

NATIVE AMERICANS AND YUCCA MOUNTAIN

**A REVISED AND UPDATED SUMMARY REPORT ON
RESEARCH UNDERTAKEN BETWEEN 1987 AND 1991**

Volume I

by

**Catherine S. Fowler
with data contributed by
Maribeth Hamby
Elmer Rusco
and
Mary Rusco**

**Cultural Resource Consultants, Ltd.
Reno, Nevada**

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Table of Contents:

Executive Summary	iii
1. Introduction	1
1.1 The Yucca Mountain Project	1
1.2 Identification of Native American Groups	3
1.3 Cultural and Social Background	4
1.3.1 Social Groups and Locations	6
1.3.2 Social and Political Organization	13
1.3.3 Religion and World View	16
1.4 Field Work for the Yucca Mountain Project	21
2. Cultural and Legal Issues	24
2.1 Cultural Resources on Yucca Mountain	26
2.2 Applications of NHPA and AIRFA to Yucca Mountain	33
2.3 Who Owns Yucca Mountain? Western Shoshone Claims	41
2.4 Cultural Themes: Mother Earth at Risk	52
3. Socioeconomic and Cultural Profiles and Suggested Impacts	57
3.1 Western Shoshone	57
3.1.1 General Economy	58
3.1.2 Demography	61
3.1.3 Housing, Household Size, and Composition	62
3.1.4 Labor Force Characteristics	63
3.1.5 Education	65
3.1.6 Social Organization and Values	67
3.1.7 Political Structure and Relationships	70
3.2 Southern Paiute	74

3.2.1	General Economy	75
3.2.2	Demography	79
3.2.3	Housing, Household Size, and Composition	80
3.2.4	Labor Force Characteristics	81
3.2.5	Education	82
3.2.6	Social Organization and Values	82
3.2.7	Political Structure and Relationships	85
3.3	Native American Responses to Risk Perception Questionnaire	89
3.4	Urban Las Vegas	93
4.	Conclusions	98
	Notes	104
	References Cited	111
Appendix I:	Native American Site Visit to Yucca Mountain, October 16-17, 1987	I-1
Appendix II:	Yucca Mountain Project: Socioeconomic Data	II-1
Appendix III:	1988 Modified Risk Perception Questionnaire	III-1
Appendix IV:	Project Bibliography	IV-1
Maps:	1. Location of Principal Native American Populations in Southern Nevada	3a
	2. Tribal Distribution, Southern Great Basin	5a
	3. Major Winter Sites near Beatty and Belted Range	8a
	4. Major Winter Sites in Ash Meadows and Pahrump Valley	10a
	5. Major Winter Sites in Northern and Central Death Valley	12a
	6. Moapa Territory (with Adjacent Las Vegas Valley)	12b
Table 1:	Some Native Place Names Near Yucca Mountain	29a

EXECUTIVE SUMMARY

This report summarizes data collected between September 1986 and September 1988 (with some updates to September, 1991) relative to Native American concerns involving the potential siting of a high-level nuclear waste repository at Yucca Mountain, Nevada. It is a slightly revised version of the same report presented in 1990. The data were collected from Western Shoshone and Southern Paiute people upon whose aboriginal lands the repository potentially is to be located. Western Shoshone people involved in the study were those resident or affiliated with reservation communities at Yomba and Duckwater, Nevada, and Death Valley, California. Southern Paiute people were at reservation communities at Moapa and Las Vegas. Additional persons of Western Shoshone and Southern Paiute descent were interviewed at Beatty, Tonopah, Caliente, Pahrump, and Las Vegas, Nevada. The work was part of a larger project of socioeconomic studies for the State of Nevada's Nuclear Waste Projects Office, conducted by Mountain West of Phoenix, Arizona.

Cultural and Social Background

A review of the extant ethnographic literature on the Western Shoshone and Southern Paiute people, much of which was gathered in the 1930s, suggests that with few exceptions, the groups lived by hunting and gathering in precontact and early historic times. They moved about what is today southern Nevada and parts of adjacent southern California, southern Utah and northern Arizona in extended

family groups from base camps established in proximity to good water, fuel, and food resources. Seasonal movements took them from lowland valley locations where they spent the winter to camps in the uplands in spring, summer and/or fall where additional food resources were to be found. Given that they knew the environment and its resources exceedingly well, they developed a deep attachment to the land as reflected in cultural values and religion. Important from the perspective of religion is the concept of power (puha), an impersonal force which potentially can reside in any natural or living thing (water, geographic sites, plants, animals, persons, etc.). This in turn translates into a view of the whole Earth as sacred, and the duty of Indian people to protect it. This affects attitudes toward and land-altering projects, including the proposed repository, as potentially harmful to the Earth and all who inhabit it. It also affects views of archaeological and other cultural resources that are within the project area.

Cultural and Legal Issues

Further review of the ethnographic literature on the Yucca Mountain region suggests that this specific area was occupied in precontact and early historic times by Western Shoshone and Southern Paiute family and camp groups who used it seasonally for hunting large and small game and gathering several plant foods. The groups went to Yucca Mountain from winter base camps in and near Oasis Valley, Death Valley, Kawich Valley, Ash Meadows, Pahrump and Lower Amargosa valleys, Indian Springs, Las Vegas and

Moapa. In order to assess the accuracy of these data, as well as determine if there were concerns by Indian people for other cultural resources in the proposed project area, such as for example, burials, ceremonial areas, and other sacred sites that might qualify for protection under various federal laws (NEPA, ARPA, AIRFA, etc.), descendants of persons present at these places in the 1860s were located and interviewed. Several also were taken to visit selected archaeological sites within the proposed repository study area to better elicit data and responses.

Previous archaeological surveys in the project area had revealed the presence of some 400+ sites, covering a time span of from roughly 10,000 years before present to the recent past. Most seemed to match the subsistence uses suggested by the ethnographic literature. Consultation with involved Native Americans confirmed the general accuracy of both ethnographic and archaeological interpretations, but also indicated that other features with less obvious physical manifestations were present: sites with mythological reference, water sources considered sacred, plants and animals used for medicines as well as foods, potential burial areas, etc. These, too, are potentially eligible for protection and mitigation by the federal laws should this large-scale undertaking go forward. Unfortunately, although various of the sites visited were felt to be significant by the Indian people, and will require additional consideration should the project be approved, it is doubtful given the mood of the federal courts on views of the sacred by Native American religions that they alone

will impede the project. Recent cases involving the protection of sacred sites, especially under the American Indian Religious Freedom Act (AIRFA), have been lost more often than won. Nonetheless, Indian people expressed concern that they remain involved if there is to be additional site characterization activity in the project area that potential will impact sites or resources. They want to be part of any decisions as to what to do with archaeological sites as well as these other cultural properties in the region.

In addition to specific concerns for the cultural properties that might be jeopardized should the project go forward, there are other issues of importance involved. One is the question of federal ownership of the proposed project area. For many years, the Western Shoshone National Council as well as its parent organizations, have been asserting claims to these and other lands under the Treaty of Ruby Valley of 1863. This treaty, one of peace and friendship rather than land cession, has been the basis for a number of federal law suits, the results of some of which are still pending in the courts. Although in 1979 the Indian Claims Commission made a money award to the Western Shoshone for the lands held under the treaty, the people have steadfastly refused to accept the money and have chosen instead to pursue their claims for land. At present the DOE, and apparently Congress, appears to want to go forward with site characterization without attention to this issue. It still seems relevant and, of course, is of major concern to the Western Shoshone people. They are continuing to campaign

actively against the repository on these grounds, as well as for cultural reasons involving their views of the incompatibility of nuclear waste storage and the continued viability of a sacred Earth.

An additional issue of significance to both Western Shoshone and Southern Paiute people in this project is its potential for violating their teachings concerning the proper care of the Earth. Indian people in the study area see a great risk to the environment, particularly water resources, but also plants, animals, and all life and its integrity in the proposed underground storage of nuclear waste at Yucca Mountain. According to tradition, the whole earth is sacred, and there is no way to impair a part of it without affecting the whole. Indian people interviewed through formal survey instruments as well as informally expressed deep concern over this issue. They ranked environmental concerns as nearly equal to those of personal and family health. Economic concerns were a distant third. They see themselves as the custodians of the land, with few others being willing to take that responsibility. Cultural values in this case are definitely at risk should the project go forward, and Indian people will hardly remain silent on this point.

Socioeconomic Aspects

In addition to the deep conflict in values that this project represents to Indian people, they also face many additional socioeconomic uncertainties should it continue. Reservation populations throughout the area are in the lower order of economic

self sufficiency, educational levels, and health. Their unique position vis a vis the state and federal governments has meant in the past that they have received poor services in all of these areas. Although this picture has been changing for the better in recent years with the development of some tribal businesses, the addition of new housing and related services, some increases in job training and the upgrading of educational levels, should the economies of urban or rural southern Nevada suffer a downturn because of the Yucca Mountain project, these groups stand to loose most of what they have gained. Their well being is tied to a complex set of local and national factors, all of which could be adversely impacted by the repository program. Although it is difficult to model specific effects because of the present lack of data on the proposed project's impacts, it can be said that special attention should be paid to factors that might affect these groups in the areas of economics and social well-being. They are likely to be ignored by both state and federal bureaucracies should there be difficult times. A good monitoring plan should be developed and put into place in order to help prevent these occurrences before they happen.

Conclusion

In all, the Native American people in the proposed project area have some unique concerns and stand in a unique position with reference to their neighbors. Some very specific laws govern the protection of their cultural properties within the area, but these will have to be strongly enforced if the project continues and

protection is to be afforded them. Indian people will undoubtedly make several demands with reference to these. But also because of their unique status as separate governments within the area, yet a long history of these governments being ignored and their constituecies being given poor levels of various kinds of services, Indian people are less well off economically, and vulnerable to various local and national exigencies. They see much at risk from this project, including cultural values, personal and family health and well-being, and economic maintenance. Although the decision as to whether to go ahead with the project will undoubtedly be made more on political grounds than on any other, it is hoped that careful monitoring of their situation will occur so that they do not bear far more than their share of the burden.

**NATIVE AMERICANS AND YUCCA MOUNTAIN:
A SUMMARY REPORT**

1. INTRODUCTION

This report summarizes data collected between September 1986 and September 1988 (with some updates to September, 1991) relative to Native American concerns involving the potential siting of a high-level nuclear waste repository at Yucca Mountain, Nevada. The work was conducted as part of a larger study of the potential socio-economic effects of this project on communities in southern Nevada, through Mountain West, Phoenix, Az. Mountain West was prime contractor to the State of Nevada through the state's Nuclear Waste Projects Office. In the sections that follow, data collected during the project period are summarized, and a number of issues of general as well as specific concern to Indian people and tribes in the area are addressed. More specific data are contained in a series of interim reports submitted as part of this assessment (Cultural Resources Consultants, 1988a, 1988b; Fowler, Hamby and Rusco, 1987; Fowler, Rusco and Hamby, 1988. Hamby, 1988, 1989, 1991; Hamby and Rusco, 1988; E. Rusco, 1989; 1991; M. Rusco, 1988, 1989, 1991; and Rusco and Hamby, 1988), as well as in sections appended to this report (Appendices I-IV).

1.1 The Yucca Mountain Project

The Nuclear Waste Policy Act of 1982 (P.L. 97-425, 96 Stat. 2201) outlines certain procedures required in order to determine a site/sites and a method/methods for the "safe" disposal of high level nuclear waste accumulating at U.S. military and non-military

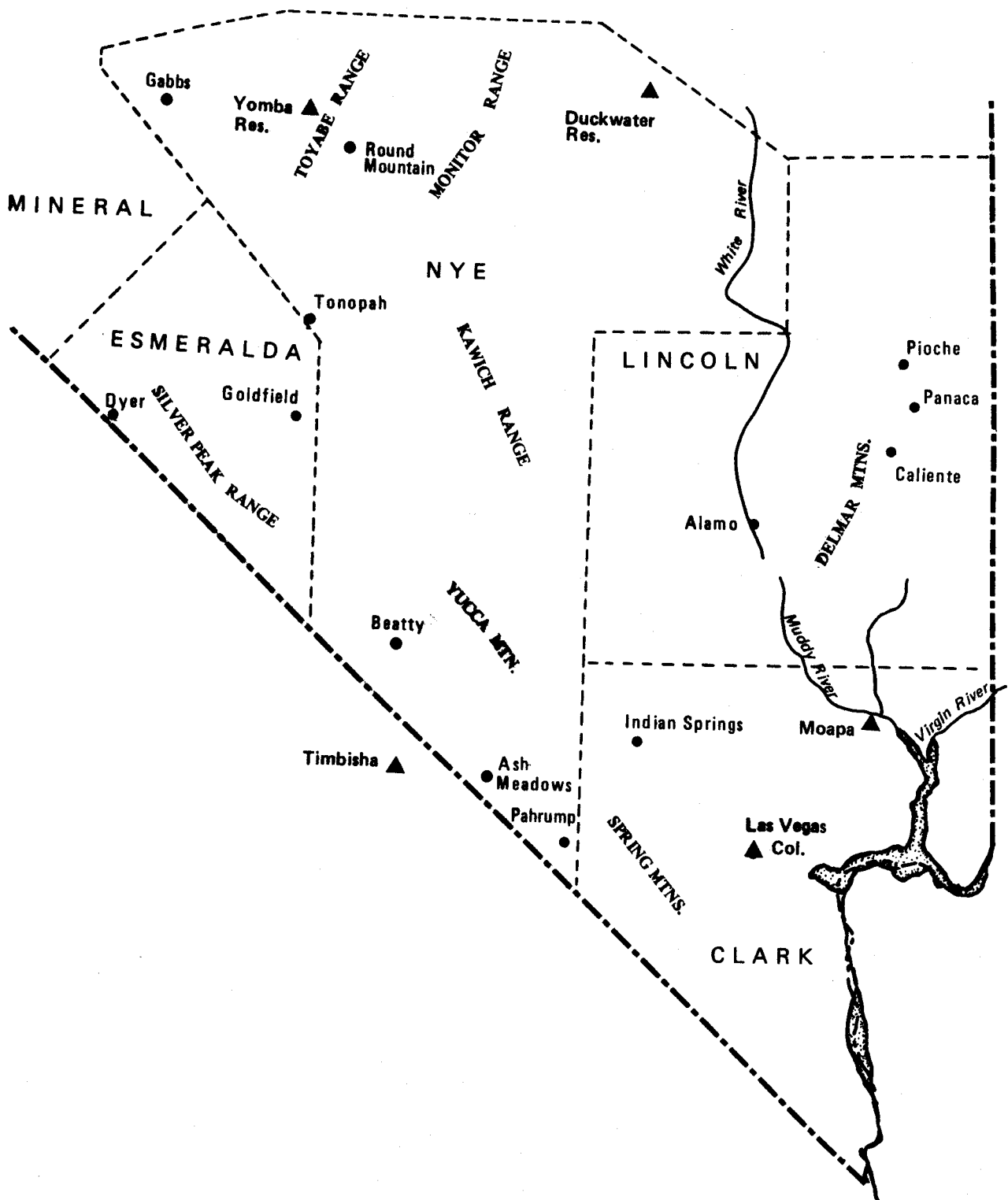
sites across the country. It gives the major role in site characterization and recommendation to the Department of Energy (DOE), but also notes that studies should be conducted in consultation with state, local, and tribal governments in any suggested area. It leaves in place and to be followed existing environmental legislation affecting all federal undertakings (Endangered Species Act, National Environmental Policy Act, National Historic Preservation Act, American Indian Religious Freedom Act, etc.). Initially the DOE was to characterize three candidate sites for the potential repository: Hanford, Washington, Deaf Smith, Texas, and Yucca Mountain, Nevada. Amendments to the act in 1987 (42 U.S.C. 10101) narrowed the initial site characterization process to one candidate location, Yucca Mountain, Nevada.

Given that the NWPA did not supersede existing environmental legislation, site characterization and site selection required the filing by the DOE of various preliminary and final reports involving environmental and socioeconomic impact assessment (see, for example, DOE 1986a, 1986b; 1988a, 1988b, 1988c, 1988d). In order to properly evaluate the DOE's efforts in these directions, the State of Nevada undertook its own independent studies of which this work is a part (see Mountain West, 1989). With reference to the Native American component of the studies, specific attention was given to applications of the American Indian Religious Freedom Act, and the National Historic Preservation Act (although the archaeological component of that act was left to the assessment of

others). Queries as to potential socioeconomic impacts on Native American individuals and communities in Nevada have preceded ahead of parallel DOE studies, which have yet to be undertaken.

1.2 Identification of Native American Groups

Existing environmental and cultural protection legislation (as well as the NHPA of 1982) gives the greatest voice in commenting on federal projects, especially those anticipating land altering activities, to federally recognized tribes. When work was initiated on the Native American component of the Yucca Mountain study in 1986, several federally recognized tribal groups were identified as potential participants, largely because of their proximity to the site and known traditional ties to the area. In addition, since the larger Mountain West study was to focus on three southern Nevada counties (Nye, Clark, Lincoln), groups in these counties were given top priority. The tribes identified include: the Yomba and Duckwater Shoshone tribes of Nye County, Nevada; the Las Vegas and Moapa Paiute tribes of Clark County, Nevada; and because of proximity and cultural connections, the Timbi-Sha Shoshone Tribe of Inyo County, California. In addition to these federally recognized tribes, there are small numbers of Indian people resident in non-Indian communities throughout the three southern Nevada counties, including in Pahrump, Beatty, Tonopah, and Caliente. There is as well a large but poorly identified population in urban Las Vegas (Map 1). Some of these individuals are affiliated with the above tribes, but many are not. Although federal legislation (and especially the NHPA) is less



Map 1: Location of Principal Native American Populations in Southern Nevada.

clear on the role that non-recognized groups and individuals play in the assessment process, most feel that they should be properly informed and consulted in such matters, if only as citizens with special interests (Advisory Council on Historic Preservation, 1985). Thus, for the purpose of this study, an attempt was made to include all of these groups. The diffuse urban Las Vegas Indian population, except for those individuals affiliated with the Las Vegas Paiute Tribe, and some members of the Las Vegas Indian Center, was not included due to the lack of funds (but see 3.4). For comparative purposes, some contacts were made with tribes and individuals outside the immediate study area.¹

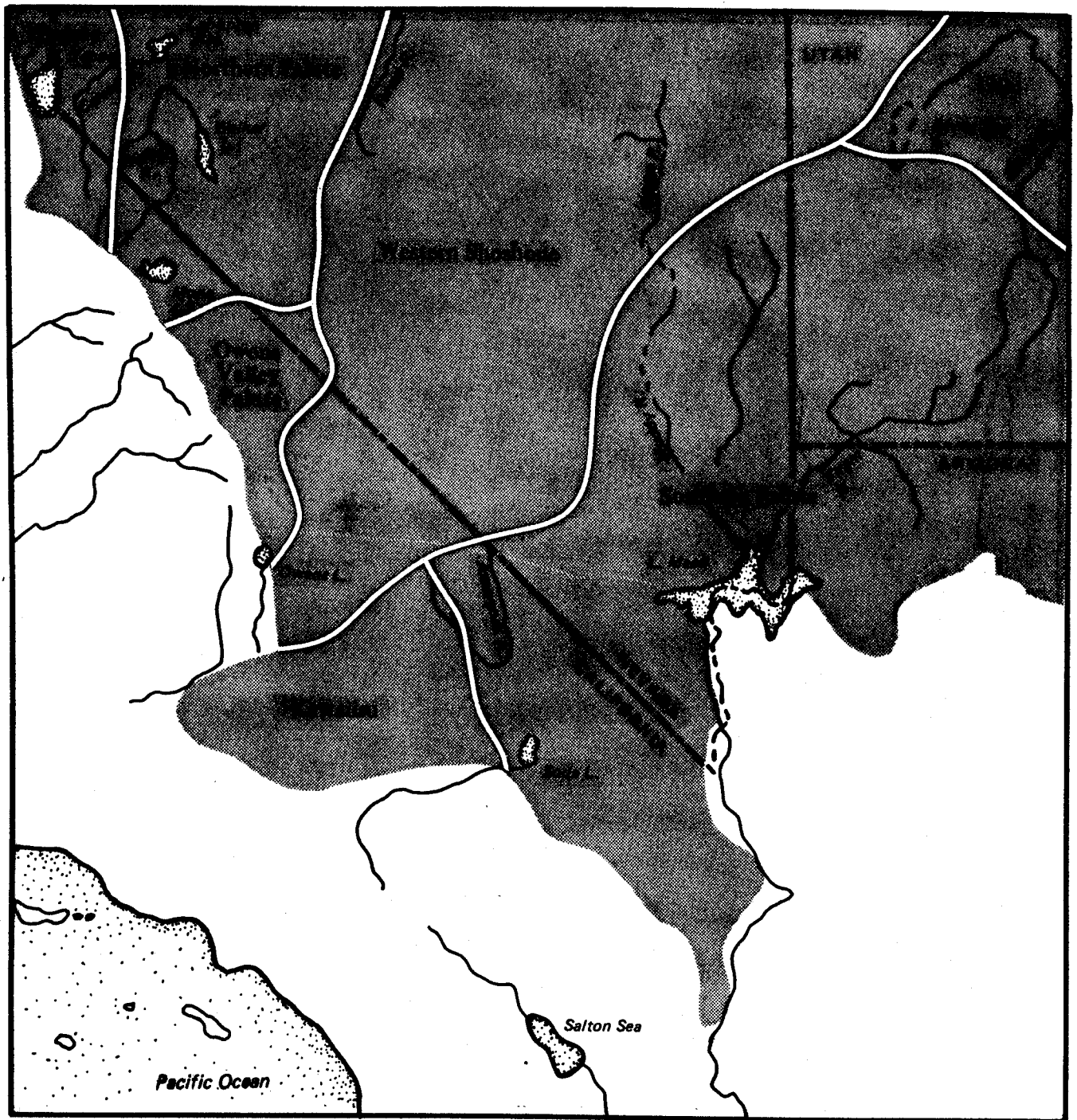
Although this particular study was driven by the concerns noted above, especially in terms of selection of participants, it should be clarified from the outset that it is not anticipated that impacts from this proposed project will be limited only to these groups and individuals. According to the 1990 U.S. Census, there are roughly 13,000 Native Americans in the State of Nevada, more than two-thirds of whom live on reserved lands or in cities and towns next to potential transportation corridors or in areas where socio-economic impacts might be felt. If this project proceeds, due consideration should be given to these groups, and every effort made to assess their concerns.

