharge locations at Ash Meadows, in Nye County and at Death Valley, in Inyo County. Both the shallow and deep hydrologic systems are down gradient from Yucca Mountain, run below the town of Amargosa Valley, and could be vulnerable to radiological contamination should a catastrophic event, or gradual migration from canister locations, occur within a constructed repository.

**2.1.3 Negative Socioeconomic Impacts.** The potential exists for Nye County to incur significant negative social and economic impacts as a result of repository development at Yucca Mountain. Proximity and transportation to the site will be two key determinants of the degree of impacts that may occur.

- The Lathrop Wells entrance, in Amargosa Valley, will provide site access for workers, visitors, equipment, materials, and supplies, as well as potential nuclear waste shipments arriving by rail or truck. The communities closest to Yucca Mountain are the unincorporated towns of Amargosa Valley, Beatty, and Pahrump--small, rural communities with limited local service structures, infrastructure systems, and revenue bases. Each of these communities, however, has a distinct economic base, sociocultural character, different community development histories, and future development objectives.

These factors combine to suggest that the relative socioeconomic effects of the repository project are likely to be greatest in the small rural communities closest to the site (as was also concluded in DOE's Section 175 Report). This applies to a wide range of potential effects: additional demand on existing service system and infrastructure requirements for new or enhanced government service systems; increased in-migrant population; increased competition for capable employees, which could, in

turn, impact local government service delivery and inflate wage rates; modifications in local government structure and management; changes to the local social structure; and heightened tensions in, and among, the area communities.

- Routes for transportation of nuclear waste shipments converge in Nye County. Some of the routes under consideration include several hundred miles of roads in Nye County and would directly impact a number of County communities. Thus, the potential for risk-related events along transportation corridors expands the possible impact area from around the site to a significant portion of northern, eastern and western Nye County. Furthermore, the economies of County communities, which are poised for economic development, include components which are vulnerable to potential risk and risk-perception effects.

### **2.3 Other Repository-related Environmental Effects**

The repository project may result in negative environmental effects in Nye County. While of lesser potential significance, these potential effects will remain on-going County concerns to be monitored, minimized and mitigated as necessary. These are as follows:

**2.3.1 Air Quality.** Gaseous and particulate air pollutant emissions would be generated during all phases of repository development and operation. Gaseous emissions will result from the significantly increased diesel- and gasoline-powered vehicle and equipment used at the site. Fugitive particulate matter will be generated by increased vehicle traffic and various activities associated with site preparation, building construction, and ramp and tunnel drifting. Non-fugitive particulate emissions will be vented from tunnel drifting underground.

**2.3.2 Terrestrial Ecosystems.** During site characterization, the threat to animal and plant life would be limited to the areas being studied. Loss of wildlife would result from habitat being destroyed by construction activity and off-road driving. Of greatest concern in this regard would be protected species, such as the desert tortoise. Transporting waste to an operating repository may expose highway and rail route corridor ecosystems to adverse impacts. Should an accident occur that resulted in the release of radioactivity, the ecosystem would be contaminated, being destroyed by the radiation or radioactive material clean-up.

## **3.0 RPO MISSION AND FUNCTIONS**

### **3.1 Mission and Goals**

The mission of the Repository Project Office is to monitor and oversee DOE's implementation of the NWPA in order to ensure that the health and safety of the citizens of the County are protected, for this generation and those that follow. In addition, the RPO will plan and implement a program to protect residents' social, economic, and fiscal well-being and protect the County's valued natural resources.

Specific RPO goals are as follows:

- To ensure that the public's health and safety are fully protected.
- To minimize repository-related adverse impacts of any kind.
- To ensure that unavoidable adverse impacts are mitigated.
- To keep Nye County residents fully informed of repository program developments.
- To secure economic development opportunities for County residents if site characterization proceeds.