1.3 Cultural and Social Background

The federally recognized tribes listed above, as well as the Native American individuals resident in southern Nevada communities (with the exception of many in-migrants to urban Las Vegas), belong

to two large and widespread ethnic groups: the Western Shoshone and the Southern Paiute. Prior to Euro-American contact and settlement of southern Nevada in the 1820s to 1850s (Euler, 1966; Malouf and Findlay, 1986), members of these two ethnic groups shared a border near Yucca Mountain (Map 2). Both groups speak related languages within the Numic branch of the Uto-Aztecan language family (Miller, 1986). Culturally they had much in common, although differences in language and descent kept them distinct. The Western Shoshone were distributed from Panamint and Death valleys in present-day California to and through most of central and eastern Nevada, where they joined related Shoshone groups to the north and east. The Southern Paiute, including the related Chemehuevi, held an equally large area beginning on the lower Colorado River in present-day California and extending through southern Nevada, northern Arizona and southern Utah.

Although detailed ethnographic work was not conducted among the Western Shoshone and Southern Paiute in this region until the 1930s (Kelly, 1932-33; Steward, 1938; 1941), earlier historical accounts and scattered and miscellaneous observations can be combined with these to give a general picture of the precontact lifeways of pertinent subunits of these two groups. Such a picture is important toward assessing the potential impact of the Yucca Mountain project on the cultural resources and values of descendant groups today. They also have implications for potential socioeconomic impacts of the project in the future. Particularly important are precontact and persistent views of the land and



Map 2: Tribal Distribution, Southern Great Basin.

human/land relationships, as expressed in language, religion, and general world view. But perhaps equally pertinent is the strong sense of family, and ethnic community that likewise serves as a guide to present-day activities, including socioeconomic activities.

1.3.1 Social Groups and Locations

In the period prior to Euro-American contact and the disruption of aboriginal patterns, both the Western Shoshones and the Southern Paiutes were divided into numerous smaller subgroups, sometimes as small as several families, sometimes including 100 or more persons. Each of these held a territory focussed on permanent water and food sources, usually consisting of a valley and its adjacent mountains. Within these territories, they hunted, gathered, and where possible, fished and farmed,² to obtain a living. Given that those portions of Western Shoshone and Southern Paiute territory that fell within southern Nevada (including Yucca Mountain) and adjacent California were largely within the Mojave Desert and the adjacent Great Basin Desert (Beatley, 1976; Jaeger, 1957), subsistence was not easy. Thus, the people developed a very close and intimate relationship with the land and its resources - several hundred species of plants, mammals, birds, fish, reptiles and insects (Fowler, 1986). As hunters and gatherers, they came to know the land exceedingly well and to view it and its resources as their primary sources of spiritual as well as physical strength.

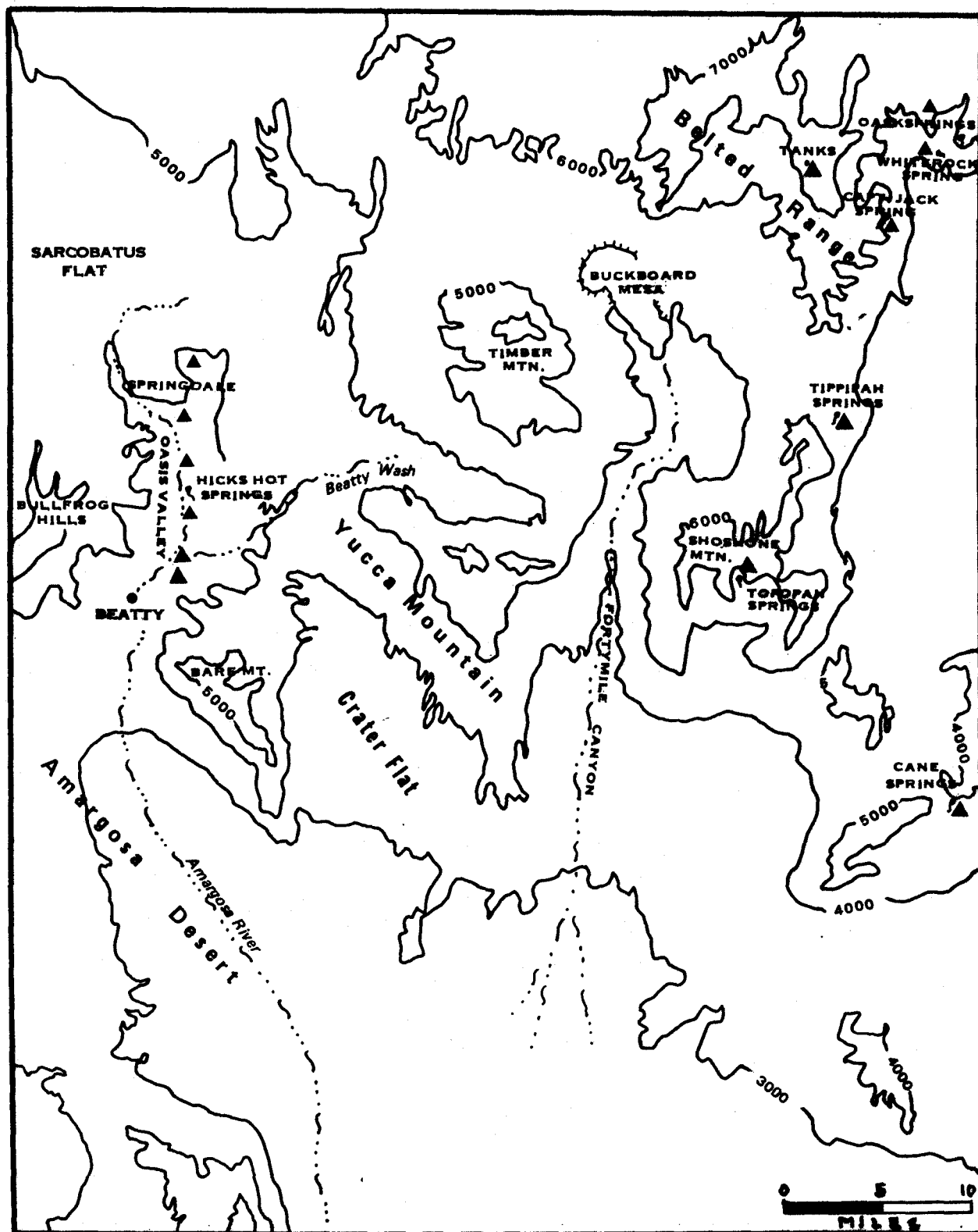
Ethnographic and historical data suggest that several recognized Western Shoshone and Southern Paiute subgroups lived in

the immediate vicinity of Yucca Mountain in the precontact and postcontact periods. Included were: 1) several camps in Oasis Valley, immediately west of Yucca Mountain, and the present site of Beatty, Nevada; 2) several camps in the Belted Range, to the northeast of Yucca Mountain; 3) several groups in Ash Meadows, immediately to the south; 4) quite a number of camps in Pahrump and Lower Amargosa valleys also to the south; and 5) several camp groups in the Indian Springs/Cane Springs area, immediately to the southeast (Kelly, 1932-33; Steward, 1938). People in the Oasis Valley and Belted Range districts were primarily Western Shoshone; people in the Indian Springs/Cane Springs district and at Pahrump/Lower Amargosa were primarily Southern Paiute; and the people at Ash Meadows were of both groups. At a greater distance, but still interactive with the above populations, were Shoshone people in Death Valley and Kawich and Great Smoky valleys, and Southern Paiute people in Las Vegas and Moapa valleys. A number of residents of present-day reservation communities in southern Nevada and adjacent California, as well as in non-Indian towns in the region, trace direct descent to known persons from these primary areas as well as the secondary locations (see, for example, Fowler, Hamby and Rusco, 1987:146b, 153a, 156a for sample genealogies of project consultants with such ties).

Reconstructions of the camp locations and memberships for the period of roughly the 1870s by individuals interviewed by Julian Steward (1938) in the 1930s, suggest that there were six primarily winter camp sites in Oasis Valley (designated in Shoshone the

Ogwe'pi district) at that time (Map 3). These were located at permanent springs in the valley, and each had known populations ranging from a single nuclear family of three persons to as many as ten persons, also usually members of one to two extended families. The total remembered population was under 50 persons, although by this period, there had been considerable displacement of people due to non-Indian settlement and population reductions due to introduced diseases. During this period, these winter village sites were still homes to which people returned throughout the hunting/gathering year. They were also sites of permanent residence from roughly November to May. From them people went each day, or for a few days, on plant gathering trips or to hunt large or small game animals. While away, they established temporary camps, usually near permanent or ephemeral water sources. The total area utilized by the Oasis Valley population for subsistence purposes extended from the east slopes of the Grapevine Mountains in the west to the middle of Sarcobatus Flat in the north, and from the southern Belted Range in the east to the middle of the Amargosa Desert in the south. Yucca Mountain was included in that area, being frequented for its seed resources (primarily chia [Salvia columbariae] and stick-leaf [Mentzelea albicaulis]), but also at times for desert bighorn sheep (Fowler, Hamby and Rusco, 1987:31).

The Oasis Valley population was closely related to and often went for food with one or more of the Belted Range camp groups, which were centered around several spring sites at the southern end of the Belted Range (see also Map 3). Prominent among these were



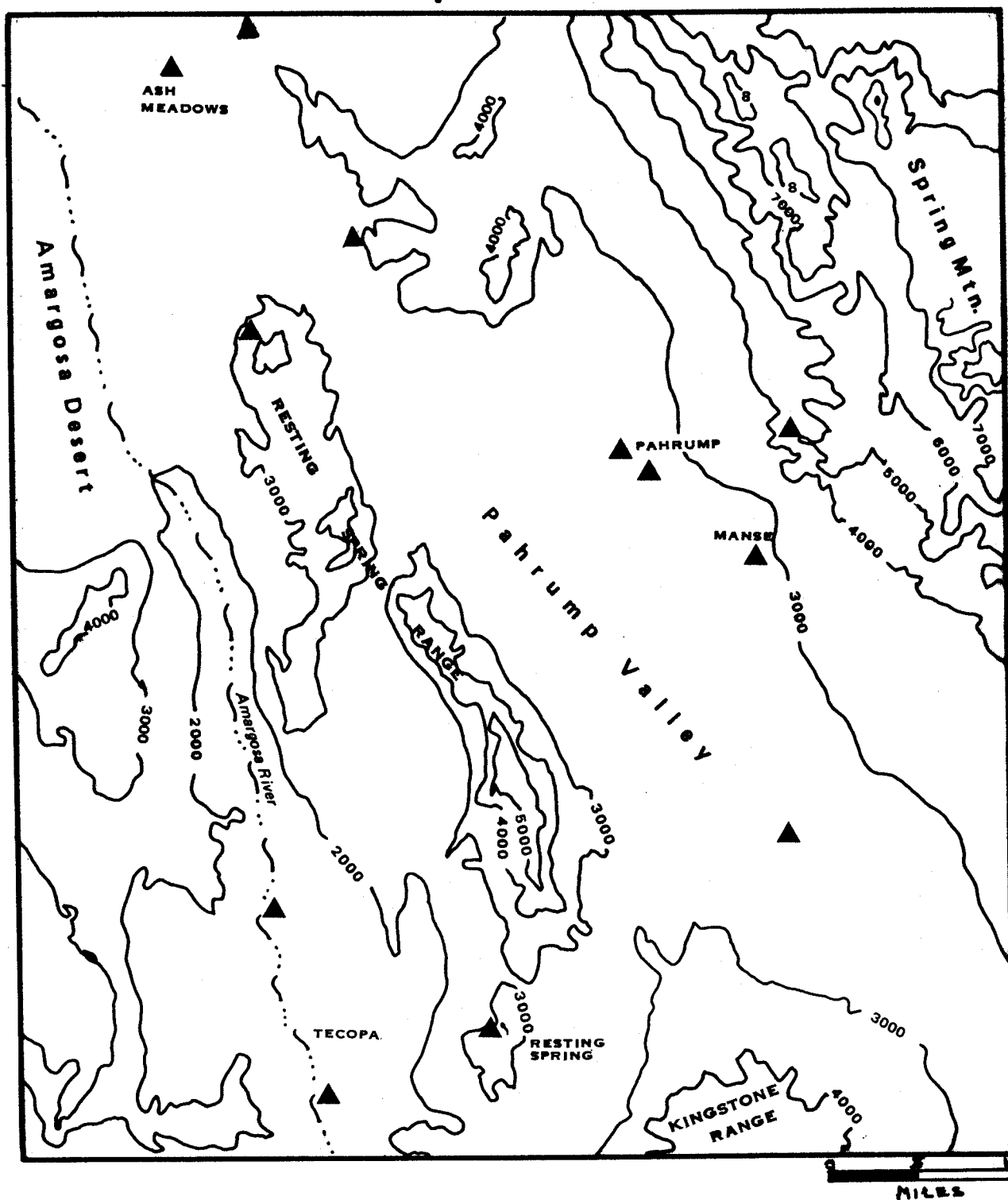
Map 3: Major Winter Sites near Beatty and Belted Range. Contour Intervals 1000 ft.

camps at White Rock Spring, Captain Jack Spring, Oak Springs, Ammonia Tanks and Tippihah Springs, now all contained within the Nevada Test Site. These springs, as well as a few other sites, were the primary winter camp locations in this district, called in Shoshone Eso, for a small hill in the area (Steward, 1938:94-5). Several of these sites were also single to multiple family winter camps, with a total remembered population of less than 50 persons. The area utilized for subsistence by the southern Belted Range groups was much the same as that used by the Oasis Valley people, and included Yucca Mountain. These groups also went north into Kawich Valley and east to the Pintwater Range, as well as south to use some areas jointly with Southern Paiute people around Shoshone Mountain and Cane Springs (Steward, 1938:93).

The Ash Meadows and Pahrump/Lower Amargosa Valley districts were to the south of Yucca Mountain. Forty Mile Wash, a major drainage system that occurs on the east side of Yucca Mountain, empties into the Ash Meadows area. Crater Flat, on the west side of Yucca Mountain, likewise opens into Ash Meadows. In former times, these two provided for the Ash Meadows and Pahrump people major entry ways into the Yucca Mountain, Shoshone Mountain, and Bare Mountain areas, as well as onto Timber Mountain and Buckboard Mesa. Ash Meadows and Pahrump people, even as late as the 1930s, used these avenues for access to pine nuts (Shoshone Mountain), deer and bighorn sheep (Timber, Yucca, and Bare mountains), and seed resources (Yucca Wash, Cane Springs).

Twelve major winter village locations were remembered for the

1870s in Ash Meadows and Pahrump/Lower Amargosa Valley, according to persons interviewed by Isabel Kelly in the 1930s (Kelly, 1932-33; see Map 4). Of these, three were in Ash Meadows, at Point of Rocks, Longstreet Spring, and Big Hole, where the population was collectively referred to in Shoshone as koyohuts (Steward, 1938:7) and ko?oic in Southern Paiute (Kelly 1932-33). The remaining nine camps were in Pahrump and Lower Amargosa Valley, primarily at major spring sites at the base of the Spring Mountains and the Resting Springs Range, or along the Amargosa River. Populations at most of these sites appear to have been larger than in the Oasis Valley and Belted Range districts, with three to seven families at each, and a total population of roughly 130 persons (Kelly, 1932-33). In addition to treks by way of Forty Mile Wash to Yucca Mountain and vicinity on the north, these groups ranged for subsistence across the Spring Mountains to the east, south to the Avawats Range, and west to the Black Mountains and Funeral Range on the east side of Death valley. The Ash Meadows people went north as far as Big Dune south of Oasis Valley and occasionally west into Death Valley. Given that these areas are quite diverse as to elevation, the groups were well supplied with a variety of foods characteristic of low areas in the Mojave Desert (mesquite, screwbean, yuccas, agave, small seeds, rabbits, chuckwallas, tortoises) as well as of the high country (pinyon, berries, acorns, deer, bighorn sheep, etc. [Fowler, Rusco and Hamby, 1988]). In addition, groups at several sites in these districts planted moist areas with corn, beans, squash, amaranth, and Spanish-introduced



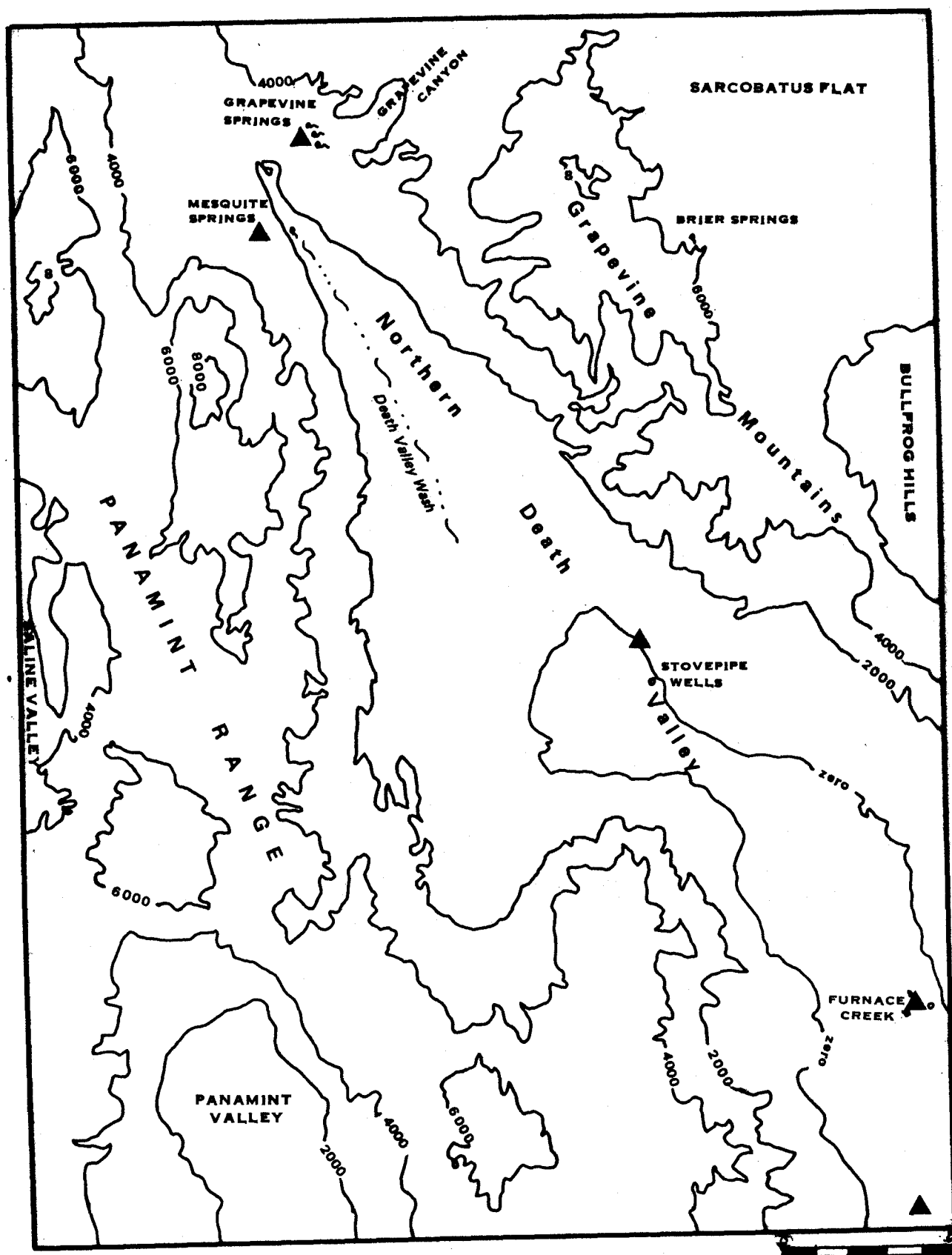
Map 4: Major Winter Sites in Ash Meadows and Pahrump Valley. Contour Intervals 1000 ft.

wheat, watermelons, and chick peas (Fowler and Fowler, 1981). Gardening with indigenous crops probably predates contact by only a few generations.

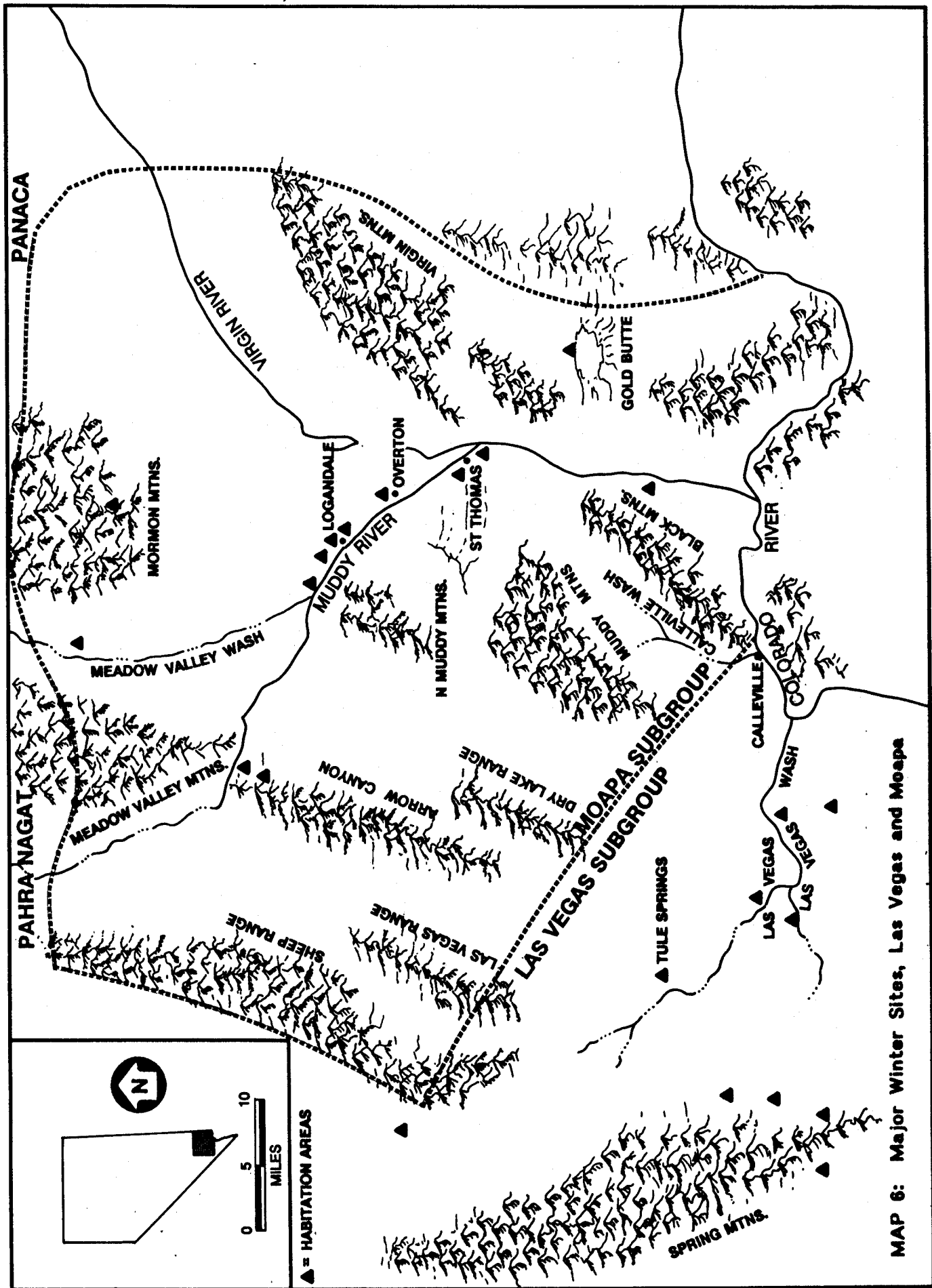
Several winter camps were likewise recorded for the 1870s in the Indian Springs/Cane Springs areas, south and west of Yucca Mountain. Several families had camps at Indian Springs, representing a population of roughly 30 people (Kelly, 1932-33). Additional families camped at Cane Springs, south and west of present-day Mercury, NV, and at Topopah Springs at the base of Shoshone Mountain (see Map 3). Crops were planted at Cane Springs and Indian Springs, and these supplemented naturally occurring food resources such as mesquite, screwbean, Joshua tree buds, yuccas, and small and large game. Given that Indian Springs was at the north end of the Spring Mountains, and a large natural pass led from this locality to and through this high range to Pahrump Valley, these groups were also closely aligned with those from that district. They all shared the resources of the range, including principally pinyon, berries and deer. The Indian Springs camps were likewise connected by kinship to several camps in the greater Las Vegas valley, including most immediately those at Corn Creek and Tule Springs, north of present-day urban Las Vegas (Kelly, 1932-33).

For many, the web of kinship further connected families at greater distances than camp groups in the immediate vicinity of Yucca Mountain. Particularly strong were ties between people in Oasis Valley and those in Death Valley, especially at winter

villages at Furnace Creek, Stovepipe Wells, Mesquite Springs, and Grapevine Springs (Map 5). Not only did the Oasis Valley people speak nearly the same dialect as the people of Death Valley (a language often referred to as Panamint, or more recently, Timbisha Shoshone [Daley, 1989a; 1989b]), but they also often attended each other's fall festival gatherings and Annual Mourning ceremonies (Steward, 1938:94). People from Ash Meadows participated as well. They in turn held ceremonies jointly with the people at Pahrump and Lower Amargosa, who in turn participated in gatherings in Las Vegas valley where there was once a large and dispersed Southern Paiute population (Kelly, 1932-33). The western edge of Moapa Southern Paiute territory also adjoined that of the upper Las Vegas valley and Indian Springs districts at an interface in the Sheep Range, thus bringing Moapa people to within 50 miles of Yucca Mountain (Map 6). Kinship ties are still traced between former Indian Springs residents and people at Moapa, as well as Pahrump and Las Vegas. And the Shoshone of the Belted Range in turn often held ceremonies or collected food with Shoshone neighbors in Kawich Valley, Great Smoky Valley, people in the Groom Range, and even Southern Paiutes in the Pahrnagat/Panaca districts [now within Lincoln County, NV]. For hunters and gatherers, such ties not only proved important in times of need for subsistence (individuals could move to other areas if conditions warranted), but they also kept avenues of marriage open as well. For groups with small populations, this was an equally important factor (for detail on proto-historic camp locations in all of these districts, see



Map 5: Major Winter Sites in Northern and Central Death Valley. Contour Intervals 2000 ft.



MAP 6: Major Winter Sites, Las Vegas and Moapa

Fowler, Rusco and Hamby, 1988).

Although ethnographers (Kelly 1932-33; Steward 1938) and present-day consultants report that individuals in all of the core areas discussed above shifted their residences periodically, it was within the defined boundaries of kinship and friendship --not randomly. Persons new to an area, even if they had kinsmen or friends there, had to ask permission to use a local group's resources, or to remain for lengthy periods. To not do so would be to potentially endanger the local persons. Permissions were seldom refused, but asking was required nonetheless as part of etiquette. Such patterns probably brought even more persons than reflected in the ethnographic record into any one home district over a long time span, and doubtless brought more people to the vicinity of Yucca Mountain than just habitual residents. Nonetheless, area of birth and area of habitual residence remained primary defining characteristics for local group membership and for the concepts of resource ownership that defined hunting and gathering rights. Those local groups in the immediate vicinity of Yucca Mountain, as well as their adjacent neighbors, knew it best through rights to be there.

1.3.2 Social and Political Organization

In the 1870s and 1880s, both Steward (1938; 1941) and Kelly (1932-33) identified the family -- nuclear and extended -- as the strongest and most cohesive unit in Western Shoshone and Southern Paiute societies. Families were the basic economic units, with all decisions regarding day-to-day subsistence activities made within

them. Food was obtained by family units and generally used by them as well. This included the products obtained by men through hunting as well as those taken by women and children through gathering. Farming, where practiced, was the work of both sexes.

Families could be as small as a couple -- a husband and wife -- or as large as a unit three or more generations deep. In the latter case, one or more grandparents were part of a household containing a son or daughter plus spouse, their children and possibly a grandchild or two. Widowed or divorced persons might be part of the family as well, sometimes as temporary members, but also permanently. Given that a pair of siblings from one family often married a pair from another family, this type of union resulted in another type of extended family. In this case, the sibling pair was the core of a single camp, with persons attached to them through kinship or friendship connections. Again, the members acted in common as an economic unit.

Nuclear and extended families were the basis of the winter camp groups enumerated for the various Western Shoshone and Southern Paiute districts near Yucca Mountain. Those with six to ten person might have one to three families. Those with 15 or more might have three or four or more. Usually, but not always, winter camp groups were somehow related (Steward, 1938:93-5; Kelly, 1932-33). In the summer, the camps broke up into smaller units, with a single or perhaps a pair of families moving together. Although families often returned to the same wintering site, this was not required, and thus considerable fission as well as fusion took

place. Disagreements could be handled easily by people moving to other camps. Nonetheless, as noted above, there was an overall attachment to area of birth and habitual residence that usually brought people back periodically, even if through marriage they had more or less moved away.

Given that the kinship system for both Western Shoshone and Southern Paiute was bilateral -- one that counted relatives on both sides of the family equally -- reckoning of kinship ties to other families and groups was easily accomplished. Marriages were only between non-relatives,³ and thus people often were forced to marry outside the immediate area. This created a web of kinship further binding local groups with their immediate neighbors as well as those at a greater distance. Although the data gathered representing the period of the 1870s are not complete, enough can be discerned about them to suggest that persons in each local camp group could probably press ties in three to four directions over a few generations.⁴ One of the several functions of fall harvest festivals and Annual Mourning ceremonies was to attract visitors from other areas and give young people a chance to meet. Marriages took place or were arranged at these times (especially the former). Young men usually went to live in the households of their wives for a year or two, as service to their wives' families. After that time, the couple might move to a camp of its own, or continue to stay attached to that of one of their parents. Given the important role played by grandparents in child rearing, these attachments were viewed as significant.

Leadership of winter camp groups was vested in senior men, usually one or two per district, but sometimes one for each major family in the district. These senior men were well respected for the advice they gave, sometimes related to subsistence matters, but also often to social interaction with other families and other winter camps. Although rarely authoritarian in personality, these men could get people to cooperate and compromise by their powers of persuasion. They were also often in charge of communal activities, such as the fall festivals and Annual Mourning ceremonies, or by their own special powers, they might be hunt leaders (deer, bighorn sheep, antelope, rabbits). They were rarely shamans or doctors, these important roles being reserved for others. At the period of the 1870s to 1880s, there were separate headmen or chiefs for Oasis Valley, the Belted Range, Ash Meadows, Indian Springs, Pahrump, and Lower Amargosa Valley, and additional men in charge in the outlying areas (Steward, 1938; Kelly 1932-33).

1.3.3 Religion and World View⁵

Although there were some specific differences in the religious traditions of Western Shoshone and Southern Paiute people, both shared a basic world view that was deeply rooted in their relationships with the land and its resources. A primary tenet of this world view was that the Earth was a living being, just as were the Sun and Moon, the stars, and natural forces such as water, wind, and fire. The life force within all of these, as well as particular geographic features and classes of anthropomorphic

spirits, was power (puha in both Shoshone and Southern Paiute). According to Miller (1983:73):

"...power is not the best term for characterizing [this] life force -- energy. It is not static or concrete, but rather kinetic, always moving and flowing throughout the cosmos, underpinning all facets of the universe in a way that a physicist could appreciate. Yet convention and English usage place innate constraints on finding a more suitable term, aside from the classic treatment of mana in Polynesia.

In addition to animating the universe, power could be focussed everywhere -- in beings, such as humans, plants and animals, and in springs, rocks, mountains, caves, and other features of the natural landscape. Animal progenitors, in the myth-time "when animals were people," were, along with the Earth and others, among the most powerful beings. They were considered to be "bosses," "owners," "masters," "beautiful progenitors" of present-day species. Each set the course for its species, and at the same time, set human customs through a series of adventures and misadventures. Particularly active in this period were Coyote and Wolf, often portrayed as dueling brothers, but also Mountain Lion, Badger, water beings such as Frog, raptorial birds, and a host of others. Their activities, myth-specific, were mapped onto the landscape in a myriad of place names, often associated with individual features of the geography such as rock formations, specific caves or springs, petroglyph and pictograph panels,

trails, washes or arroyos, and much more. People, even today if they have been properly instructed, cannot move about the landscape without thinking of and feeling these links to the past. They also feel the power emanating from these specific features as well as more generally.

Power from these Immortals, passing through places as well as modern representatives of species, came to humans in various forms. In the past, those who obtained considerable amounts of it, and particularly from multiple sources, were the ones who became doctors or shamans. Others who obtained limited amounts of power, often from a single source, were enabled to do specific tasks, such as hunt deer, bighorn sheep, rabbits, etc. (Park, 1938). Although the very powerful doctors of former times are largely gone at present, certain individuals in contemporary society still control smaller quantities of power, and many people have felt power in association with song, prayer, hunting, gathering, or specific geographic features.

Although power potentially resided anywhere, its association with mountains, caves, springs or other water sources, and the results of past activities by Immortals or humans, was particularly apparent. Mountains were everywhere in the Great Basin important centers. Although the winter habitation units defined above were done so with reference to lowland settings with springs or other sources of permanent water, each was also defined with reference to one or more adjacent mountain peaks which served as its center and point of orientation (see Goss, 1972; Miller, 1983). Mountain

peaks are the sources of much of the water in the region, either captured in the form of precipitation which then flows in streams emanating from them, or from springs or seeps welling up near their bases. Peaks were also the sites of human creation, the points from which people emerged or were dispersed. For the Southern Paiute, Mt. Charleston in the Spring Mountains and very close to Yucca Mountain, was the source of emergence and thus a very sacred place (Kelly, 1932-33; Laird, 1976; Lowie, 1924). For the Shoshone people of the southern deserts, it was the Koso Range in California, equally held in highest regard (Kroeber 1925). But other peaks in the region are likewise sites of important mythic activities. Telescope Peak in Death Valley, and Bare and Timber mountains near Beatty were also important, as were many other peaks in the vicinity (Kelly, 1932-33; Steward, 1938).

Power flowed and continues to flow through the Earth in its waters, all of which were seen as linked in vast underground networks. Some native people suggest as an appropriate analogy for Earth and its water the human body with its blood flowing through arteries and veins (Miller, 1983:79). Given that the Earth is viewed as living, this analogy is particularly appropriate. Doctors in the past were able to travel through these water networks by entering springs, or caves containing springs, ultimately to emerge at some distant point. Ordinary people made offerings (formerly beads, stones; today, beads, money) to springs in recognition of this power and also to make sure that the power did not act in an unfriendly manner toward them (by trying to drown

them, etc.). Water Babies, small anthropomorphic and very powerful beings, inhabited major springs and other watercourses. They become sources of power for doctors, but could do harm to ordinary people. Although springs were often thought of as forever flowing, they would dry up or shift in location if Water Babies left these particular localities.

The tangible results of activity by the animal progenitors or by humans likewise reflected power. Power, in fact, became attached to them. As noted above, geographic features that were associated with the time "when animals were people" were consciously remembered and honored because of the power inherent in them. Old dance grounds and birthing places, where songs were sung and prayers made to evoke power were likewise important. Graves or burial places, usually placed away from human habitation, were of particular significance because of the potential power they contained. Given that the spirits of the deceased continued to reside in the vicinity for an unknown period of time, such localities were remembered and avoided. Their spirits (in the form of ghosts) likewise served doctors as sources of power, but few would knowingly court them. Given that graves from the past can occur anywhere on the land, people today are particularly mindful of where they know or have heard of individuals being buried, but also more generally, of any signs that might indicate a grave. All such localities are to be left undisturbed and basically avoided if at all possible.

The concept of power as the life force or energy also

reinforced Western Shoshone and Southern Paiute relationships with plants and animals. Given that all animal species had progenitors, and that these were potentially still present, all animals were to be treated with respect. Although many animals allowed themselves to be taken as food, it was not without first establishing a relationship with the hunter. The hunter in turn showed respect for each animal taken, often by placing a part of it (each species required a different part) in a specified location and offering a prayer. Although plants were seen less in the role of progenitors or Immortals, when they were taken for food or medicine, they were likewise treated with respect. Offerings such as those placed at springs were made to them during harvesting, and/or specific prayers were said. To treat plants or animals with disrespect or disregard for their welfare formerly meant that they would withhold themselves or their benefits (in the case of medicines) from humans. Now other consequences might occur (see below).

1.4 Field Work for the Yucca Mountain Project

In order to assess the persistence and application of these cultural values involving the land and its proper use, as well as to suggest potential socioeconomic impacts of the proposed Yucca Mountain project, several types of studies were undertaken among Native Americans from September 1986 to September 1988. First, a thorough review of the extant ethnographic literature was made, including some unpublished sources.⁶ Particularly important were the voluminous unpublished field notes of anthropologist Isabel Kelly, who worked among the Southern Paiute during 1932 and 1933.

Her notes established the location and named occupants of the 1870s to 1880s winter camps, as did the published notes of Julian Steward (1938; 1941) for the Western Shoshone. Additional historic documents, including the U.S. and Indian census records and unpublished Bureau of Indian Affairs correspondence, were examined in an attempt to gather additional names of Indian persons resident in these areas in the historic and recent past.

Field studies during 1986 concentrated on locating and counting Indian people in Nye, Clark, and Lincoln counties (and in adjacent Death Valley, CA). Interviews and extensive genealogies were made in order to further connect the identified population with that of the historic winter camps around Yucca Mountain (see Fowler, Hamby and Rusco, 1987). From this group, persons with specific knowledge of the project area or the immediately surrounding vicinity were chosen for more intensive interviews. This group (15 in number) also formed the basis for the initial site visit to Yucca Mountain in October, 1987. In cases where persons with specific knowledge could not be found, or were unable because of age or health reasons to go on field trips, tribes were asked to send knowledgeable individuals as tribal representatives. Two additional field trips to Yucca Mountain were made in the spring of 1988 for tribal representatives and leaders who either needed more information about the site or had additional information to contribute. Site visits to Yucca Mountain were the primary vehicles for eliciting data applicable to the American Indian Religious Act and the National Historic Preservation Act

(see 2, below). Additional interviews were conducted during the course of socioeconomic field studies about less site-specific cultural concerns, views, and attitudes.

Socioeconomic baseline studies were conducted from the spring of 1987 through September, 1988 (Cultural Resources Consultants 1988a; Fowler, Hamby and Rusco, 1987; Hamby, 1988; Rusco, 1988). The 1980 U.S. census was specifically analyzed for Indian participants in the three county area, and all of the socioeconomic categories and indicators for reporting Indian households further scrutinized. These were matched to specific tribal records where available (especially work force, health statistics, etc.), and preliminary profiles of reservation communities were drawn up (see Hamby and Rusco, 1987). The large urban Las Vegas Indian population (estimated to be over 6,000) seemed particularly interesting based on this profile (Hamby and Rusco, 1987:87-95), but additional field efforts at the time to locate neighborhoods or other identifiable units for concentrated work proved fruitless (but see 3.4 below). Small non-reservation populations present in towns in the three counties were contacted and additional interviews made for appropriate categories (Fowler, Hamby and Rusco, 1987).

From July, 1987, to September, 1988, two field workers separately resided in or near reservation communities and in the small rural southern Nevada towns. From one to three months were spent by a field worker in Duckwater, Yomba, Death Valley, Moapa, Las Vegas, and Pahrump, and two weeks each in Beatty, Tonopah, and

Caliente. Additional visits were made after the initial stay in order to check data and interpretations. Tribal representatives to the project (if appointed by tribes) and tribal leaders were also contacted periodically in person or by phone to review data obtained. Only by these longer periods of residence, coupled with follow-up and checking, could good socioeconomic community profiles be developed and in depth interviews on issues be conducted.