### **3.2 Program Functions**

In meeting its mission, the RPO has organized itself to perform functions necessary to protect its citizens' health and safety, minimize socioeconomic and environmental impacts, secure mitigation for impacts that do occur, and ensure that the County's voice is heard in all repository-related deliberations that could affect it. The specific functions are as follows:

**3.2.1 Health and Safety Monitoring and Oversight.** Monitoring and overseeing DOE as it moves from site characterization planning to implementation is essential for protecting the health and safety of its citizens. Specific program areas needing to be targeted are as follows:

- Site characterization planning (including testing prioritization) and implementation
- Experimental Study Facility design
- Radiological monitoring
- Transportation corridor planning and analysis
- Interaction with other oversight groups

A number of public and private organizations oversee DOE's technical and scientific work at Yucca Mountain. Public organizations include Congressional Committees, federal agencies such as the Nuclear Regulatory Commission (NRC) and the Environmental Protection Agency (EPA), the Nuclear Waste Technical Review Board, and the State of Nevada. Private organizations include the National Association of Regulatory Utility Commissioners (representing rate-payers) and Edison Electric Institute (representing electric utilities).

**3.2.2 Participation in the Regulatory and Licensing Processes.** The regulatory and licensing processes provide the framework within which the repository program is being carried out by DOE. The EPA has the responsibility to promulgate repository performance standards. The NRC, through formalized licensing procedures, will evaluate whether the candidate repository site can meet those standards.

EPA is currently redrafting performance standards remanded to it by the U.S. Court of Appeals, after having been promulgated early in the 1980's and challenged by the State of Nevada, among others. Directed by Congress to complete the application review process within three years (or four if notice is given to Congress), the NRC is proceeding with the implementation of its "regulatory strategy" for identifying and reducing licensing uncertainties prior to the initiation of proceedings on DOE's construction authorization license application (LA). To date, the NRC has identified 54 uncertainties; it will attempt to resolve these over the next five years by issuing "guidances", engaging in major and minor rulemaking and by a Commission paper. DOE's schedule calls for the LA to be submitted in 2001.

Congress also directed that DOE complete an environmental impact statement to accompany any recommendation to the President of a site for a repository.

It is essential that Nye County participate in the regulatory processes that are now underway and will continue during this decade. Only participation will be effective in ensuring that its health and safety concerns, in particular, are addressed. To do so, the County must maintain a high quality technical capability, operate license-related oversight under quality assurance procedures, and maintain an effective data management capability which will ultimately have to interface with the NRC licensing support system.

**3.2.3 Socioeconomic and Environmental Monitoring and Oversight.** Protecting Nye County's social, economic and environmental well-being is a critical County function.

Relative to socioeconomics, the steps required to be taken in relation to this massive and complex program include putting in place a monitoring and information resource development capability, models for projections, procedures for impact assessment, and special investigations of community conditions and characteristics. Monitoring systems (including information resource development, as necessary) are needed at the County and community level for the following areas:

- Economic conditions and characteristics
- Demographic conditions and characteristics
- Government facility and service systems and characteristics
- Fiscal conditions and characteristics

Projection and assessment systems will need to be developed, tested and applied in the following areas, again at both the County and community level:

- Economic conditions and characteristics
- Demographic conditions and characteristics
- Government facility and service requirements
- Government finances (expenditures and revenues)



Special investigations will need to be conducted to identify key characteristics of Nye County that should be reflected in monitoring or projection-assessment systems, or the community development policy context within which repository impacts will occur. Investigations in the following areas are required:

- Community economic and population growth potentials
- Government facility and service standards and threshold development
- Community development concept plans
- Community development and growth management policy

The environmental monitoring and oversight function will primarily require monitoring DOE field data reports to track conditions that may lead to threshold-level impacts. In addition, periodic field audits will need to be performed to verify that appropriate field techniques are being employed by DOE and that equipment calibration is up to date and accurately performed.

**3.2.4 Impact Analysis and Mitigation of Adverse Impacts.** The purpose of monitoring and oversight is to prevent negative health and safety, socioeconomic and environmental impacts; minimize the scale of those that do occur; and mitigate the impacts that do occur. Analyzing monitoring and oversight data and devising effective mitigation strategies, is an essential Nye County function. Mitigation can be achieved through changing the activity being performed by DOE (e.g., a site investigation field study plan) or securing financial or technical assistance to offset the impact condition. One means for compiling the impact analysis results and mitigation alternatives would be the creation of an Impact Analysis Report, per NWPA Section 116 (c)(1)(B).