In the summer of 1988, a modified (shortened) version of the questionnaire, developed by the Mountain West team and designed to assess risk perception relative to the Yucca Mountain project, was administered to 56 Indian people. The results of this effort are summarized in Section 3, and appended (Appendix III).

Since September, 1988, contacts with people who contributed considerable data to this project have been brief and intermittent. Some specific interviews were conducted with the Western Shoshone National Council attorney in 1989 on legal issues that still persist (see Section 2). In 1990 and 1991, additional attempts were made to update some of the data categories (e.g., with figures from the 1990 U.S. Census, etc.), and to check with tribes as to any new developments of relevance. Elmer Rusco also undertook a separate study of the projected effectiveness of state, local and tribal government intercommunication (E. Rusco, 1991).

2. CULTURAL AND LEGAL ISSUES

Several pieces of federal legislation in addition to NHPA are pertinent to Native American involvement in a proposed project such

as the Yucca Mountain nuclear waste repository. Primary is the National Environmental Policy Act (43 U.S.C. 4371 et seq.) and its implementing regulations that mandate consideration by agencies of environmental (including physical and social) impacts and alternatives for projects on federal lands. Under this act, attention must be given to maintaining environmental quality and diversity for future generations; and to assuring "for all Americans, safe, healthful, productive, and aesthetically and culturally pleasing surroundings" (Sec 101 (B)2). Cultural properties are considered part of the environment requiring protection under the act. The National Historic Preservation Act (16 U.S.C. 470 et seq.) sets up mechanisms for assuring that historic and cultural properties are given proper assessment and that consultation with all pertinent parties takes place. This is usually accomplished through a Programmatic Memorandum of Agreement (PMOA, or MOA) between the Advisory Council on Historic Preservation (ACOHHP), the State Historic Preservation Officer (SHPO) and the agency involved.⁷ Pertinent as well is the American Indian Religious Freedom Act (P.L. 95-341) which affirms that it is the "policy of the United States to protect and preserve for American Indians the inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites." If important religious sites are also archaeological properties, than

the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm) applies, in that procedures for avoidance of same or agreed-upon mitigation of potential impacts is required. In 1985, the ACOHP in issuing its "Guidelines for Consideration of Traditional Cultural Values in Historic Preservation Review," reaffirmed the importance of AIRFA in environmental assessments, pointing out as well that sites need not have been in continuous use by Indian people to qualify for consideration as important traditional sites (ACOHP, 1985:7). In so doing, the ACOHP recognized the impact of roughly 400 years of non-Indian contact and induced cultural change on Native Americans in the United States. These include direct assaults on native cultures and religions, and vast reduction in land bases once occupied and utilized. This affirmation is particularly pertinent in the case of Yucca Mountain, as it was once utilized but is no longer due to closure of the area in the 1940s for the Nevada Test Site and other military purposes. But the proposed site is part of Western Shoshone and Southern Paiute traditional territories, although it is not on an existing Indian reservation. It is well known that Western Shoshone and Southern Paiute people utilize many more lands than those technically within reservations for economic and religious purposes.

2.1 Cultural Resources on Yucca Mountain

Archaeologists working under contract to the DOE over the past several years have located through survey roughly 400 archaeological sites in the Yucca Mountain project area and immediate vicinity (Pippin, Clerico, and Reno, 1982; Henton and

Pippin, 1988). Thus far, surveys are incomplete in portions of the area not contained within the boundaries of the Nevada Test Site (Greg Henton, personal communication). Limited test excavations have been conducted on roughly 30 of the surveyed sites, sampled to try to maximize diversity of type as well as return of information (Pippin, 1984). Based on the findings, the time span for occupation of the area by Native Americans appears to run from roughly 12,000 years ago to the immediate past. The earliest pattern is represented by scatters of projectile points, tools, and manufacturing debris along major ephemeral drainages at the base of Yucca Mountain, including in Forty Mile Wash. These sites lack much in the way of depth, but are important representatives of this early pattern.

Around 6,000 years ago, attention seems to have shifted to the higher areas of Yucca Mountain, with temporary camp sites being found on saddles and low passes on the mountain itself. Hunting seems to have been the principal subsistence pursuit. At this time, people also appear to have first used as water sources the natural bedrock potholes that occur in the area. And they continued to use some of the same tool stone sources located earlier. Around 2,000 years ago, the settlement pattern appears to shift again toward occupation of small rockshelters at the top of steep slopes on Yucca Mountain and outlying ridges. Intermountain brownware, a type of pottery associated with the Western Shoshone and Southern Paiute, appears after this time. The people using these sites appear to be dependent on the water supply

in the tanks or potholes. Rather than hunting, these sites reflect more the pattern of seed gathering characterized in the ethnographic literature (Steward, 1938) for the Western Shoshone and Southern Paiute of Beatty, the Belted Range, Ash Meadows, Indian Springs, etc. (Pippin, 1984). Archaeological surveys or test excavations did not identify burials or any sites suggesting major religious activities.⁸

Through DOE's archaeological contractor (Desert Research Institute, Quaternary Research Center), a two-day archaeological site tour was arranged and conducted in October, 1987. Two additional one-day tours were conducted in April, 1988. On the first tour, ten Native Americans with specific knowledge of the Yucca Mountain area visited ten archaeological sites, representing each of the patterns and time periods outlined above. They were accompanied by DRI archaeologists and Cultural Resources Consultants ethnologists. The DRI archaeologists made brief presentations at the sites, and the Native American consultants then gave their views as to the character of the site, its possible function, interpretations of the subsistence and other resources to be found in the immediate area, and, where applicable, their personal experiences or family reminiscences concerning the locality. They also gave names in their native languages for plants, animals, places, and features seen. A summary of their comments on each of the sites visited appears in Appendix I.

Individuals most knowledgeable were well aware of the function of Yucca Mountain in the food gathering cycles of the past, and

they knew as well that the principal water sources on the mountain were the potholes or tanks (po?o in Western Shoshone, pikapo in Southern Paiute). (Nineteen of these features have been identified thus far by archaeologists on Yucca Mountain [Pippin, 1984:13].) They also were aware of the trails and general routes of access to the area from Oasis Valley, the Belted Range, Ash Meadows, Pahrump, and Indian Springs. They spoke of trails through Forty Mile Wash, Crater Flat, and the canyons around Timber Mountain to the southern Belted Range. As they stood at vista points on top of Yucca Mountain, they reaffirmed the importance of Mt. Charleston (Ni-baganti, "snow-having") as the sacred place of emergence and dispersal of the Southern Paiute people and of the importance as well to the Western Shoshone people of Telescope Peak, Bare Mountain, and Timber Mountain. All participants in the site visit felt particularly angry that a repository ("dump") of such dangerous material should even be considered so close to these sacred mountains.

People were very interested in the specific contents of the archaeological sites, and how the proposed project might impact them. They were equally concerned about the fate of plants and animals in the project area. Some noted that there had already been significant impacts on them due to nuclear testing, as plants at least appeared "burned", "sick", and "destroyed". But nonetheless, several saw the area as beautiful, and all of its resources as worthy of protection. The concept of further "sacrificing" this area because it was already contaminated seemed

TABLE 1. Some Native Place Names Near Yucca Mountain

Amargosa River	ogwed ⁺ (WS)
Ash Meadows	koyoboca (WS), koyoic ⁺ (SP)
Black Mountain	pisapi toyabi (WS)
Beatty	ogwet ⁺ (WS)
Big Spring, Ash Meadows	panubaci (SP)
Bubbling Spring, Ash Meadows	punip ⁺ ci (SP)
Cane Spring	pagamb ⁺ ad ⁺ (SP)
Charleston Peak	n ⁺ bagad ⁺ d ⁺ (WS),
	n ⁺ bagant ⁺ (SP)
Death Valley	t ⁺ mbisakad ⁺ (WS)
Devil's Hole, Ash Meadows	popob ⁺ ci (SP)
Funeral Mountains	piki (WS)
Furnace Creek Wash	padumbea nunupi (WS)
Grapevine Canyon	maahunu (WS)
Grapevine Mountains	wahago [?] i, ogwagai, obagai (WS)
Grapevine Ranch	s ⁺ iba (WS)
Groom Range	t ⁺ bongad ⁺ (SP)
Indian Springs	kwiyangguma (SP)
Pahrump Valley	padumbe (WS), padapunici (SP)
Panamint Mountains	kaigoti (WS)
Point of Rocks Spring, Ash M.	tiyagaci (SP)
Rock Canyon (e. of Beatty)	t ⁺ mbi hunupi (WS)
Stovepipe Wells, Death Valley	ohyu, tugumata (WS)
Telescope Peak	si ⁺ mb ⁺ tsi, mugudoya (WS)
Timber Mountain	nabungai (WS)
White Rock	eso (WS), angkapa (SP)
Yucca Mountain	eso (WS), soadam ⁺ (SP)

particularly foreign to them. Conditions should be made right, not worsened.

Persistence of world view was also well expressed by the participants in their general attitude toward the land. They repeated several times that when entering an area such as this after such a long absence, specific prayers needed to be offered to any spirits (animal, human, other) present, and several persons did so. Places that could contain power, such as mountains, but also the Earth generally, needed to be fed: small bits of food are and were given to the four directions in order to discharge this responsibility. They regretted that in their absence no one had cleaned the tanks and potholes for proper use by the animals -- part of routine maintenance by Indian people properly discharging their responsibilities to the animals. They noted that had we been interested in collecting plants or animals for food or medicines, specific rules would have to be followed, including the making of offerings. (Given that we were primarily interested in identifying important food and medicinal plants, this was not required, but we were reminded of the obligation.) Several also reaffirmed the importance and sacredness of the water in springs we visited up Forty Mile Canyon, and noted again that all of the waters in this part of the region are connected underground. If any contamination were to occur at any point in this system, the whole of the waters would be affected.

Although none of the consultants knew of specific burials at or near any of the sites, persons did identify potential burial

locations along some of the ridge lines at Yucca Mountain and related features. They suggested that these were the right kinds of locations for burials to occur, and that the areas should be avoided for that reason. (Some are within areas likely to be impacted.) Other archaeological sites, as manifestations of human activity, should also be left as is in the view of the consultants. To disturb these resources is not to show them and the people who used them proper respect. If land altering activities do take place during site characterization, all archaeological sites should be avoided, in their view. The same view holds, again out of religious tradition, with reference to important animals and plants.⁹

Although the archaeological site tour did not include pictograph or petroglyph sites (except one small glyph on a low stone), or specific ceremonial areas, people knew of some in the vicinity. White Rock Spring, one of the old winter camp sites in the southern Belted Range, was seen as particularly significant as the site of remembered Annual Mourning ceremonies, thus making it potentially a very powerful place (see below). The extensive rock art site in Forty Mile Canyon, immediately to the north, was also known and viewed as very significant, and another potential source of puha. Areas known to be sacred from the activity of the Immortals in the time "when animals were people" include Forty Mile Wash, immediately east of Yucca Mountain (site of a traditional tale involving a giant snake that crawled through that way and ultimately wrapped himself around Bare Mountain, near Beatty).

Native place names were recalled by this group (or others interviewed) for many other environmental features (see Table 1), as were the native names of most of the winter village sites recorded by Steward (1938) and Kelly (1932-33). The district names for Oasis Valley and the Belted Range were also given, and these, with the others, are clear attestations of cultural memory over more than 50 years. Although Native American people have been denied access to this area since the 1940's and 1950's, it is clearly still within their cultural traditions. They have been cognizant of the loss of access to the Nevada Test Site and the bombing and gunnery range for some time,¹⁰ and the Yucca Mountain site visits reminded them of this loss.

Given that the DOE also contracted for AIRFA and NHPA compliance work relative to Yucca Mountain, the documents generated by this work have been examined and compared to the above findings (see Stoffle, Evans and Harshbarger, 1988; Stoffle, Olmstead and Evans, 1988; Stoffle, et al. 1988, Stoffle, Evans and Halmo, 1988; Stoffle, Halmo, Olmstead and Evans, 1990). In tenor and principle, the results of their site visits appear to agree. The DOE study team used several of the same consultants, and visited several of the same sites. They also visited others that were not available to us, including the ceremonial area at White Rock Spring and a suggested burial area at Prow Pass (Stoffle, Halmo, Olmstead and Evans, 1990). Consultants were equally vocal regarding the protection of these archaeological resources and plants, although in specific discussions of possible mitigation measures, some

alternatives were proposed (see Appendix C, in Stoffle, Halmo, Olmstead and Evans, 1990).

Of special interest in terms of persistence of world view and the pervasiveness of Western Shoshone and Southern Paiute views of power and its localization, was an event related to us at a later date by the person directly involved. This person, a religious leader who visited White Rock Spring with the DOE team, was rather immediately struck by the power at this place, and received from it a song (a common gift of power). Immediately upon his return from the site visit, he sang this song to his elderly mother, who was very pleased by it. When his mother died the following summer, he sang the song again at her funeral. Although White Rock Spring is nearby, rather than on Yucca Mountain, such an event could just as easily have happened at Yucca Mountain. The fact that it did not happen there on any of the site visits does not lessen the potential of such an occurrence. As noted above, power is everywhere and in everything. It controls the exact time and place of human contact. No part of the landscape can be ruled out from containing it, and no person who still follows Native religious precepts is necessarily exempt from acquiring it.

2.2 Applications of NHPA and AIRFA to Yucca Mountain

Assessments of the archaeological properties on Yucca Mountain and decisions as to whether they are "significant" to preserve or mitigate will be made according to criteria set forth in regulations and policies that flow from NHPA. These regulations give primacy to the "scientific" significance of sites, something

assessed based on the importance of any or all of them to answering research questions set forth in various plans for explaining regional prehistory and history (Fowler, 1982:25-26). If site characterization of Yucca Mountain goes forward, these plans and agreements will have to be put into place. To date, only preliminary statements regarding the area have been made (Pippin, 1988). Thus, in order to comply with the legislation, much more will have to be done. Although AIRFA must be given consideration in these deliberations, it seems doubtful that in its present form it will have major impact on decision-making regarding avoidance or mitigation of Yucca Mountain sites or the area in general.

Since its passage in 1978, AIRFA has not accumulated an impressive record in the courts in protecting Native American religious freedom or sacred sites. Much of the difficulty appears to lie in court interpretations of what constitutes freedom of religion, or in reverse, what types of impediments truly interfere with the free exercise of religious beliefs. As Barsh (1986:366-8) has pointed out, much of the interpretation revolves around profound differences in world view. According to Native Americans, the whole earth is sacred because it is the source of life, and there are many places on the landscape where communication with the spirits and processes of renewal can take place. Of specific importance is the belief that landmarks cannot be moved or altered. Consequently, land-altering activities threaten not only sacred places but violate concepts of the entire natural order. This more generalized view is well expressed in Western Shoshone and Southern

Paiute concepts of a living, breathing Earth with waters flowing uninterrupted and interconnected through it (or her, in Western Shoshone, Sogobia, 'Mother Earth'), as well as their concepts of 'power' free in nature and unpredictably localized (as in the case of White Rock Spring, cited above). Their view that the integrity of the entire Earth is at stake if a part is vandalized is also pertinent. Native American tribal religions also have rituals and ceremonies that are involved with continuing, or constantly renewing the creation process, and keeping proper forces (such as again, Western Shoshone and Southern Paiute 'power') in balance (Federal Agencies Task Force, 1979). The sacred is conceptually totally enmeshed with the natural, with the Earth and other natural phenomena seen as one with humans, plants and animals. The sacred is a force in itself, and it calls for the harmonious integration of land and people (Deloria, Jr., 1973; Curtis, 1988:3).

This view is opposed to that held by many members of industrialized cultures and their governing bodies which tend to see life on earth divided between humans and their resources, with little regard for the interdependence of all (Suagee, 1982:15). Resources are to be utilized for the present good, and not necessarily preserved or managed for the future. Judeo-Christian religious traditions also tend to associate rituals and ceremonies with "commemorative" events, more obviously sacred happenings in the past than at present or in the future (Curtis, 1988:3). Continuity is less important the commemoration. Judeo-Christians also have specific localized places of worship, and these can be

moved if necessary (commissioned, decommissioned). The importance of ritual outweighs the importance of place and the oneness of all.

These differences have been well expressed in court decisions that have involved AIRFA. In most, two primary principles derived from the case Wisconsin-v-Yoder have usually been applied. The Wisconsin-v-Yoder case was a dispute over whether Amish children should be exempt from mandatory public education because it violated a religious tenet that requires home education. In it, the plaintiffs were required to show: 1) a significant burden on the free exercise of religion; and 2) that this burden was balanced against the importance of the state's interests and the degree to which it would be impaired by a religious exemption (Gould, 1986:872). The Amish succeeded in demonstrating that home education was imperative to the free exercise of their religion, and also that the state's interests would not be unduly jeopardized. But, when applied to Native American religions, the two principles involved in what has come to be called the "Yoder test" have been difficult to prove and the requirements difficult to meet.

In order to establish a free exercise of religion violation, as required in the first part of the Yoder test, "the individual must show that the practice in question was rooted in religion, and the belief was sincerely held, and that the government action placed a burden upon that belief's practice. Also, an explicit requirement is that beliefs and practices be 'central' to a bona fide religion" (Gronhovd, et al., 1986:131). Of specific interest

and importance is the centrality principle, "the necessary importance of the religious practice to the individual;...the more central a practice is to a religion, the less likely a governmental interest will override a claimant's free exercise right" (Gronhovd, et al., 1986:134). The second aspect of the Yoder test is also important: the religious exemption must not place an undue burden on the governmental agency.

In case after case in recent years, the centrality issue and the undue burden issue have proved most troublesome. Native Americans have had less trouble proving the sincerity of their beliefs than showing the other two. In Hopi Indian Tribe, et al.-v-Block, et al. (Nos. 81-1912, 81-1905, 81-1956 D.C. Cir., May 10, 1983), the Hopi attempted to block the development of a ski area on the San Francisco Peaks in Arizona by U.S. Forest Service lease holders, claiming that these mountains were home to the sacred Katchinas, important spirit figures in their religion. The court found in favor of the Forest Service and the ski resort, stating that the tribe did not show that the proposed area was central and indispensable to their religion: this home of the Katchinas is only part of a much larger religious sphere. Therefore, there was no infringement on their First Amendment rights as their religion could still be practiced and beliefs in the Katchinas still held. A similar reason was given in the case Sequoyah-v-T.V.A. in which the Cherokee tried to prevent the completion of the Tellico Dam on the Little Tennessee River as it would flood ancient burial sites and other sacred lands. The court held that the Cherokee's lack

of property interests in the area prevented them from having any religious claim. It also found that the site was of only historical interest to the tribe and not central to their religion (Sewell, 1983:450). In Northwest Indian Cemetery Protective Association-v-Peterson, several northwestern California tribes tried to block Forest Service development of a road (G-O road) through mountainous timber areas as it would impair religious practices involving contacts with power sources and other activities. After the lower courts found in favor of the Native Americans, largely because the government failed to prove that there was a "paramount" or "compelling" reason to justify infringements on the First Amendment rights of the Indian people, the U.S. Supreme Court reversed the decision in retrial, indicating that there was a compelling reason (timber development), and that the religious views of a minority should not impede federal progress (Ling, et al,-v-Northwest Cemetery Protective Assn., et al., No. 86-1013. Supreme Court, April 19, 1988). In Badoni-v-Higginson, Navajos sued for protection of Rainbow Bridge and the ceremonies performed there from further flooding by Glen Canyon Dam and development of tourist traffic. In this case, the court found that the interests in power development connected with the dam outweighed the religious concerns, and that since the Indians were not denied access, their rights were not violated (Sewell, 1983:451-2). And in Fools Crow-v-Gullet, a dispute over Bear Butte State Park in South Dakota involving the Sioux, Cheyenne, and others in a case for special use of a sacred site, the court held

that there was no government obligation to protect the environment for these specific religious purposes. It further warned the state that making such accommodations was "burdening the rights of the general public" (Sewell, 1983:457).

Thus, in case after case, at least to the present, Native Americans have trouble demonstrating the centrality of a specific place to the exercise of their religion, as well as that their unimpeded practices will not burden someone else. Undoubtedly, differences in world view are conflicting here, especially in the former issue. With the view that all the earth is sacred, and that important interrelationships with spirits can potentially take place everywhere, how can Native Americans show that one place is most sacred above all? And, with the mood of the courts to disallow exemptions if it appears to infringe upon anyone, including, it would appear, federal progress or even the "general public," there appears to be little to be done under AIRFA as it presently stands. As Sewell (1983:436) has succinctly stated:

The American Indian Religious Freedom Act, though passed with good intentions, has done little to protect the religious interests of Native Americans. Because their interpretation of the world is so different from ours and we don't understand it, because to them culture and religion are one in the same and we change the world to suit ourselves, the government's economic interests will continue to prevail. That is the bottom line.

Whether or not this is the last word on the fate of AIRFA

depends on how the courts continue to interpret Congress's intention in its passage, and how effectively attorneys continue to argue their cases. In 1990, there was before the Senate Select Committee on Indian Affairs S.B. 1124, which offered some significant additions to AIRFA that might have made it more than a vague intention to protect Indian religious freedom. However, the bill still contained provisions for exceptions because of "compelling government interest" and other concerns. The bill died in committee in 1991, but there is still interest in resubmitting it with significant amendments. These new amendments are presently before the Senate Select Committee on Indian Affairs, and are being transmitted to various federal agencies for their response (Native American Rights Fund, personal communication, September, 1991). Others involved in lobbying for more effective historic preservation legislation are also interested in strengthening AIRFA, and perhaps in taking new cases before the court that challenge the centrality issue as well as others. They intend to work toward these ends in 1991 and 1992 (Tom King, personal communication, April, 1991).

In the meantime, protection of cultural resources in the area of the proposed Yucca Mountain waste repository seemingly cannot be left to AIRFA. Protection under NHPA remains the most viable option, although as noted above, NHPA eligibility criteria place more weight on the scientific values of sites than on humanistic ones. Tribes have been able to derive some satisfaction from NHPA when sites (religious or otherwise) are important or potentially

important for their contributions to prehistory or history. However, to qualify on strictly religious grounds, NHPA places primary weight on architectural and aesthetic criteria, which almost automatically exclude most Native American religious sites (Suagee, 1982:43; but see also Klesert and Downer, 1990, for some other interesting possibilities). Plans for the disposition of sites on Yucca Mountain will likely involve additional consultation with tribes, but the overriding concerns probably will remain scientific. In that the State of Nevada has not agreed to sign the MOA for Yucca Mountain with ACOHP and DOE, the State will not have an oversight role in the conduct of this work should site characterization go forward. Individual Indian tribes have to go forward on their own with oversight -- if they can get the appropriate data. This may prove particularly unfortunate, as there will be little chance for the State to pressure DOE to consider more than the exact letter of the law, or to back tribes should they want to present an alternative view.

2.3 Who Owns Yucca Mountain? Western Shoshone Claims

An additional issue that enters into plans to develop a high level nuclear waste repository at Yucca Mountain is that of title to the lands being considered. Although DOE is proceeding as if the proposed site is on federal lands managed by federal agencies (DOE, BLM, U.S. Air Force), there is another position as to who owns these lands--that of the Western Shoshone, represented by the Western Shoshone National Council.

Yucca Mountain clearly lies within territories owned

aboriginally by the Western Shoshone people and the adjacent Southern Paiute people. Archaeological sites thus far discovered in the project area support that Indian people, including those tribes presently in the area, have used the locality for at least 12,000 years (Pippin, 1984). Although a number of Indian people of both major entities now reside on reservation lands, most set aside between roughly 1876 and 1940,¹¹ they have continued to maintain ties to the full extent of their aboriginal lands in various ways. The Indian Claims Commission, in a series of decisions rendered in the 1960s and 1970s, sought to extinguish aboriginal claims by Native American tribes, and provide "just compensation" for the lands taken. On January 18, 1965, the ICC awarded a judgement of roughly \$7,000,000 to the Southern Paiute people as a result of Dockets 88, 330, and 330A. The award was paid to tribes and individuals, with some of the funds reserved for the future. On December 6, 1979, the ICC awarded roughly \$26,000,000 to the Western Shoshone people as a result of Docket 326-A. The tribes and people in question refused to accept payment, and the funds are still on deposit in the U.S. Treasury (Clemmer and Stewart, 1986:552-3).

The Western Shoshone land claims case has a long and complicated history (E. Rusco, 1989; 1990). When dockets were first filed in this case (as well as in a number of others), Indian people were given the impression that settlement and "just compensation" were their only alternatives. Although many voiced opinions as far back as the 1930s that the land was theirs and not

for sale (Crum, 1987:16), few non-Indians seem to have taken these claims seriously until the 1960s when a group of Western Shoshone traditionalists under the leadership of Frank Temoke refused to continue with the ICC process, electing instead to assert aboriginal claims under the Treaty of Ruby Valley of 1863. This treaty, ratified in 1866, was a treaty of "peace and friendship," in which the U.S. government was granted certain rights to traverse Western Shoshone lands and build improvements, but not ceded lands (Kappler, 1904). The treaty assured communication routes, such as roads and the telegraph, allowed mineral prospecting and exploitation and the supporting ranches for that industry, and allowed the establishment of military posts. It was stated in the treaty that the Western Shoshone people might elect to go to reservations at some time in the future, when their aboriginal way of life was no longer possible; but even in this case it did not state that the lands would be forfeited. Although the Timoke group's assertion and refusal to participate came too late to halt the ICC process, and a judgement was ultimately awarded, the group's position has continued to gain strength since the 1960s. Refusal to accept the ICC award has been a significant factor.

In 1974, traditionalist Western Shoshones incorporated in the State of Nevada the Western Shoshone Legal Defense and Education Association. Later renamed the Sacred Lands Association, and in 1984 the Western Shoshone National Council, this group had as its goals: 1) resistance of the unfair and unlawful sale of their traditional lands; 2) education of their people as to their legal

rights; 3) raising funds for education and enforcement of legal rights; and 4) authorization of members to retain legal assistance to further their common interests (Rusco, 1989:7-8). The association immediately attempted to intervene in the ICC case, but again, without success. It also supported, and has continued to support with some notable successes, the various cases brought by the United States against Mary and Carrie Dann, members of the Dann Band of Western Shoshones, for alleged livestock trespass on federal lands. Through the years, the National Council has evolved into an entity that represents most Western Shoshones, with 17 constituent groups in 1991.¹² Its membership incorporates, or has incorporated, every Western Shoshone organization, including those representing tribal governments, but also groups comprised of Western Shoshone people living in cities or towns.¹³ While it does not supersede recognized reservation governments, the National Council has attempted to establish a level of authority above existing governments and to allow representation for all Western Shoshones, wherever they live. During the time of fieldwork for this report all the Western Shoshone reservations in the study area were members of the Council. In April, 1991, the Duckwater Tribal Council gave up its membership, although in activities, it still remains closely tied to it.¹⁴

In the various Dann cases, most of which have come before the Federal District Court in Reno and the Ninth Circuit Court, federal attorneys have attempted to show that the Western Shoshones (including the Danns) lost title to their lands either: 1)

through the Treaty of Ruby Valley (arguing unsuccessfully that it was a treaty of cession); 2) through the Treaty of Guadalupe Hidalgo, by which the U.S. acquired from Mexico one type of title to lands in the Southwest and West; 3) through homestead laws and their administration in Western Shoshone country; 4) through the establishment of the Duck Valley Reservation in 1879 (which fulfilled a provision of the Ruby Valley Treaty that stated that the Western Shoshones would move to reservations within their territory when established); and 5) through enactment of the Taylor Grazing Act of 1934 which, they claimed, extinguished aboriginal title which existed until that time. In a confusing set of decisions as well as reversals of these decisions, each of these points appears to have been struck down or otherwise shown to be invalid (see Rusco, 1989; Millett, 1989; Tom Luebben, personal communication, 1990). The date of supposed extinguishment of Western Shoshone title to the lands in these various decisions and reversals has vacillated from the arbitrary July 1, 1872, set by the ICC, to December 6, 1979, the date of the ICC award, to 1934, the date of the Taylor Grazing Act, to not at all. Throughout, the Treaty of Ruby Valley appears to have remained valid.

In 1985, because of the steadfast refusal of the Western Shoshone people to accept the ICC payment, the Supreme Court took up the very narrow question as to "whether the appropriation of funds into a Treasury account...constitutes 'payment' under Section 22(a) of the Indian Claims Commission Act ...", deciding in the affirmative (United States-v-Dann, 470 U.S. 39, 40-41, 44 [1985]).

The court did not go beyond this to decide the legal effect of this action on Western Shoshone land title, although the decision is interpreted by some, including the DOE, as extinguishing title. The decision apparently does preclude the Western Shoshone Nation (as a body) from further litigation. The following year, as if to further muddy the waters, the District Court ruled that "[t]he government has admitted that the 1863 Treaty of Ruby Valley is in full force and effect" (13 Ind. L. Repr. 3158, Finding 4). Moreover, the Supreme Court in 1985 found that the Dann sisters held individual aboriginal title. Since other Western Shoshones are undoubtedly in the same position, the possibility exists for further litigation to establish the individual title of various persons and perhaps bands.¹⁵ Most recently, the Ninth Circuit Court of Appeals has reopened the issue of title extinguishment, holding that the original ICC decision of a date of taking in 1872 should be considered valid, but also remanding the case again to the District Court for a final determination (United States-v-Dann, F.2d, [9th Cir. 1989]). To date, no final judgment has been rendered, and the Danns filed a petition for a writ of certiorari with the Ninth Circuit on July 5, 1989. Even if the petition is denied, the case must still go to trial in the district court, thus leaving the question open (Millet, 1989:20).

In September, 1991, in line with an earlier decision that the Dann sisters' right to run livestock on "public" land be limited to the numbers the family owned at the time of the passage of the Taylor Grazing Act (1934), the Nevada Bureau of Land Management

moved to round up the surplus animals and remove them from the lands. In October, 1991, in order to avoid a major confrontation with the Dann sisters and their supporters (including Citizen Alert, a powerful local environmental watchdog group), the BLM negotiated a settlement whereby the WSNC was given the power to police livestock numbers for the Danns. This decision by a federal agency further strengthened the position of the WSNC as a governmental body, seemingly again affirming the right of Western Shoshone people to regulate activities on their lands.

The Western Shoshone National Council succeeded in another case based on rights stemming from the Treaty of Ruby Valley, and because of it is further exercising some of the authority of a government. In December, 1986, the Council filed suit against the State of Nevada and its Director of Wildlife seeking recognition of treaty-based hunting and fishing rights for its members. On January 4, 1988, a preliminary injunction by the Federal District Court for Nevada went into effect. This injunction suspended the application of State fish and game laws to Western Shoshones hunting and fishing within the Ruby Valley Treaty territory (U.S. Dis. Court for Nevada, Western Shoshone National Council, et al.-v-Molini, CV-N-86-587-BRT). The Western Shoshone National Council has established a Hunting and Fishing Code that governs these activities (with a few exceptions where State law still applies), and has set up the Western Shoshone Wildlife and Plant Resource Commission to issue identification cards to individuals and to enforce the Code. This preliminary injunction remains in effect

in 1991 pending final determination of the Treaty issues raised in the case by the Ninth Circuit Court of Appeals (Millett, 1989:21; Rusco, 1989:18-20; 1990:12-14; 1991).

In 1990, in an action related to these regulatory rights, the WSNC authorized the roundup of wild horses on treaty lands near the Duckwater Reservation. The Council reasoned that given the seeming lack of control of these herds by the BLM, it had the right to remove surplus animals damaging the range and initiate a management plan for the herds. Surplus animals were caught and shipped to Texas for sale. The BLM confiscated the animals in Texas, but has chosen not to litigate the case given the complexities of the land issue. Nor has the agency pressed hard to collect grazing fees from Yomba, Duckwater and South Fork cattlemen who for several years have refused to pay them because of treaty rights (Rusco, 1991).

Thus, from various legal perspectives, it is not all clear that the DOE or federal government in general has the right to proceed with the Yucca Mountain project without clearing once and for all the title to the land or otherwise negotiating with the Western Shoshones. Under U.S. Indian law, extinguishment of land title can take place only through agreement with the Indians involved, by conquest, by a clear act of extinguishment by Congress, or as a result of purchase by the U.S. (Cohen, 1982:279-91). Since it is quite clear that none of the first three situations applies, that leaves only the last. Although the Supreme Court decision on the ICC monies may suggest that payment

(and hence, purchase) has occurred, in actuality no monies have changed hands. The effect of the Supreme Court opinion in the Dann case appears to be that Western Shoshone governments may no longer litigate to establish their title to ancestral lands, although individuals may do so. However, the decision was on technical legal grounds; no court has ever stated that the traditionalist arguments for continued ownership of most of the territory covered by the Ruby Valley Treaty are historically invalid. This gives the Western Shoshone National Council ample opportunity to press its claims before Congress and the general public, and in 1991, it was considering various actions.¹⁶

On September 28, 1989, Nevada Rep. B. Vucanovich introduced H.R. 3384 to establish a roll for the distribution of the ICC award to Western Shoshone individuals at the urging of a Salt Lake City attorney, as well as a number of disheartened Western Shoshones. The Western Shoshone National Council took a firm stand against this proposal, recognizing the dangers to its claims. In the Spring of 1990, hearings were held on the bill, during which the Western Shoshone National Council and others played a major role. The bill was not reported out of committee. A second drive is presently (September, 1991) underway to introduce a new bill for payment, although this has not actually occurred. However, the proposed bill (as did the previous one), carefully states that payment does not invalidate other land claims (E. Rusco, 1991). It is unlikely, however, that should such a bill pass, it would not have a negative effect on any further petitions for land.

Other WSNC activities pertinent to land claims and eventual legislation are a series of studies presently being conducted through a grant from the Washington, D.C. based Administration for Native Americans. Under this grant six planning units including various Western Shoshone reservations and communities have been established and attempts are being made to determine the future goals of each of these units (economic development plans, land acquisition plans, etc.) The ultimate aim of these studies is to produce one or more legislative packages to be presented to the U.S. Congress for passage. The Duckwater Shoshone Tribe has completed its study and has a package ready to be presented. Senator Harry Reid of Nevada was reviewing the materials as of September, 1991, and asking for comment from other interested parties. Treaty obligations and claims payments will doubtless play an important role in any final wording. The other five Western Shoshone groups are not yet ready to come forward with their packages.

In addition to the continued importance and effect of the Treaty of Ruby Valley for various Western Shoshone claims, it has other ramifications for the proposed Yucca Mountain project. The Nuclear Waste Policy Act of 1982, in recognizing the importance of consultation with tribal governments in the site characterization and determination process, set up a specific category of "affected Indian tribe(s)." By definition in the Act (Sec. 2), an affected Indian tribe is:

any Indian tribe (A) within whose reservation boundaries

a monitored retrievable storage facility, test and evaluation facility, or a repository for high-level radioactive waste or spent fuel is proposed to be located; (B) whose federally defined possessory or usage rights to other lands outside of the reservation's boundaries arising out of congressionally ratified treaties may be substantially and adversely affected by the locating of such a facility.

The status of "affected Indian tribe" is to be granted by the Secretary of Interior upon review of these two criteria. To date, no tribes in Nevada have been so designated. Although under strict reading criterion (A) could be shown not to apply as the proposed repository is not actually on reservation lands, criterion (B) should be valid, given the status of the Western Shoshone National Council's legal claims. In an attempt to argue adverse economic and religious impacts on lands still covered by the Treaty of Ruby Valley, the Duckwater Tribe filed a petition for consideration of affected tribe status with the Secretary of the Interior on July 20, 1989 (Millet, 1989). As of June, 1991, the tribe had been told over the telephone that their petition was denied, but had not received any official letter to this effect (Jerry Millet, personal communication). Letters requesting consideration of affected tribe status were also sent in 1988 by the Las Vegas Paiute Tribe and the Moapa Band of Paiutes. Both were denied, again apparently based on a strict interpretation of both criteria. Although the Southern Paiute groups cannot argue from the basis of

treaty rights, the proximity of the proposed site and the ultimate transportation of the waste will affect reservation lands. DOE has suggested that issues related to transportation over tribal lands will be addressed "later" (DOE 1986c:7-42), but as of September, 1991, only some preliminary inquiries about a transportation corridor in eastern Nevada (along U.S. Highway 6) had been made. This route, if chosen, would have major impacts on the Duckwater Tribe within this study area, but also other Western Shoshone and Southern Paiute people in eastern Nevada. It is particularly unfortunate that none of the Nevada tribes have been granted affected tribe status under this project, as given the few laws and agencies in the state that are involved with Indian issues, each tribe will have to fight these battles on its own and without much help from state or local governments (see Rusco, 1991).

2.4 Cultural Themes: Mother Earth At Risk

As Douglas and Wildavsky (1982), have attempted to show, different peoples worry about different things. For some, it is war, pollution, unemployment, inflation. For others, it is land, family, crime, good vs. evil. Some take global perspectives; others more parochial ones. For yet others, there are still different possibilities. What is important to keep in mind, however, is that worries, or better, what might be considered risks, are culturally defined. What people tend to perceive as at risk at various times in history or in life comes from persistent cultural themes or more general world view. But explaining the world view of one group to another is not an easy task; getting

them to give it credibility is even more difficult.

As has been noted, many of the controversies both inside the courts as well as outside of them involving AIRFA, land title, hunting and fishing rights, treaties, and much more, are in the end clashes in cultural themes and world views. For the Western Shoshones and also the Southern Paiutes, what is at stake and what is specifically at risk should the Yucca Mountain waste repository be built is the Earth itself. Even site characterization, with its deep drilling and testing of many rock strata, is damaging to the integrity of Earth as a system. Traditionalist Western Shoshones have demonstrated through steadfast refusal to take claims monies (now amounting to over \$56,000,000) that their responsibilities to their Earth come first. This is in the face of some very severe economic problems (see Section 3). Southern Paiute people, although their claims case was settled (probably in large measure because they did not know there was an alternative), also feel these responsibilities deeply.

When concerns are ranked by Indian people, environmental risks from the repository are perceived as significant, slightly below those involving family and personal health, and well above economic considerations (see 3.4). When people discuss the topic outside the formal structure of a questionnaire, it is also the risks to the land, the water, plants, and animals that are raised first. These feelings are deep-seated, and as noted, go back to old cultural themes: proper relationships to the land and resources. Not surprisingly, to desert people, water is exceedingly important.

The morpheme paa (pa-, 'water') is one of the most common in both the Western Shoshone language and the Southern Paiute language (Daley, 1989b; Sapir, 1931). It is found in countless placenames (springs, areas with/without water, lakes, seeps, etc.); it also occurs in the related term for human and animal blood (SP: paipi; WS: paopi). Focus in naming for plants and animals is on a highly specific level, with more than 250 forms occurring in each language (Fowler, 1972). Myths and tales from the time "when animals were people" also occur in the hundreds, with all proper instruction in human behavior and inter-relationships coming from them (Liljebald, 1986). As Hultkrantz (1966:131) once remarked regarding Great Basin Indian people, their religions show "conspicuous environmental conditioning." This is what is at risk, along with the deeply felt role that Indian people are responsible caretakers of the Earth.

In recent years, a number of Western Shoshones, including several members of the Western Shoshone National Council, have become increasingly vocal in their opposition to land-altering activities, including massive mining projects, the take-over of more and more land in Nevada by the military, and to all things nuclear. Although a major focus of their attentions has been on the Nevada Test Site, which is on their specific piece of Earth, some have felt the responsibility to protest nuclear activities nationally and internationally.¹⁷ Western Shoshone people, including several leaders in the WSNC, have consistently picketed the Nevada Test Site, side by side with other environmentalist and

anti-nuclear groups such as the American Peace Test, the Nevada Desert Experience, and Nevada-based Citizens Alert [a member of the WSNC serves on the board of the latter organization]. They have been arrested on several occasions for trespass, although the WSNC issues permits to protesters to use Western Shoshone traditional lands (the NTS) for such purposes (Fowler, Hamby and Rusco, 1987; Rusco, 1989). For many, the proposed nuclear waste repository is an aspect of the larger nuclear issue, opposition to which is a part of their caretaker role. Although not all Western Shoshone people are moved to take this type of direct action, many sympathize with this position. The Western Shoshone National Council, representing by consensus its constituent members, also passed a formal resolution opposing the siting of the repository at Yucca Mountain (87-WSNC-02) as did the Duckwater Shoshone Tribe (88-D-22).

More recently, Southern Paiute people have begun to get involved as well. The Chemehuevi Tribe of California passed a formal resolution opposing the siting of the repository at Yucca Mountain (CHEM. R. 88-16) and the Moapa Band of Paiutes passed a resolution (88-M-4-19) regarding what the tribe considers to be appropriate mitigation considerations regarding cultural resources on these lands. In May, 1990, two Southern Paiutes, including the Chair of the Paiute Tribe of Utah, attended with three Western Shoshones, international meetings in Moscow, in the Soviet Union, seeking to stop nuclear proliferation. Although again, not all tribal members would feel quite this strongly or take such direct

action, it is an opinion that is gaining strength. It is not a position left only to the older generation; many younger people are actively involved. They all hope that someday, somehow, governments will listen and finally take them seriously; and for the right reasons.