**3.2.5 Participation.** Nye County considers participation in repository-related activities essential for it to be able to engage in health, safety, socioeconomic and environmental monitoring and oversight. In addition, the County has an obligation to keep its citizens informed of the significant repository-related issues and involved in the process whereby the RPO receives direction from the County Manager and the Board of County Commissioners. Activities under this function includes the following:

- Establish a formal process of interactions with DOE to facilitate effective communication and coordination (where there are overlapping interests or roles)
- Review plans and offer comment to DOE
- Request information from DOE and other relevant agencies
- Disseminate information to the Nye County citizens
- Establish public participation mechanisms
- Establish public education mechanisms

**3.2.6 Implement Grants-Equal-To-Taxes Provision.** Section 116(c)(3)(A) of the NWPA, as amended, directs DOE to grant Nye County an amount each fiscal year equal to the amount it would receive were it authorized to tax site characterization at such site, and the

development and operation of such repository, as it taxes the non-Federal real property and industrial activities occurring within the County. In order to perform this function, it is essential that Nye County be able to determine the value of the repository site, improvements and equipment, taking into consideration the project size, scope, complexity and unique characteristics.

**3.2.7 Enhance Positive Impacts.** If Nye County is to have the burden of storing the nation's high-level radioactive waste, then every effort should be made by Congress and DOE to facilitate beneficial impacts in the County. The key areas to address are locally-directed procurement, enhanced employment opportunities, new and improved, formal and informal, educational facilities/services, and improved community services and facilities. In addition, the County will seek to influence other program management policies that discourage project related private investment in the County, whether it be housing for project personnel or business relocation.

## **4.0 ORGANIZATION**

The program organization is depicted in Figure 1. Each component reflected on the organization chart is described in this section. A responsibility description is provided for the Board of County Commissioners, Advisory Committee, County Manager, Program Manager and Management and Policy Support Group, respectively. Later in this section, brief overviews are provided for each of the other program components.

### **4.1 Nye County Board of County Commissioners**

The Board of County Commissioners ...

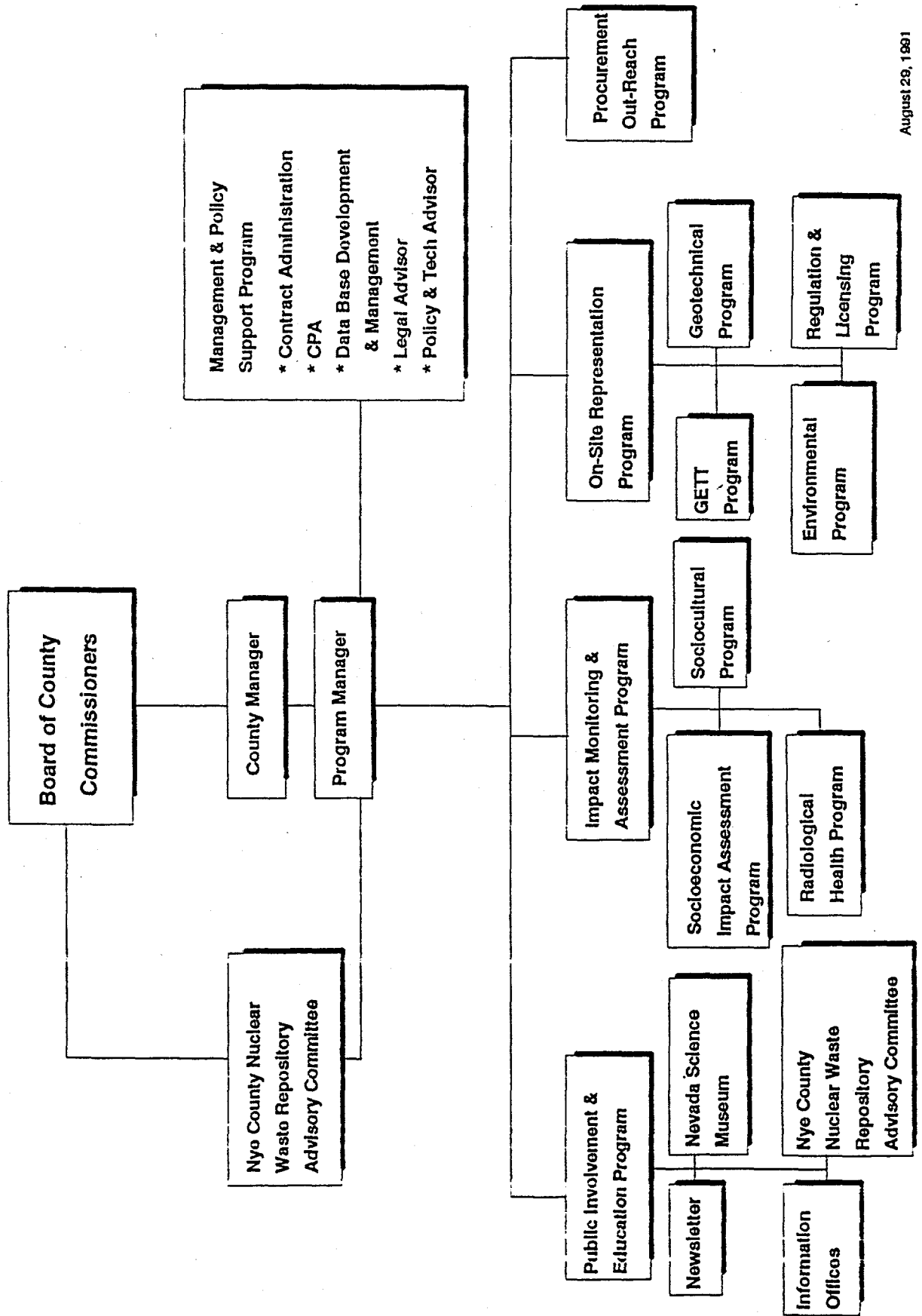
- establish the policy direction for the Nye County repository program;
- appoints an Advisory Committee and names the Committee chairperson;
- provides the necessary authority and direction to the County Manager to implement the Board's repository-related policy direction; and
- approves all contracts and expenditures.

### **4.2 Nye County Waste Repository Advisory Committee**

The Advisory Committee is appointed by the County Commissioners to ...

- offer recommendations to the Board and Program Manager on the content and implementation of the County's repository program; and
- ensure that information on the repository program is communicated to the community's they represent.

Figure 1. NYE COUNTY NUCLEAR WASTE  
REPOSITORY PROGRAM



#### **4.3 County Manager**

The County Manager reports to the Board of County Commissioners and ...

- implements repository-related policy established by the Board; and
- provides the necessary authority and direction to the Program Manager to implement the Board's policy direction and manage the RPO.

#### **4.4 Program Manager**

The Program Manager reports to the County Manager and ...

- implements the policy direction established by the Commission;
- establishes a work program, securing funding for it and recruiting the personnel and contractors needed to implement it;
- provides day-to-day management/administration of the Repository Project Office;
- provides financial assistance quarterly reports to DOE;
- represents the Commission to Congressional, federal, state and local entities involved with the repository program and reports on their activities to the Commission and the Advisory Committee;
- ensures that the County is represented at significant meetings and hearings convened to discuss the repository program;
- originates technical documents on the County's program;
- initiates comments on documents prepared by, for, or about, DOE's repository program.

#### **4.5 Management and Policy Support Program**

The Management and Policy Support Program includes contract administration, financial auditing, data base development and management, legal advice, and policy and technical advice. The functions are directed by the Program Manager (PM). In general, the Program ...

- provides project management support;
- helps the PM develop policy recommendations;
- helps the PM monitor and analyze the regulatory interactions on the repository program;
- produce draft work plans for selected program areas; and/or
- represents the PM and the County at repository related meetings and hearings, upon PM direction and approval.

#### **4.6 Impact Monitoring and Assessment Program**

The Impact Monitoring and Assessment Program has three components: 1) a socioeconomic impact assessment program, 2) a radiological health program and 3) a sociocultural program. Once these programs are fully established, the information they produce will form the baseline that will be monitored by the County as DOE proceeds with site characterization.

The Socioeconomic Impact Assessment Program component is an ongoing effort to assess the potential socioeconomic impacts of the proposed Yucca Mountain repository on Nye County residents and government. The core of the system is an economic, demographic and local government fiscal projection model.

The model is designed to perform periodic assessments of the economic, employment, and population effects of the repository. It is also designed to assess the repository-related demand for local government facilities and services and calculate the net costs and benefits of the repository to the local government entities within Nye County that would be impacted by repository development and operation.