Non-Indian anti-nuclear protesters are very pleased to have the company of Indian people in these as well as other environmental campaigns. For a long time, the perception of Indian people as proper caretakers of the land has been incorporated into the environmental movement in the United States (Callicott, 1990). The activities of Western Shoshone and Southern Paiute people, and especially the WSNC, is certainly in keeping with these perceptions and sentiments. At the same time, formal protest has been a source of annoyance to the DOE, and particularly the Yucca Mountain Project. The DOE has yet to recognize the WSNC as a legitimate type of governmental body, preferring instead to deal only with federally recognized tribal governments. At least one reason for this is likely the WSNC's open protest of the agency's presence on Western Shoshone lands as well as its position on nuclear testing. In 1991, the DOE attempted to diffuse some of the negative sentiment of Indian people in general toward the Yucca Mountain Project by hiring through one of its Yucca Mountain contractors a local Indian person to better express Indian views. As of September, 1991, relationships with tribes had not improved noticeably, nor had they with the WSNC. Whether or not perceptions of the agency by the general public are at all affected by these

activities is unknown, but should be further investigated.

3. SOCIOECONOMIC AND CULTURAL PROFILES AND SUGGESTED IMPACTS

The Western Shoshone and Southern Paiute reservations and communities within the study area can be expected to experience varying socioeconomic and cultural impacts should the decision be made to build the high-level nuclear waste repository at Yucca Mountain. In order to more fully assess and project these impacts, baseline data were gathered in each area, and field workers discussed with tribal administrators and concerned community members their hopes and plans for future economic development, housing growth, educational enhancement, cultural maintenance, etc. These data were then compared to available historical data on changes in these aspects for the groups over the past three to four decades (Fowler, Hamby and Rusco, 1987; Hamby 1988; 1989; Rusco 1988; 1989). Although the historical information is far from complete, and contemporary socioeconomic data are subject to rapid change, in combination they suggest certain trends for the future that could be affected should the waste repository be built. Given that socioeconomic and cultural conditions differ based on the ethnic and regional ties of the communities, they will be discussed separately for the Western Shoshone and the Southern Paiute.

3.1 Western Shoshone.

The majority of the Western Shoshone population in the study area is concentrated in three places. Two are reservations in Nye County: the Yomba Shoshone Reservation and the Duckwater Shoshone Reservation. The third is the Timbi-Sha Shoshone Indian Village

at Furnace Creek, inside Death Valley National Monument, California. Yomba is about 150 miles northwest of Yucca Mountain and 290 road miles. Duckwater is roughly 340 road miles north-northeast and 290 air miles. Timbi-Sha is closer, at roughly 100 road miles southwest of Yucca Mountain or 30 air miles. In 1991 their total resident population was about 291 persons (enrolled membership 675), which is more than their present economies and land bases can fully support (see Appendix II for statistics).

3.1.1 General Economy

The Western Shoshone groups profiled here are rural populations, and their fortunes are tied most closely to those of the rest of rural southern Nevada and eastern California. The economies of the Shoshone people at the two Nevada reservations are dependent primarily upon ranching, and the reservations, each slightly under 4,000 acres, are both too small to allow profitable operations for those presently involved let alone for those who wish to earn a living in this way. Off-reservation grazing on other federal lands is required and practiced, but the acreage is still too small to allow all tribal members who wish to ranch to do so. The Timbi-Sha people do not have federal trust land even though they are a federally recognized tribe. They occupy a 60 acre tract within the Monument, and activities on it are strictly controlled by the National Park Service.

One economic development option for the future considered by all three Western Shoshone groups is to get involved in tourist-related businesses. For the Timbi-Sha of Death Valley, this form

of economic development is at present their top priority. The tourist market already exists, and they are presently frustrated by their lack of direct involvement in it. They would like to expand their village to Highway 190, the main road through Death Valley, putting in a motel, restaurant, store, and/or gasoline station. However, without trust lands, they are required to get Park Service permission for expansion. Thus far, negotiations in that direction have not been successful, but efforts are continuing. The Nevada reservations would need to develop both the market and the facilities. Duckwater has considered developing its large hot spring into a camping area and spa. Yomba would like to develop camping facilities for hunters, fishermen, campers, and hikers. A few residents already derive a small income as outfitters and guides for these individuals.

Public perception of risk from nuclear radiation or transportation accidents in southern Nevada and California could adversely affect the success of any and all of these economic ventures. Should significant numbers of people decide not to vacation in or visit Death Valley National Monument, any attempt by the Timbi-Sha tribe to develop or maintain tourist businesses would undoubtedly feel the impact. Although Death Valley is often a destination facility, a number of people do combine visits to Las Vegas with a stop there. Adverse impacts on the Las Vegas tourist industry thus would be felt in Death Valley as well. Even without their own tourist businesses, residents of the village who work for others in the industry might lose their jobs in a decline,

given that most of these jobs do not require a high degree of skill or training.

Although perhaps less drastic or predictable, a decline in people willing to visit Nevada Shoshone areas for outdoor recreation because of the presence of a nuclear repository would also be significant, if current plans reach fruition. Perceptions of radioactive contamination of the land or its plants or animals through leakage into the water or air could cause people to think twice about making these areas destinations. Any developed or developing businesses would then feel the effects.

Tourist industries are not the only business options being considered by the Duckwater and Yomba tribes. Both would like to expand ranching through the acquisition of more tribal lands. Duckwater hired a consultant who also suggested such enterprises as mining or oil refineries, and cottage industries involving piecework in clothing. The first two would involve capitalization, and the tribe presently lacks the funds. Although these industries might not be adversely impacted by the proximity of a repository, expansion of the ranching enterprises of both reservations could be. Again, should land or water contamination occur, cattle would be affected. Even perceptions by outside markets that there might be contamination could impact cattle sales and thus the present economy as well as any future expansion. Contamination would not have to occur on tribal lands directly; it could equally affect grazing allotments on BLM and Forest Service lands, which for both tribes are closer to the proposed repository and highly significant

(see Millett, 1989). Given that a number of people still hunt game animals and birds and gather plant foods (such as pine nuts) and medicinal plants on these lands, contamination could also affect this aspect of their economy as well.

3.1.2 Demography

The present resident population of the three Western Shoshone areas is slightly above 260 tribal members, not including some non-Indian and non-Shoshone spouses of members. In round figures, about 120 live at Duckwater, 90 at Yomba and 50 at Death Valley. At Duckwater and Death Valley, there are slightly more women than men (see Appendix II, Table 1a). The population is predominantly young at both places as well, with roughly 40 percent of the residents aged 16 or younger. At Yomba, men outnumber women, but again, 40 percent of the population is 16 or younger.

Population growth in residents in the next few decades will undoubtedly be tied to economic factors on the reservations. At all three locations, some inevitable population growth will come when those now under 20 start their families, unless the majority choose to leave the reservation or village at maturity. That they will leave is unlikely, unless they choose to go for educational reasons, to seek jobs outside the area should local job opportunities not improve, or there is a perceived risk to health should they remain. A large number likely will choose to remain or to return, as these areas are their homes and they strongly prefer them.

Another source of population increase may come from outside

the areas in the form of presently enrolled tribal members choosing to return to their family homes after an absence (at present, a little less than one-half of the enrolled members live on these three reservations).¹⁸ In the past, such increases have occurred at Duckwater and Yomba with the advent of new housing. In the event of tribal economic prosperity, many who wished all along to live there would come home. Even without the prospect of jobs, some who were unsuccessful in finding suitable employment off the reservation will return because of the security of family. Yomba is currently home to a number of young, single men who are victims of this process. Alcohol abuse is high among this group. Adverse impacts on the population trend as well as on natural increase could come about again if the lands are viewed as contaminated by a nuclear presence. Many people already feel that they have absorbed considerable radiation from above-ground nuclear testing, and the waste repository is viewed as having the same potential.

3.1.3 Housing, Household Size, and Composition

At Duckwater and at Yomba, the current housing is adequate in both number and quality for the 1991 population (see Appendix II, Table 2). The mean household size of 3 persons in 1988¹⁹ is significantly lower than in the past (1980: 5.2 [Hamby and Rusco 1987:74, 82]), and the reduction is due to the increased housing. Since the arrival of electrical service in both places in the 1970s, a combination of renovated original reservation houses, individually-owned HUD housing, low-cost rental HUD housing, and privately purchased mobile homes has accumulated for residents.

Timbi-Sha has only renovated adobes and mobile homes; HUD will not build new houses unless the tribe has its own land.

Whether the available housing will remain adequate for the near future depends on the stability of the population. If the population grows, household size will increase first, as there is a strong feeling that extended families are appropriate, especially if the need is there. Although this sometimes puts a strain on the household, the importance of maintaining proper and close relations with kinsmen far outweighs any inconvenience.

If a population increase should come about as the result of an increase in reservation land base and tribal economic prosperity, a housing shortage could probably be relieved either by tribally-funded or privately-purchased new housing. For Timbi-Sha, no new housing is presently possible without the acquisition of trust land or a change in Park Service policy which now restricts the number of houses to those presently there. It is unlikely that the Yucca Mountain project will cause significant immigration to any of these communities as it is too far from them for any to be used as a commuter base. But it might cause an out-migration if health and economic risks become too high. Given that young people would be the first to leave, reservations could become places for only the old and infirm. Such a result would also cause changes in the family structure, at present the most cohesive aspect of society.

3.1.4. Labor Force Characteristics

For all of the Western Shoshone groups in the project area

unemployment is customarily much higher than that of the general population; income level is always lower (see Appendix II, Table 3a). The 1991 employment situation for all the Western Shoshone people was poor; while Duckwater was experiencing a small and probably temporary mining boom in the area that was employing several men as laborers, unemployment was particularly high at Yomba and at Death Valley.

Most jobs held by Shoshone workers in 1991 required no specialized training or skills (see Appendix II, Table 4). Exceptions were some of the administrative, professional, and clerical positions with tribal governments. At Duckwater, for example, the health center is headed by a member of the tribe who is a Registered Nurse; the tribal chair is also tribal administrator; and the clerical positions also require specific training. In some cases in all three areas, on-the-job training has permitted tribal members to fill positions for which they lacked some of the necessary skills. But some professional positions are still held by individuals who are not tribal members. The tribes, with the help of federal and other funds, are the big employers on the reservations and at the village.

The next few decades could see a decline in the already precarious employment situation for the Shoshones. Due to the high degree of dependence upon federal funding in tribal administrations, any cuts in federal spending in these or social programs would have a severe impact. Such cuts are at least conceivable, should there be significant cost overruns in the

repository program or other federal undertakings. Indian people have found in the past that when federal spending priorities shift, they and other minorities suffer most.

The employment situation at the two Nevada reservations will probably not improve due to the Yucca Mountain project. The distance to the locality is too great for a daily commute. Also, reservation residents do not have the educational background or training that would qualify them for specialized jobs with the repository project. Although such training might be acquired, the reservations would have to be targeted specifically for it and for resulting jobs before there would be any benefit. Given the distances involved, trained individuals would have to relocate for work, something that can and sometimes does happen. However, this in turn has impacts on any families left behind. While the Death Valley people might choose to make a very long commute to the project site (especially if there is access through Lathrop Wells), their educational situation is the same as that of reservation residents. They, too, would have to be specifically targeted for training and jobs before they would realize any benefit. With or without the Yucca Mountain project, if there is not a significant improvement in tribal business ventures and job training, the employment picture for any of these groups is not likely to improve.

3.1.5. Education

Educational levels for the Western Shoshone groups are low: 30 percent of the present population at Death Valley and 45 percent

at Yomba did not finish high school. No current figures are available for Duckwater, but in 1980, 40 percent of people over 25 had not completed high school (see Appendix II, Table 4). The present level of education among the Shoshone leaves many ill-prepared for jobs in higher-paid categories. As noted, without specific training they would have difficulty taking advantage of employment opportunities even if such were to materialize as a result of the Yucca Mountain project.

The quality of the education received by Western Shoshone students varies, but is generally substandard. Due to their geographic isolation, Yomba's elementary students and the high school students of all the groups must commute daily at least one hour each way. Death Valley and Duckwater elementary students both go to school close to home, the Duckwater children in a tribally operated school. For the high school children, the commute lowers both their participation in extra curricular activities and their enthusiasm for finishing school. The schools they attend are all in very small towns, and lack many facilities and curriculum variety.

At Duckwater and Yomba, the trend seems to be to greater emphasis on education. At Duckwater, one success of the tribally operated grade school seems to be more enthusiasm for education, and the tribe points with pride to most children completing high school and many wanting to on to college (in 1988, 10 tribal members were away at colleges and 8 were taking college courses through correspondence or TV). For both Nevada groups, the

emphasis on education should improve the younger people's chances in the job market. In both cases, however, unless they take their education off reservation to find jobs, or unless the tribes are able to begin new economic enterprises that will make use of the work force at home, there may be no great impact upon the employment situation at either reservation. At Death Valley, although no greater emphasis on education is evident, jobs for trained individuals might be more readily available at least seasonally with the Park Service or tourist industries.

3.2.6. Social Organization and Values

The primary organizing structure for the Shoshone people is kinship. Economic and political interaction is first along family lines. Kinship creates ties of varying strengths between nearly all residents of each reservation or village, because nearly all families are related in some degree to all others. This relatedness extends between reservations and tribal groups as well: people can easily name people they are related to in many parts of the Great Basin, by ties from the past as well as the present. For younger people (under 25 years of age) who do not speak their native language or fully comprehend its kinship terminology, these relationships may be known more generally than specifically. Nonetheless, when strangers meet, it is quite common for them to first establish common relatives, as this defines appropriate interaction.

Living in small reservation populations among relatives often means that young people have to seek marriage partners outside

their local community. The result can be marriage to non-Shoshones and to non-Indians, producing children who are nearer the lower limit of blood required for inclusion in tribal membership (usually 1/4 Shoshone required; 1/2 at Yomba) or for federal programs (usually 1/4 Indian). Increases in reservation size and population would increase the pool of eligible marriage partners for the generation marrying in the 1990s and 2000s. This would result in continuation of Shoshone cultural cohesiveness that otherwise might be diluted or lost.

As noted above, increased housing on reservations has resulted in the reduction of numbers of persons per household in the last 10 years. Without doubt, more couples are choosing to live in a new residence rather than that of one of their parents, as might have been more typical 50 or even 20 years ago. Nonetheless, a parent or sibling household may be quite nearby, and weekends often find family members in residence for a visit. In 1987, two thirds of reservation households were headed by married couples -- one third by single persons (Hamby and Rusco, 1987:77). An additional one-quarter of households contained a person other than the married couple and children -- usually a grandparent. Roughly one-third of single person households also consisted of a grandparent plus a grandchild. In many Shoshone families, grandparents still take an active role in childrearing. This allows parents to participate more fully in work outside the home. It also benefits cultural cohesiveness.

Cultural cohesiveness is important to most present-day

Shoshone parents and is even more important to the elders. Although efforts have varied, each Shoshone community sees cultural and particularly language maintenance in the future as an important goal. At present, native language fluency is decreasing rapidly, with few people under the age of 50 having any speaking ability, although they might understand some sentences and/or vocabulary. The last monolingual (by preference) speaker in these particular communities died in 1989. Duckwater, through its tribal school, actively supports the principal of bilingual and bicultural education, although funding and staffing are not always sufficient to meet their goals. Yomba and Timbi-Sha are likewise interested in learning from their tribal elders and would like to begin oral history programs, but lack funding.

All three groups, as well as Western Shoshone people from elsewhere, participate in the Shoshone Traditional Gathering, a yearly retreat held at Duckwater since the mid 1980s as a time of renewal of traditional beliefs and values and as an opportunity to instruct young people in these in formal and informal ways. These gatherings, closed to the non-Indians, are ample evidence of the people's concern for tradition, and of their desire to perpetuate traditions in the future. Activities include traditional prayers, dances, singing, and games. The gathering usually attracts 300 people or more, depending on other activities at the same time. Although begun in the mid 1980s, it is seen by many as a continuation of spring and summer festivals commonly held in pre- and post-contact times (Steward, 1938). Each year the gathering

has attracted Shoshone people from greater distances (Idaho, Utah, Wyoming), although attendance has fluctuated.

Land and its proper use and care dominated discussions with people about the Yucca Mountain project (see verbal responses to risk perception questionnaire, Hamby, 1991). There is consensus that putting nuclear waste into the earth violates the traditional Shoshone teachings and will disturb the natural balance and bring harmful consequences. It is viewed as particularly harmful to water, plants, and animals, but also people. Should the repository be built against Shoshone wishes, years of violation will result in cultural tension for the people. With the added stress of projected accidents, this tension will be increased, and could seriously harm the people's general feelings of well-being.

The overall strength of Western Shoshone adherence to these cultural values can only be measured by feelings such as these, and by statements made on various occasions.²⁰ These feelings of respect for and practice of traditional beliefs have little to do with other religious affiliations, as some of the most traditional values are also espoused by persons affiliated with various Christian churches. Persons also come to hold traditional values and beliefs at different points in their lives -- perhaps moving away for a time, and then returning. But overall, the sense of persistence of a basic world view that involves deep spiritual commitments to the Earth and its resources dominates attitudes and actions.

3.1.7. Political Structure and Relationships

Each tribe has a five-member council that is responsible for making all the decisions affecting the tribe and its lands. All of these tribal council members, including the chair, serve their terms without pay. As time has gone by, the complexity of the issues facing councils has increased, as has the time required to do the job. Duckwater has made the position of chairman coterminous with the paid position of Tribal Administrator, so that the elected chair can afford to devote full time to the job. The chairs at Yomba and Death Valley are still not paid.

As tribal populations increase over the next few decades, and as tribal government becomes increasingly complex, it will be necessary for all groups to have some full time paid government and management positions. In order for tribes to deal effectively with the political and economic issues, these positions will require more education and business training. These changes could alter the location of the seat of authority from the tribal elders to a new, youthful and educated group, thus bringing about another significant cultural change. Tribal councils presently are strained by commenting on various proposals, including the EIS and EA statements regarding Yucca Mountain. They attempt to involve elders in these and other processes as much as possible, but again the complexities of the issues involved and the limits on comment periods stress the system.

All three of Western Shoshone groups (as well as many others) have some relationship with the Western Shoshone National Council. The Council acts on behalf of a significant number of Western

Shoshone groups and people in matters involving pan-tribal concerns. The Council presently has a closer relationship with Duckwater (but see note 14), as it is headquartered there, but a number of individuals from the other Shoshone tribes also take active roles. The effectiveness of the Council in dealing with national issues and with non-Shoshone people and governments has increased in recent years (see 2.3) and that trend is expected to continue. The Council has taken an active stand against the Yucca Mountain repository, including the passage of a formal resolution, and the active involvement of its members in anti-nuclear campaigns. The Council has a funded position through the Nevada Nuclear Waste Projects Office to work on tribal concerns involving Yucca Mountain. The staff person meets with the State and Local Government Steering Committee and the Technical Review Committee, attends various DOE briefings, and speaks with tribal leaders in the larger region on these issues.

Tribal interactions with non-Indian local groups and state and local governments in their areas vary, but are generally not of high quality. Part of this is the result of the unique legal position of Indian tribes vis a vis state and local governments. It is not anticipated that local governments will take a more active interest in tribal concerns should the nuclear waste repository be built (see Rusco, 1991, for details). Many conflicts presently arise over the amount and quality of services provided reservation and village residents by local governments. In some cases, confusion resulting from jurisdictional question about law

enforcement on Indian lands, health care, and other issues, has resulted in a deterioration of services to persons as well as in inter-governmental relationships generally. Isolation from services has also been another factor. Duckwater has responded to its isolation by becoming the provider of many of the most essential services under contract with the IHS and BIA. In the case of some of these services, such as emergency medical care and law enforcement, the tribe makes services available to the surrounding, off-reservation population as well. Duckwater's emergency medical team is a first responder for northeastern Nye County, and its deputies are cross-deputized in the County. Should nuclear waste transportation be across U.S. Highway 6, the Duckwater personnel would be the primary accident response unit, and would need special training.

Residents of Yomba must go to Fallon, Walker River, or Reno for some IHS and BIA services, or depend on Nye County, which seems to provide little except basic educational services. Timbi-Sha is often in conflict with the Park Service over law enforcement issues. Emergency health care is provided by the Park Service, but routine and long-term medical care through the IHS must be obtained in Bishop or some other distant locality. Specific data on health are difficult to obtain, but Western Shoshone self-identify problems of diabetes, high blood pressure, and substance abuse (alcohol, drugs) as primary. Communities are attempting to combat these problems locally, but consistency of funding is often a problem.