Figure 2 portrays the major components of the assessment system graphically and illustrates how they interact with each other to respond to the dynamic aspects of the repository and Nye County socioeconomic conditions.

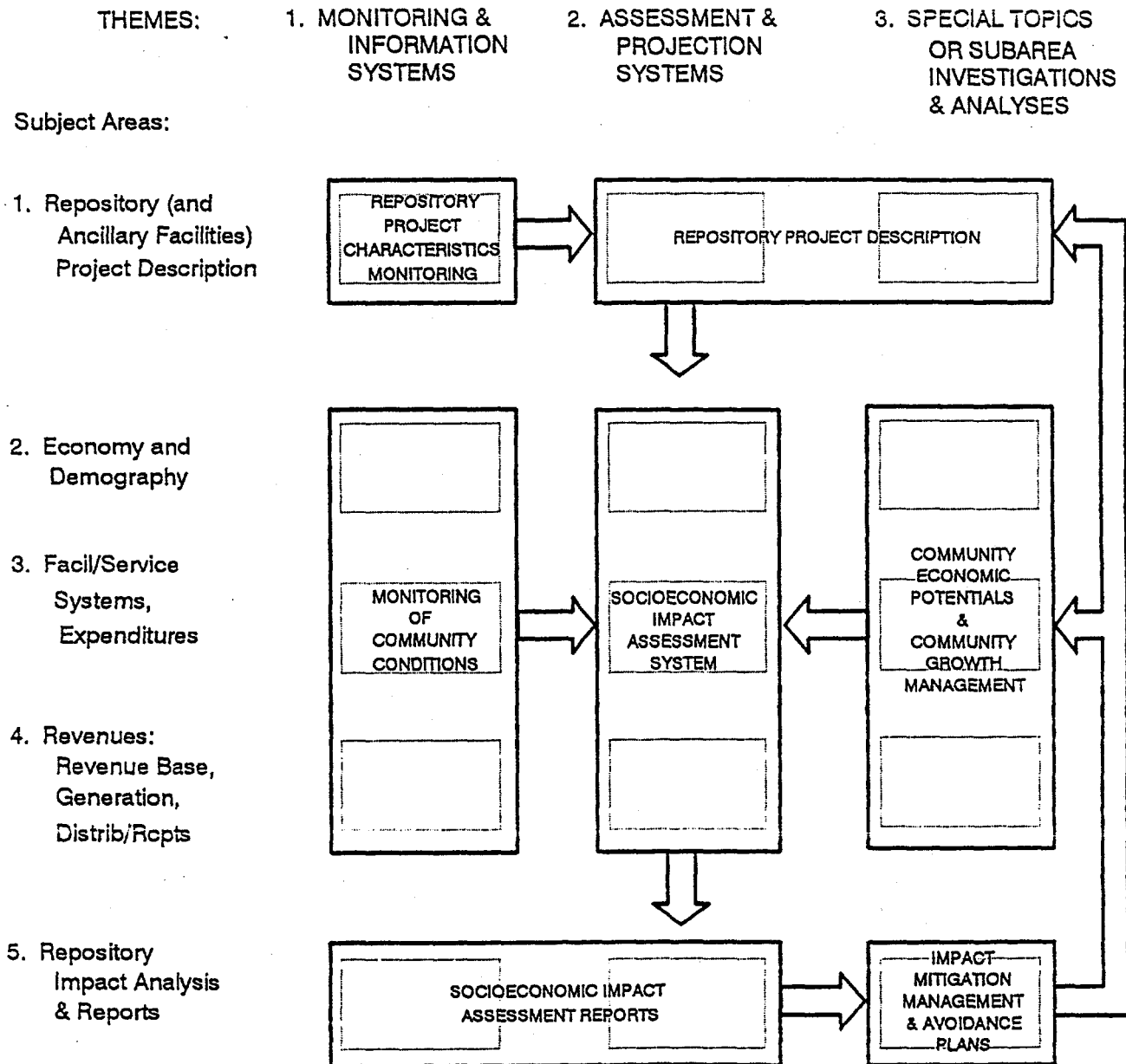
The Radiological Health Monitoring Program is intended to increase the County's understanding of current baseline conditions, so that it can better evaluate the potential impact of transporting and storing nuclear waste in the County. Additionally, the County feels it is important to understand the historical impact (and therefore part of the baseline) that the Nuclear Test Site activities may have had off the test site in Nye County.

The socioeconomic assessment system describes a "traditional" approach to documenting the socioeconomic characteristics of Nye County. Such studies often are skewed heavily toward the "economic" dimension of socioeconomic; with population descriptors limited to those that can be reduced to demographic numbers. Alternatively, the County will develop descriptions of the current social and cultural population characteristics, current community quality of life, and their historical evolution. This information will become the sociocultural baseline condition of the County for future impact analysis. Sociocultural information will be collected from the town history project and a project to monitor and chronicle the evolution of the County's social and quality of life dimensions, particularly as may be impacted by the repository program.

#### **4.6 On-Site Representation Program**

The NWPA, as amended in 1987, provides that only Nye County and the State of Nevada can designate an on-site representative to conduct oversight activities. The County has determined that, while an on-site representative could be formally named, truly the function calls for broad interdisciplinary support. For this reason, the County has determined that its RPO will be structured to incorporate the Geotechnical, Environmental, Regulatory and Licensing, and GETT Programs under that functional heading. In addition, site-specific socioeconomic monitoring will also be performed under the auspices of the On-Site Representation Program.

**Figure 2. NYE COUNTY NUCLEAR WASTE REPOSITORY PROGRAM:  
SOCIOECONOMIC ASSESSMENT SYSTEM  
MAJOR SYSTEM COMPONENTS & LINKAGES**



#### **4.7 Public Involvement and Education Program**

Nye County's public involvement and education program consists of the following:

- the Nye County Nuclear Waste Repository Advisory Committee;
- public information offices in Beatty (operational), Pahrump (to be operational in the Fall of 1991), Tonopah (RPO Office) and Amargosa Valley (to be operational in Fall of 1991);
- a semiannual newsletter; and
- an interactive science museum.

The information offices will provide Nye County residents and visitors of southern Nye County with information on the DOE and County repository programs and will contain a library of DOE, NRC, EPA, State of Nevada and Nye County written material.

An Interactive Science Museum has been a major Nye County objective. The County's interest has evolved as increased attention has been given to arguments for and against a repository within the State of Nevada. The County believes it is necessary for its residents to have the opportunity to directly understand the scientific and technological risks under which they currently live, and may live in the future, and develop the tools to discern for themselves the nature and degree of risk to which they may be exposed.

The County believes a hands on science center needs to be developed that would allow County and State residents, as well as visitors to the County and the State, the opportunity for first-hand insight into the benefits and problems introduced by science; with nuclear power perhaps offering the most dramatic example. Such a facility would also advance an understanding of the broad range of scientific and technological issues and capabilities that have been and will be advanced within the region.

The following science museum studies have been completed or are currently underway:

- an analysis of alternative scopes;
- an institutional and operational plan;
- a conceptual architectural building design;
- architectural and engineering drawings; and
- exhibit design plans and drawings.

#### **4.8 Procurement and Employment Outreach Program**

Nye County has established a Procurement Outreach Program with the express purpose of providing technical support, training, and assistance to County businesses which are presently or potentially capable of pursuing procurement opportunities with the DOE Yucca Mountain Project and other government agencies operating in Nevada.

The County has also proposed that a protocol be agreed to by DOE and Nye County calling for the establishment of two working groups. A Procurement Working Group would explore ways in which DOE procurements that support the Yucca Mountain Project and the Nevada Test Site could be directed to Nye County businesses. Similarly, an Employment Working Group would look at ways that affirmative efforts could be made to recruit Nye County citizens to the DOE and contractor work force.

## 5.0 PROGRAM COSTS

Nye County requested \$3.2 million from DOE to conduct repository-related activities during Federal *fiscal* year 1991. DOE provided the County a grant for \$1.9 million to conduct those activities during *calendar* year 1991. Fortunately, the County had \$600,000 in carryover funds from its 1990 grant, and therefore was able to develop a 1991 work program with a budget of \$2.5 million.