In at least one case, the Nevada Shoshone joined forces with local communities over a large issue similar to the Yucca Mountain project. This took place when the possibility of the MX missile system threatened Shoshone and private lands. This will probably not happen in the present case unless accidents in the future create among the non-Indian communities a much more negative view of the repository than they hold at present. If present attitudes continue, the Yucca Mountain project will be one more divisive issue between the Shoshone and their non-Indian neighbors. On the other hand, the Timbi-Sha community may find itself in agreement with the Park Service on this issue: at present the Park Service is questioning the impact of the project on its water as well as tourism.

Tribal interactions with non-Indian national and international organizations is largely limited to the anti-nuclear groups (see 2.3). Interactions with state and national Indian organizations (beyond the WSNC) are also limited. Some individuals affiliate with the Seventh Generation Fund, a national and international organization of Native peoples who promote self-determination, basic human rights, and sound environmental management policies. People have attended workshops and meetings sponsored by the National Congress of American Indians on nuclear and other issues. Leaders are generally aware of the workings of the Nevada Indian Commission, and the Inter-tribal Council of Nevada, and they have been involved with their programs through the years.

3.2 Southern Paiute

Three Southern Paiute groups are most directly affected by the Yucca Mountain repository Program. They are the Moapa Band of Paiute Indians, who occupy the Moapa Reservation; the Las Vegas Tribe of Paiute Indians, on the Las Vegas Indian Colony in the heart of downtown Las Vegas; and the small, informally organized Pahrump Band made up of residents in Pahrump and Lower Amargosa valleys. The first two are in Clark County; the latter in Nye County. Moapa tribal headquarters is approximately 106 air miles (165 highway miles) east-northeast of the proposed Yucca Mountain repository site. The Las Vegas Colony is approximately 109 highway miles southeast of the site (91 from its new parcel); and the Pahrump group is approximately 80 highway miles (59 air miles) southwest. The number of resident individuals in member households in these three groups is 272 in 1991. There are 378 enrolled members.²¹ They are part of a larger Native American population in urban Clark and southern Nye counties estimated at slightly under 7,000 individuals (see Appendix II for statistics).

3.2.1 General Economy

Unlike the majority of the Western Shoshone population which is rural and dependent largely on ranching (except Timbi-Sha), the Southern Paiute groups are more dependent on the urban economy of Las Vegas. Although the Moapa Reservation, some 72,000 acres, is roughly 55 miles northeast of Las Vegas, many residents see Las Vegas as their primary source of goods and services, and at least some commute there to jobs. The Las Vegas Colony is entirely urban, given that its downtown lands (12 acres) are completely

surrounded by urban businesses. Even Pahrump, although more rural in setting, is highly dependent on the general Las Vegas economy. Some members commute to jobs in Las Vegas, along with many of their non-Indian neighbors. They, too, look to Las Vegas for many goods and services not available locally. Although more Indian people in these three areas are employed than are rural Western Shoshones, employment and income levels are still much below those of non-Indians (see Appendix II, Table 3b).

While most of the income for Moapa and the Las Vegas Colony comes from off-reservation wage employment, both groups have small tribal enterprises that provide employment opportunities for tribal members and some tribal income. Moapa operates a convenience store near its main settlement, and a larger smoke shop and fireworks outlet on Interstate 15 on tribal lands. Las Vegas has a smoke shop with attached convenience store and a small graphite company (Nuwuvi Industries) that operate in the colony and a second smoke shop on its 3,840 acre parcel 18 miles north on U.S. Highway 95. In addition, there are on-reservation tribal administrative and maintenance positions, partially funded by federal grants and contracts. But tribal positions, which depend on annual fund applications, are subject to cancellation or change with little notice. Relatively large holdings of trust land by both tribal groups will permit the expansion of tribal business and residential facilities. The situation of the small band in Pahrump, is somewhat different and will be discussed separately.

The success of tribal enterprises is dependent upon a healthy

local economy. Tourist purchases, which were not a major factor in the Las Vegas Colony retail sales, but which have accounted for as much as 20 percent of Moapa tobacco and fireworks sales, are expected to increase in importance over the next two decades. This is attributable to improvement and additions to the tribal enterprises capitalized by revenues from these tribal businesses. Because of the importance of smoke shop revenues in the tribes' attempts to become economically independent, tribal councils are apprehensive about any action taken by state government that would tax or otherwise restrict their tobacco sales.

Both tribal groups can be expected to begin implementing planned expansion of their highway businesses to attract motorists and truck drivers. Among proposed additions to the existing smoke shops and the fireworks outlet are service stations, restaurants and/or fast-food services, and possibly craft shops offering locally produced items. Which of these facilities will be added in the near future depends upon the amount of additional capital accrued by the tribes or the availability of outside developers. These developments will increase both groups' dependence on the tourist trade, further linking their economies with that of Las Vegas. Should either the reservation or the colony choose to develop a gaming facility, tribal involvement in tourism would be even stronger. Any downturn in that economy because of the nuclear waste repository will impact the tribal enterprises as well. Given that major business expansion opportunities also will be along proposed transportation routes for nuclear waste (Interstate 15;

U.S. 95), any transportation accidents or other problems will also affect tribal businesses. One possible benefit of the project for the Las Vegas tribe might be increased use of its U.S. 95 smoke shop and facilities by worker traffic commuting from Las Vegas.

The small number of service jobs available in the Moapa Valley in 1988 may increase over the next few years, but are unlikely to bring about any major economic improvement on the reservation. The principal local off-reservation employer is the nearby Nevada Power plant which operates under a lease agreement with the tribe. The 12 jobs open for reservation people is unlikely to decrease in the near future, and if the plant is expanded, may increase slightly.

Programs of job training in conjunction with guaranteed job placement and various kinds of support (child care, etc.) were perceived needs on the part of the Moapa Reservation and Las Vegas Colony residents in 1988. Such programs depend on better federal funding via the BIA or another agency, as well as continued growth in the local economy. Should this take place in connection with the construction or operating phase at Yucca Mountain, it could have a positive economic impact, but Las Vegas Colony efforts in 1988 to obtain information from DOE that would facilitate the planning of appropriate vocational training were unsuccessful. Commuter distances for Las Vegas and Pahrump residents would be quite reasonable. Moapa is a little farther, but some might choose residence in Las Vegas during the week and home visits on weekends if the guarantees were sufficient.

The economic status of the small rural Pahrump Valley Indian

population is related to their ability to find employment in the valley or within commuting distance. Population growth in Pahrump Valley should the Yucca Mountain project go forward is most likely, and thus there may be an attendant increase in the number of local jobs should additional services be required. This might result in some additional employment of Indians, but available jobs may not be secure or provide enough inducements for relatives of current Indian residents to return to Pahrump from various reservations where they now have better, lower-cost housing and other benefits. Increased growth will have other effects on the local economy: a larger market may reduce prices for food, clothing, gasoline and other necessities, but will undoubtedly cause housing costs to rise. As with Moapa and Las Vegas, special job training that would enable members of the Pahrump Indian work force to obtain employment at Yucca Mountain would benefit some households, but again the populations would have to be specifically targeted.

3.2.2 Demography

The population of the Moapa Reservation, Las Vegas Colony and Pahrump Band is expected to increase gradually over the next few years, based on current trends (Appendix II, Table 1b). For the Moapa Reservation, the growth rate has slowed in recent years, due to some out-migration for employment. Las Vegas Colony underwent a sharp decline in the 1980s due to lack of lands for new residences. With the new lands (the U.S. 95 tract), and increased numbers of houses, that trend has already reversed. The population of the Pahrump Band should remain more-or-less stable unless there

is an influx for new jobs due to Yucca Mountain. The ratio of males to females in all three areas is roughly the same and is expected to remain such. A currently low percentage of retired individuals on the Las Vegas Colony should increase as the present population ages. Unless employment opportunities and housing conditions at Pahrump improve, retired individuals over 60 are likely to continue to be over represented in that population.

3.2.3 Housing, Household Size and Composition

Moapa has had successful HUD housing projects over the last several years and thus greatly improved the housing conditions for its members. Recently, a low-income rental development has also brought some non-Indian residents to the reservation. Las Vegas has had an acute housing shortage on colony lands for several years, causing some out-migration. The recent completion of 10 HUD homes on the new lands north of the city has improved the situation for members, but increased the commute. Land on the Colony proper will remain in short supply, with most present residents firm in their commitments to retain their present property rights. The shortage of housing, particularly at lower rents or with an option to purchase, is the greatest obstacle to population growth and improving economic conditions for any Indian people who choose urban Las Vegas. Worker influx for construction, should the Yucca Mountain project go forward, may make the situation worse; although present population growth in Las Vegas is so rapid that it is hard to see the situation getting much worse. The Pahrump Band, lacking federal recognition, trust land and an accordingly strong claim on

federal trust obligation, is unlikely to improve its housing situation in the near future. Approximately 25 percent of the people there live in sub-standard housing units, although some do own their own land.

Mean household size is approximately 3.5 on the reservation and colony. It has lowered over the past two decades because of major housing improvements. The somewhat smaller household size in Pahrump Valley is due to the high proportion of retired persons living alone or with one or two grandchildren. Household size would be expected to increase in Pahrump and Las Vegas should relatives find employment at Yucca Mountain during the construction phase of the project. Such increases are viewed as acceptable, even though they put certain strains on the households.

3.2.4 Labor Force Characteristics

Over the past two decades the educational level of the labor force has been increasing for both the reservation and colony populations (Hamby and Rusco, 1987:91-95). Clearly related to this trend is an increase in the number of people employed (male and female) and the fact that both individual and household incomes have also increased (see Appendix II, Table 3b). Incomes are still lower than for most non-Indian segments of the population, however. Rates are likely to remain higher for Las Vegas residents than the two rural communities: Pahrump and Moapa. Moapa's residents, however, have a slightly higher educational level than those of the Las Vegas Colony. In the recent past Indians in Nevada have been underemployed in categories that are the most prestigious and best

paid, and over represented in labor and service categories (Knack 1986:587; see also Appendix II, Table 5).

If negotiations with Nevada Power continue to be successful and jobs in new industries open, the mean income of Moapa households is likely to increase until it approaches the mean for other residents of rural Clark County. Increased incomes on the Las Vegas Colony are likely to be correlated with the increased availability of better employment training there; Pahrump incomes are likely to remain more-or-less stable.

3.2.5 Education

In all three Native American communities, decreasing secondary school drop-out rates and an apparent increase in the numbers of young people entering college or other post-secondary education or vocational training suggest some upward mobility (see Appendix II, Table 4). If these individuals are to remain in their home communities at Moapa and Pahrump, it will be necessary for new jobs to be created. Otherwise, more Moapa and Pahrump residents will choose to commute to Las Vegas, or to move there and become part of the growing urban Indian population. Should tribes be successful in expanding businesses, more employment opportunities in managerial and/or technical categories may become available; but underemployment could continue if expansion is not in the right direction.

3.2.6 Social Organization and Values

As among Western Shoshone people, the family remains the strongest and most cohesive unit in Southern Paiute society.

Families, including extended families, often with a grandparent, are primary economic units, expanding household membership as the need arises. This expression of traditional values remains strong and is likely to continue. Attachment to land, especially reservation land in the case of Moapa, is also very strong. Approximately 50 percent of the Moapa Band members live on the reservation, and many return for short or long-term visits. Fewer Southern Paiute individuals are involved in traditional hunting and plant gathering than is the case among the Western Shoshone. Nonetheless, many people still maintain a deep respect for the Earth and its resources, and feel equally strongly that the Yucca Mountain project is likely to violate them. There is a small, but committed group at Moapa that is much involved in fostering the learning of aspects of the traditional culture, including the use of plants, the manufacture of basketry, continuation of dances and music, etc. Most people still attend traditional Mourning Ceremonies wherever they are held in Southern Paiute country, and request them in spite of expense (\$2,000 to \$4,000) when a family member dies. Moapa, at least, would like to begin an oral history project with its elders and a native language program. (At present, only about 15% of the tribe has any native language fluency.)

The Moapa tribe received a grant in 1990 from the National Park Service to further some of these aims. In connection with this grant, a five-member tribal Historic Preservation Commission was established on February 9, 1991. The commission has already

received training in some preservation aspects, and intends to study and protect historic and archaeological sites on its reservation and traditional lands. It will also be participating in the future in reviews of environmental impacts of projects proposed for those lands, including the Yucca Mountain project.

Las Vegas is less committed to these types of programs, largely because the population has already lost most of its elders (there is no one in the Colony over age 65). A few individuals participate in a traditional basketry group with people from Moapa, and the colony sponsors a yearly pow-wow and other cultural events. The pow-wow attracts more than 1,000 people each day, including many Las Vegas urban Indians.

Family members tend to share the same values, and most individuals find their closest friends within their immediate kin group. In some cases, young adults differ from their elders somewhat in their attitudes, including toward the proposed waste facility. In these cases, some young adults either see potential economic benefits or they believe that the building of the facility at Yucca Mountain is inevitable and they are resigned to it (see 3.3). Additional family dissension, such as might occur if there were an actual condition of risk brought about by transportation accidents on or near tribal lands, could affect the strongest force for social cohesiveness in the tribal populations.

Persistence of cultural values for persons, however, as with the Western Shoshone people, is difficult to measure precisely. Some of the younger members of the tribes most in favor of change

in 1986 are now (1991) the persons most vocal about their caretaker role vis a vis the Earth. Again, as with Western Shoshone people, persons often return to traditional values at different points in their lives. Although many of the Southern Paiute people in southern Nevada are Mormons, adherence to this faith does not interfere with most traditional cultural values.

3.2.7 Political Structure and Relationships

On both the reservation and colony, tribal business is conducted by an elected tribal council, numbering five individuals. Paid administrative assistants to the councils have become increasingly important in recent years as the tribes have undertaken economic development programs. The tribal chair at the Las Vegas Colony is a full-time salaried position, but this is not the case in Moapa. However, salaries for tribal administrators, administrative assistants, and other support personnel are low when compared to other local governments or the private sector. Payment of council members commensurate with their responsibilities in planning and overall administration of tribal enterprises and other programs might be required in the near future. More paid positions on councils would probably result in the attraction of more candidates. But tribal incomes will have to increase before this can occur.

At present, most tribal members attend council meetings or communicate with council members only when there is a crisis or when a council decision is highly controversial. Councils are vulnerable to acrimonious criticism and even to recall, when they

make unpopular decisions. The reported consideration in 1989 by the Moapa Council of the reservation as the site for a manufacturing plant for a rocket fuel component is an example of such a controversy. Harsh criticism of council members for considering this potential economic development proposal included threats to start recall petitions.

The Las Vegas Colony has responded to the Yucca Mountain repository program by appointing council liaisons with both the DOE and NNWPO study teams and requesting their consulting attorney to reapply for affected tribe status. They made preliminary inquiries of the NNWPO for a tribal study, but have not entered into a formal agreement. The Moapa Reservation has contracted with NNWPO for a tribal study and has employed a tribal member to work on this since 1988. As with the Western Shoshone National Council employee, the Moapa coordinator attends State and Local Steering Committee meetings, Technical Review Committee meetings, DOE briefings, and other activities. Overall, however, the Southern Paiute people have been less involved in vocal opposition to the Yucca Mountain Project than have the Western Shoshone, as represented by the WSNC.

The rural, informally organized Pahrump Band, currently not federally recognized, has no legal status as a tribal government. If this group is successful in applying for federal recognition during the next few years as has been suggested, their council would be able to obtain some programs provided by the federal government as part of its trust responsibilities. Lacking an independent land-base that would permit economic development,

however, their council's role would continue to be somewhat restricted, as is that of the Timbi-Sha Shoshone of Death Valley.

Various public services and facilities are provided by the tribes alone or in cooperation with federal or local governmental entities. Tribally administered programs on the reservation and colony are partially or completely funded by federal agencies or by private foundations. Such programs are the providers of most health, welfare and other social services, as well as the maintenance of housing, streets and roads and, in the case of the reservation, irrigation.

Reservation health and welfare programs are perceived as vulnerable to additional cuts as the increasing costs of hazardous nuclear waste disposal threaten federal deficit reduction. Current problems with IHS physician and hospital services (for much of 1988 to present available only on an emergency basis) have caused tribal employees to ask for health insurance, presently not offered as a benefit. If this situation continues, it will put an additional strain on tribal enterprises. Although no specific data are available on health conditions on either the reservation or colony at present,²² alcohol and drug abuse are said to be problems of some concern, as is diabetes and high blood pressure. There is also considerable concern about "down-winder" consequences, as affecting cancer rates.

Some public safety programs (particularly fire and police protection) are provided wholly or in part by the city of Las Vegas, Clark County, or other non-reservation political entities.

Assuming funding is stable, programs should be maintained at current levels. The increased city, county and state revenues expected to be generated by construction of the nuclear waste facility at Yucca Mountain are not seen by reservation and colony residents as offering significant benefits to them in the form of direct services.

The Pahrump Valley Indian population is largely dependent upon local public services and facilities. Some IHS and BIA services are offered to those who are on tribal rolls of Las Vegas Colony and Moapa Reservation; IHS services are available only in Las Vegas. Some locally or county-provided services may improve if the population of the valley increases as expected, but other services and facilities may be strained if a substantial portion of the Yucca Mountain facility construction work force chooses to live in Pahrump.

All Southern Paiute are just beginning to organize in a fashion and for similar purposes as the Western Shoshone National Council. The organization of Southern Paiute tribal chairs²³ is a recent attempt to facilitate intra-tribal dialogue on matters of mutual interest, such as the Yucca Mountain waste facility, the Nevada Test Site, major construction, mining or other projects potentially affecting tribal lands. Meetings are thus far on an irregular, as-needed basis, but it is reasonable to expect that over the next few years, this intra-tribal structure will become more formally organized and move to regular meetings.

Inter-Tribal Council of Nevada provides the avenue for inter-

tribal relations within the state. At various points in time since its organization in 1964, this group has facilitated the acquisition of various types of grants for Nevada tribes, including the Moapa tribe and the Las Vegas Colony. Members of both groups have served as officers in the organization through time, and both remain as members. The southern Nevada Southern Paiute groups also maintain some contact with the Western Shoshone National Council and with various Western Shoshone reservations. Finally, most reservation or colony households subscribe to the Native Nevadan, a state-wide Native American monthly newspaper, formerly published by the Inter-Tribal Council, and now by the Reno-Sparks Indian Colony. This keeps them up-to-date with news and events in the state, as well as some adjacent states. Many households also receive the Indian Affairs Commission newsletter or other publications. Few, however, are involved with any national Native American organizations.

The Las Vegas Indian Center serves to link Indian residents of Las Vegas, who live off the colony or are from other Nevada reservations, as well members of tribal groups from elsewhere in North America, with the inter-tribal network (see 3.4).

3.3 Native American Responses to Risk Perception Questionnaire

In addition to the general studies of socioeconomic status and some of the perceived impacts on tribal economic and cultural conditions elicited through standard interviews, the project ethnographers also administered to a sample of this Native American population a version of the risk questionnaire developed by the

larger Mountain West study team. The sample size was 59 persons; it is representative, but not statistically valid. Questions chosen were largely those having to do with technological issues involving the construction and operation of the Yucca Mountain facility, health and safety concerns, trust in government, and socioeconomic parameters (see Appendix III).

Several questions were asked on the survey questionnaire about perceived risks should the repository be constructed at Yucca Mountain. In general, responses supported opinions given through other lines of questioning, including native language interviews with elders from the tribes. As noted in Section 2 above, through all avenues of questioning, opinions seemed to run high about the perceived risks, and attitudes strong against construction. Native American opinions are far more uniform in opposition and the risks are perceived to be greater in degree than either their urban or rural non-Indian neighbors.

For example, with reference to the survey question as to whether the nuclear waste repository could be built and operated safely, 71 percent responded "no" or "definitely no," 17 percent "yes" or "possibly," and 11 percent "didn't know." This is in marked contrast to the general assessment of the majority of rural non-Indians that the repository can be built and operated safely and also a higher percentage than elicited from urban Las Vegas who seem to be more divided on the issue. Nearly identical opinions were voiced on the issue of safe transportation of waste materials with 75 percent responding that it could definitely not

be transported safely, 20 percent "yes" or "possibly," and 3 percent "don't know." Again, rural non-Indian opinion on this matter, although varying somewhat by community, indicates that well over 50 percent of residents feel that it can be transported safely. Urban opinions, although less positive, again are higher than Native Americans. Native Americans were also more negative about whether they would be dealt with truthfully by the federal government on the risks having to do with this project. Their long history of dealing with various federal agencies, most of which have had inconsistent, if not conflicting policies regarding them, has probably led them to this position.