Last year, DOE asked the County to estimate its funding requirements for 1992; the County informed DOE that it would need \$3.5 million. Unfortunately, Congress only appropriated \$4 million for 1992, with the \$4 million to be allocated to all the affected units of local government, now numbering 10, where only 3 existed in 1991. Therefore, Nye County will have to cutback needed repository work in order to free-up funds for the other counties.

Figure 3 provides a graphic display of Nye County's 1992 Revised Work Program budget. The proposed level of effort (LOE) is the same as this year's LOE, even though DOE's repository-related on-site activities are expected to increase significantly in 1992. The County expects to have some carryover of grant funds from this year. It is estimated that DOE will need to provide the County at least \$1.8 million of the aforementioned \$4 million.

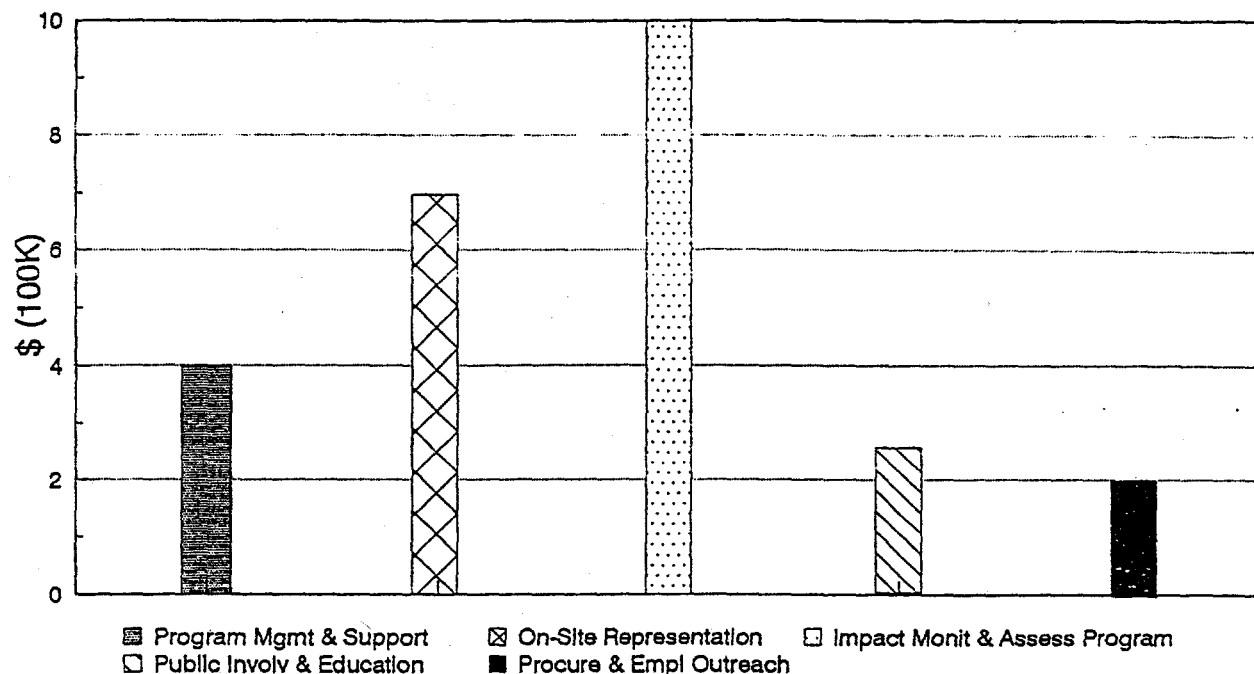
Cost estimates for the major program components are as follows:

Program Management and Support	\$ 400,000
On-Site Representation Program	700,000
Impact Monitoring and Assessment Program	1,000,000
Public Involvement and Education Program	275,000
Procurement and Employment Outreach	<u>200,000</u>
	\$2,575,000

Cost trends for the next three years and beyond are displayed in Figure 4. Units of level-of-effort (LOE) are used as the measure of future cost. As can be noted, the On-Site Representation Program is expected to continue to grow in scope if site characterization continues to proceed. The Impact Monitoring Program will grow the next two years and then drop off to a plateau at approximately this year's level. The remaining programs will grow slightly before leveling off.



**FIGURE 3. FISCAL YEAR 1992 BUDGET**



**FIGURE 4. COST TRENDS IN EACH MAJOR PROGRAM AREA**