Responses to questions as to perceived affects on personal and community health and safety also showed elevated levels of concern. To a question asking for perceived effects on the respondent personally, 71 percent responded in the ranges of extremely harmful, 20 percent in the range of balanced effects, 2 percent beneficial and 9 percent unsure or no response. A question asking for a suggested level of perceived personal health and safety effects elicited mean responses of 7.5 on a scale of 0 to 10. Perceived hazards to family elicited a 7.8 mean response. Threats to the community (Reservation) at large were likewise perceived as high: 71 percent high, 23 percent balanced, 1 percent beneficial, 5 percent unsure or no response. Both populations also responded in more open-ended questions that the results of radiation from previous NTS activities have already been felt. People have died from cancer and other unknown causes that most feel are the direct

result of nuclear testing. They feel that their populations have sacrificed enough; let others take on the added risks of exposure. These responses hold whether the topic is repository construction or transportation of materials. Given that both Moapa and Las Vegas are on major suggested transportation routes, (I 15, U.S. 95, railroads), transportation issues are of major concern to them.

Several questions posed as to potential effects on the environment also elicited responses suggesting perceived negative impacts. Mean responses on a scale of 0 to 10 as to threats of air pollution were 6.9 for the Western Shoshone (already "down-winders"), and 5.9 for the Southern Paiute. Both cultural groups responded with a high degree of concern for potential water pollution: 7.6. As noted in Section 2, water purity is a sacred as well as a practical concern. Water is a primary religious cleansing agent as well as a necessity for life. Potential concerns that radiation would not be contained within the storage facility elicited 5.6 among the Western Shoshone and 6.0 among the Southern Paiute. As to a final decision on whether the repository should be built, with the respondent making the decision, 6 percent favored it, 8 percent were uncertain, 71 percent were opposed, and 14 percent did not respond.

We also asked two questions with reference to specific cultural perceptions as to whether construction of the repository violated traditional teachings or would damage traditional lands. Mean responses were 5.9 on the first question (scale of 0 to 10), and 6.2 on the second (same scale). Overall responses to these

questions on traditional values seemed to run slightly lower than anticipated, and may reflect some shifts in attitudes away from traditional teachings of causality. Certainly among all the elders interviewed during the survey as well as separately, consensus about repository construction violating traditional teaching was high.

Lastly, Native American see nothing to be gained for themselves and future generations economically. Responses to a question as to whether economic well-being will be improved had mean values of 1.6 (Western Shoshone) and 2.6 (Southern Paiute). A question as to whether economic conditions would be appreciably worsened showed mean values of 4.1 for both groups. They see themselves as deriving little economic or other gain from the project, but rather as losing much.

3.4. Urban Las Vegas

Although as noted earlier, specific funding was not made available to include the Native American population of urban Las Vegas in these studies, through census data and some interviews, we have learned something about it (Hamby and Rusco, 1987:87-95; Richard Arnold, Las Vegas Indian Center, personal communication, 1991).

According to the 1970 U.S. Census, there were 1,131 self-identified Native Americans in Clark County, of which 847 resided in the urban area. By the time of the 1980 Census, these figures had nearly tripled, to 2,949 Native American persons in the county, of which 2,519 lived in the urban area. Although this population

does not appear to occupy identifiable neighborhoods, there are some concentrations of persons according to census tracts (see Appendix II, Table 6 for residential district figures). In 1980, the Native American population made up .62% of the county total, making it the smallest identified ethnic population (as compared to Black, Asian, Hispanic, other).

By 1990, the Native American population figures had risen to 6,416 in the county, 5,907 of which were in the urban area -- more than doubling the 1980 figures. In 1990, however, self-identified Native Americans still remained the smallest identified ethnic population, being less than one-tenth of the Black, one-quarter of the Asian, and one-fifth of the Hispanic populations. They still remained less than 1% of the overall county population.

Although tribal identifications are difficult to impossible to obtain from the U.S. Census data, the Las Vegas Indian Center, which serves on a drop-in basis, an estimated 10-15% of this population, does keep track of tribal affiliation. According to their data for the 1989 - 1990 fiscal year, roughly 25% of their clients and visitors were Navajo people, 10% were Sioux, 8% were Paiute, 5% were Cherokee, and 3% each were Shoshone and Chippewa. The remainder was made up of from 1 to 10 persons representing 62 different tribes, a true cross-section of Native American tribal affiliations. Of the Paiute and Shoshone people, many were probably from Nevada, possibly enrolled members living away from their communities, but that cannot be ascertained from the data at hand. Other Indian people living in Las Vegas have suggested that

at least impressionistically, the high figures for Navajo would probably hold for the population as a whole. Their impressions are based on attendance at pow-wows and other Indian functions. Tribes from Arizona and California are thought to be particularly well represented.

The population served by the Indian Center, while varied, is predominantly poor, transient, and in need of basic, and often emergency assistance with housing and food. According to the Center's annual report for fiscal 1989-90, the average annual household income of its clients was roughly \$4,400 below the poverty income guidelines of \$12,100. The overwhelming majority of these households received no form of public assistance, even though they would likely have qualified. Roughly 30% of the clients did not finish high school, and the overall average educational level attained was the 8th grade. Sixty-eight percent of those in this group eligible to be employed were unemployed, and roughly 5% under-employed. Only 38% of the households served had a permanent residence, with 56% being reported as homeless (31% of these residing temporarily with friends or relatives -- perhaps in keeping with traditional values). Two-parent families made up only 23% of the clients, followed closely by single parents at 22%. Children made up one-half of the clients served.

Based on these characteristics, the Las Vegas Indian Center continues its emphasis on job training and education, day care and counseling, and providing funds for housing and food. The bulk of its budget is spent in these categories, although additional

services in job placement, finding shelter, and referring clients to other, more appropriate agencies takes additional staff time. Although the population served by the Center is undoubtedly a select one, it is important to know that at least 10-15% (if not more) of the urban Las Vegas Native American population requires its services. Should economic conditions in Las Vegas worsen due to the Yucca Mountain project, and yet the rate of what clearly appears to be an in-migration remains the same or increases, Clark County, the State of Nevada, and perhaps the federal government, will have to consider this group. At present, Clark County has made little effort or had little success in involving local Native Americans in its Yucca Mountain study plans. It is further unlikely that it will be successful in incorporating an urban component without a major effort to locate and characterize this population.

Profiles of the Las Vegas urban Indian population based on U.S. Census data from 1980 (1990 break-downs not yet available) give a different picture -- although persons likely to respond to the census are probably also a select group. This group was much better off by all socioeconomic indicators. Forty-one percent of the Native American population (as opposed to 51% generally) was living in owner-occupied housing, paying mortgage payments ranging from \$100 to over \$600, with a median of \$383 (Hamby and Rusco, 1987:90). Another 53% were in rented homes or apartments, at a cost of \$80 to over \$400 monthly, with the median rent at \$279. Median mortgage and rent figures for the Clark County population

as a whole were roughly \$70 and \$40 per month higher, respectively, but overall, the Native American population did not appear to be that far behind.

Clark County Native Americans on the whole were reported to be better educated than either the 1990 Indian Center figures or the 1980 Las Vegas Colony and Moapa Reservation figures would suggest: 19% had gone to high school from 1 to 3 years, 36% had graduated from high school, 23% had attended college for 1 to 3 years, and 9.5% had graduated from college. The remaining 12.5% had 8 years of school or fewer (Hamby and Rusco, 1987:91). Income levels were also higher, with a median per family of \$17,060 and a mean of \$19,367, as opposed to \$21,029 and \$24,493 for county residents as a whole. Persons above the poverty level for Native Americans were 85% (as opposed to 91% for the county as a whole. While these figures represent increases over the Colony and reservation figures, it is still important to note that the urban Native American population is below county averages in many parameters (see additional figures in Hamby and Rusco, 1987:87-94).

An additional source of information on Native Americans in urban Las Vegas is the Clark County Indian Education Program. In 1990, there were roughly 700 children registered in the program, and another 1,200 self-declared but not enrolled. The Program maintains a mailing list of families numbering 800, and for these households there are an average of 2.4 children (K - 12) per household. Children registered or otherwise known to this program

represent roughly 30% of the reported urban Native American population, probably a reasonable figure. This group, as well as the Las Vegas Indian Center, would be excellent contacts for any future studies of the urban Native American population.

Based on the available data, which are primarily socio-economic, and sketchy at best, potential issues involving the urban Las Vegas Native American population should the proposed nuclear waste repository be built are open to speculation. Although those people of "Paiute" and "Shoshone" heritage could have cultural and environmental concerns for sites and areas on Yucca Mountain, and should be contacted if at all possible, it is doubtful that the members of the other tribes represented would be able to comment under AIRFA or NEPA on the repository site. They might well have opinions about the project as a whole, and these opinions deserve to be heard, but under present legislation they will probably be given less weight than those of the traditionally local groups. The socioeconomic situation for all of Clark County's urban minorities should be taken into account, however, as the project may well have significant impacts on them if the economy is jeopardized.

4. CONCLUSIONS

The foregoing summary of the data derived from Native American people in southern Nevada (and southern California) regarding the potential impacts of the construction of a high-level nuclear waste

repository at Yucca Mountain upon them has been necessarily speculative, given the lack of firm plans by DOE for nearly anything having to do with the project. In the various sections, we have outlined something of the culture, history and use of Yucca Mountain in the past, and the present-day concerns of Western Shoshone and Southern Paiute people for the culture resources that remain there today. In so doing, we have attempted to stress the differences in world view between Native Americans, management agencies, and unfortunately, also the courts regarding these resources. We have also looked at the present socioeconomic conditions prevailing on Native American reserved lands, and the plans of these groups for the future. We have attempted to show that although all groups have made major steps forward in recent years, they are far from economically self-sufficient. Any downturn in the urban or rural economies due to repository impacts will certainly be felt by them. They are vulnerable populations.

Native American people have been in this region of the Great Basin for a long time. They intend to remain for an equally long time. In fact, they are probably the only population in the region really able to take the long-term view: 10,000 years of radioactivity. In addition to perceived effects on themselves, they are also looking at long-term effects, on many generations to come, both Indian and non-Indian. They see the repository as posing major threats to the environment: the Earth, her waters, her plants and animals. They feel that it is morally wrong to contaminate the earth with nuclear waste, and should this occur,

they feel that there may be drastic consequences. They see themselves, along with a few anti-nuclear and environmentalist allies, as the only ones willing to take a stand to protect the Earth for the future. In terms of priorities, they see risks to the Earth, and family and personal health as primary, and economic concerns as much lower. As people who have rarely had much of a stake in major economic gains, they would more freely sacrifice any perceived benefits there to gain security for the others.

Conflicts over resources and how best to manage them are not new in this country or the world. They can, and most frequently do, revolve around differences in cultural themes or world view—even within the same society. In the first decade of the 20th century, John Muir, founder of the Sierra Club and what has been called the American Conservation Movement, fought bitterly the public utilities policies of Gifford Pinchot, head of the U.S. Forest Service. Pinchot was for development, utilization, economic gain; Muir saw a natural aesthetic as a higher good. Their conflicts over Hetch Hetchy in Yosemite were bitter, and in the end, Pinchot won, as he often did (Fox, 1981). In his 1971 book, Encounters with the Archdruid, John McPhee simulates conversations involving different views of natural resources between David Brower of the Sierra Club and later other conservation groups, and Floyd Dominy, then head of the Bureau of Reclamation. Dominy saw as the mission of his agency to plug rivers and utilize them for power and other developments. Brower, like Muir, saw another prevailing good. A trip down the Colorado River, dammed many say unneces-

sarily in several places for development purposes, was the occasion.

The battle over the Colorado River, like Hetch Hetchy, was ultimately decided by politics and politicians, as are so many other issues, including Yucca Mountain. It will be relatively easy for DOE, or even the U.S. Congress, to dismiss Native American concerns by following the letter of the law as it now exists. It will be equally easy, unless the national debt finally begins to give enough people pause, to provide funds to Native American impacted businesses, or to settle long-standing disputes by providing the populations with additional lands or even capital for improvements. (Someone will have to monitor all of this, however, and make sure it is done properly.) But it will not be easy to reconcile the world views in which one group sees the project as morally wrong and potentially very dangerous to the whole of mankind, and the other as its mission and mandate from Congress. As a Western Shoshone consultant remarked about the proposed project:

My great-grandmother told me those guys who are messing around with the earth, scarring it, the earth is not going to like it. It's going to create a bad situation for human beings. We're supposed to take care of it. Indians talk to it, sing to it, praise it, thank it for something you get from it. All things have life. She talked to her plants in her garden when she was old. I asked her why she talked to her beans--they're just old

beans. She said we're part of nature. She said the one that made the earth told us to do it. We're supposed to do it because it works, she said.

Used to be when you went out in my country, the birds used to sing to you. Now it's silent. It makes you sad. The birds have died or gone. They say that if you mess around with nature something's got to give. Things may dry up, maybe earthquakes--some unnatural thing. To an Indian, earth has life and you're supposed to treat it with respect.

The water worries me. There's an underground ocean under the Test Site, like the Amargosa River at Beatty, and there are artesian wells at Kimball and Springdale (in Oasis Valley). All through that area water comes out of the ground. All of them had Indian names. None of that water is pumped. It just comes out of the ground. If they keep messing around in there, they'll murder the land they're living on by ruining the water. Water is life. When they ruin that, they might as well just drain the juice out of their own system.

The big thing is that if they blast some more, they're going to ruin the water down there--not just there but all over. Don't the scientists know that? It seems like just common sense to me. How can the white man make anything right when they don't follow the Indian teaching. Yucca mountain is related to all the other

places on the earth, all are connected. If they put that 'no good stuff' in the earth, it could kill off all the people. There is no way to make it right.

NOTES

1. Contacts were also made with the Paiute Tribe of Utah, and several interviews conducted. Other tribes involved in the DOE studies include several groups in Owens Valley, California, the Chemehuevi on the Colorado River Reservation, the Kaibab Paiute Tribe of Arizona, and the Paiute Tribe of Utah.
2. Only the Southern Paiute engaged in much agriculture before non-Indian contact. Western Shoshone people in Death Valley were involved after about 1860.
3. Some Western Shoshone groups practiced pseudo-cross-cousin marriage: marriage to mother's brother's step children, or father's sister's step children.
4. Western Shoshone, and other Shoshone people presently reside on a number of reservations and in a number of communities in Nevada, Idaho, Utah, California, and Wyoming (Thomas, Pendleton, and Cappanari, 1986). Kinship often connects persons at these distant places with people in the study area. This is partly true because of prohibitions against marrying relatives have forced people to marry at farther distances. In historic times, people have also travelled farther and met more people from other areas. Relationships also increasingly cross tribal lines, so that now Western Shoshone

people are married to members of several other tribes. The same generalization holds for Southern Paiute people.

5. Ethnographic data on Great Basin religion and world views are minimal at best. A major reason for this is that few ethnographers ever spent any length of time in a single community or with persons to get in-depth information. Most of the traditional ethnography in the region was of the survey type, and oriented toward subsistence, social organization, and material culture. The specific evolutionary theoretical orientation of Julian Steward (1938) also heavily influenced inquiry away from the subtleties of Great Basin religions.
6. There is an enormous historical literature, including that contained in newspapers. There is also a very large body of unpublished literature in the National Archives and Federal Records Centers. Although we made some attempt to gather this literature, there is much more to do.
7. The SHPO of Nevada had not signed the PMOA as of September, 1991, although the agreement had been negotiated. DOE and the ACOHP had both signed.
8. Most religious sites as well as most burials would not be found by survey alone. The signs are subtle, and Native American people are required to interpret them in the field.
9. We did not bring up the topic of mitigation of sites or resources during our conversations. But, on a recent (April, 1990) visit to Yucca Mountain with the Technical Review Panel, a Western Shoshone consultant spoke openly against any plans

- by DOE to move desert tortoises. This is not appropriate mitigation.
10. A Western Shoshone consultant remarked on our Yucca Mountain site visit that he and several others had been on the Test Site and Bombing Range a number of times since the closure. They felt that they had the right to be there.
 11. Moapa Reservation was founded in 1873; Las Vegas Colony in 1911; Yomba Reservation in 1937; and Duckwater in 1940-44 (Clemmer and Stewart, 1986).
 12. Member councils of the Western Shoshone National Council as of May, 1991 are: Battle Mountain, Elko, Wells, Southfork, Odger's Ranch (Ruby Valley), Ely, Yomba, Western Shoshone Organization at Duck Valley, Great Basin Descendants, Southfork Traditional Cattlemen's Association, Western Band of Western Shoshone (Winnemucca), Timbi-Sha, Fallon Western Shoshone, Big Pine Western Shoshone, Dann Band, and the Sacred Lands Association. The Timoak Bands Council and the Duckwater Shoshone Tribe, formerly members, withdrew in April, 1991.
 13. Estimates of total Western Shoshone population vary considerably, with the Bureau of Indian Affairs suggesting roughly 3,000, and the WSNC suggesting as high as 10,000. The U.S. Census figures for 1990 for reservations traditionally occupied by Western Shoshone people would give about 2,400. But then probably only about one-half to two-thirds of enrolled populations live on reservations.
 14. The Duckwater Tribe withdrew from the Council in April, 1991.

However, in a number of actions since that time, as well as in general philosophy, the tribe and various of its members remain close to Council aims.

15. Roy Rappaport (personal communication, October, 1991, has suggested that this concept of individual ownership of land is a particularly dangerous one to the integrity of Western Shoshone and Southern Paiute cultures. As hunters and gatherers in former times, both of these groups maintained an approach to land best characterized as a collective estate. To break this up by making lands the property of individuals strikes at the heart of this concept of collective ownership, and probably at the heart of each individual's relationship to the Earth as a sacred and integrated whole. Although this may be more applicable to the Western Shoshone than to most Southern Paiute people, as Nevada lands, at least, have remained more "collective" under federal control than have those in Utah, it is certainly a position worth taking into account and worth investigating. From personal experience over some 30 years with families of Southern Paiutes in Utah, I know that increasing privatization of large tracts of land over which they formerly hunted and gathered, but more recently visited for a sense of personal if not ethnic renewal, is a frequent topic of conversation. They are increasingly "locked out" of these lands even for pleasure. Their children and grandchildren know little of animals and plants through direct experience. They are house-bound at

least partly because they lack alternatives. Although the Yucca Mountain Project certainly has not caused this legal situation to occur, it is one more instance of "lock out" and privatization that exacerbates the situation. As Rappaport suggests, it all contributes to ethnicide.

16. The WSNC in 1991 was considering a suit against the federal government or the railroads across central Nevada for unauthorized expropriation of alternate sections of land before the Treaty of Ruby Valley went into effect. Since the act authorizing railroad land specified that title to Indian lands had to be extinguished before expropriation, and title was certainly not extinguished before the treaty was enacted, the WSNC feels that grounds for suit probably exist. The Council in the past has also protested the establishment of Great Basin National Park and various wilderness areas on what are their treaty lands, as well as the payment of grazing fees to the BLM and Forest Service (Rusco 1991).
17. The Green Party of Germany has actively supported the anti-nuclear stand taken by the WSNC, and members of the council have been to Germany to lecture. Members of the Green Party have also spent several months in Western Shoshone country in recent years.
18. Determining the exact location of individuals on tribal roles but not in residence on reservations is a difficult task. Tribes are not always aware of the latest moves of their members, and unless they are required to contact them for some

reason, do not always make a concerted effort each year to track them because of time and expense. Given that tribal roles are not public documents, our study team did not have access to them, outdated though they may be. We requested on two occasions that an authorized tribal member go through particular roles for us and extract city of residence information, and offered to pay for the service. However, as of September, 1991, neither of these tasks had been accomplished. Based on very general interviews, it appears that Western Shoshone and Southern Paiute people on tribal roles but not in residence are scattered throughout the West, but are particularly likely to be on adjacent reservations or in adjacent cities or towns for marriage, school, and employment reasons. It is doubtful that they make up any appreciable proportion of the Las Vegas urban Indian population, except in the case of Moapa and the Las Vegas Colony.

19. Detailed analyses of the 1990 census data were not available as of May, 1991; only preliminary population figures. When these data are made available, they should be integrated into these studies to better note trends.
20. Time spent in residence in the various Native American communities in the study area was too short to determine with any degree of precision exactly how many Indian people hold traditional religious values and how often these are expressed. Given the subtleties of Great Basin religions,

these types of data can only be obtained through long-term observation and close interaction with persons in many situations. In addition, as noted, people self-identify with traditionalist values at differing times in their lives. After a period of absence, they may return rather quickly to them, even at a young age.

21. Given that the Pahrump Band is not federally recognized, its members are not officially enrolled. A few people are enrolled in Las Vegas Colony, however.
22. In April and May, 1991, Moapa was participating in a health survey that would identify significant problems on the reservation. The results were not available as of this writing.
23. Members of the Southern Paiute Chairs Association include:
The Moapa Band of Paiute Indians, Las Vegas Indian Colony, the Paiute Tribe of Utah (representing the Shivwits Reservation, Kanosh Reservation, Indian Peaks Band, Richfield Band, Cedar City Band), the Kaibab Paiute Tribe, and the Chemehuevi Tribe.

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