Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada

Volume 1
Appendix G

American Indian Assessments: Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada

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United States Department of Energy
Nevada Operations Office
Las Vegas, Nevada

With Significant Contributions from
the Consolidated Group of Tribes and Organizations

Final
Environmental Impact Statement

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U.S. Department of Energy
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A Native American Resource Document

Prepared By

American Indian Writers Subgroup

Consolidated Group of Tribes and Organizations

June 26, 1996

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SUMMARY

The Native American Resource Document is a summary of opinions expressed by the Consolidated Group of Tribes and Organizations (CGTO) regarding the Environmental Impact Statement for the Nevada Test Site and Other Off-Site Locations within the State of Nevada (NTS EIS). The document contains (a) general concerns regarding long-term impacts of the U.S. Department of Energy's (DOE) operations on the NTS and (b) a synopsis of specific comments made by the American Indian Writers Subgroup (AIWS) for various chapters of the NTS EIS[1].

The Native American Resource Document was produced in response to consultation required for the NTS EIS, in accordance with DOE Order 1230.2, American Indian Tribal Government Policy. The consultation focused specifically on four alternative management decisions concerning the future mission of the NTS and related off-site locations in Nevada. However, the present CGTO's response to this consultation is not limited to EIS alternatives, but also integrates relevant recommendations made by Indian people for previous DOE projects in which American Indians participated.

The CGTO has a long history of relationships with the DOE. In 1985, the DOE began long-term research concerning the inventory and evaluation of American Indian cultural resources on the NTS area. This research was designed to comply with the American Indian Religious Freedom Act (AIRFA), which specifically reaffirms the First Amendment of the United States Constitution rights of American Indian people to have access to lands and resources essential in the conduct of their traditional religion. These rights are exercised not only in tribal lands but beyond the boundaries of a reservation (Stoffle et al., 1994b).

To reinforce their cultural affiliation rights and to prevent the loss of ancestral ties to the NTS, 19 tribes and organizations aligned themselves together to form the CGTO. This group is formed by officially appointed representatives who are responsible for representing their respective tribal concerns and perspectives. The primary focus of the group has been the protection of cultural resources. The DOE and the CGTO have participated in cultural resource management projects, including the Yucca Mountain Project (Stoffle 1987; Stoffle and Evans 1988, 1990, 1992, Stoffle et al. 1988a, 1988b, 1989a, 1989b, 1990a, 1990b), the Underground Weapons Testing Project (Stoffle et al. 1994b), and ongoing consultation in compliance with the Native American Graves Protection and Repatriation Act (NAGPRA) for the Nevada Test Site Collection (Stoffle et al., 1996a).

While this American Indian Resource Document provides recommendations that target the preservation of American Indian religion, culture, society, and economy, many of the comments presented here focus heavily on cultural resources. This emphasis is the product of continued cultural resource management consultation between the DOE and the CGTO, which has reinforced Indian people's awareness of the wealth of cultural resources present at the NTS. On the other hand, the potential impacts of NTS actions on other essential aspects of Indian life, such as health and socioeconomics, are virtually undocumented. This is due to the absence of consultation and research on the long-term effects of radiation exposure, nuclear waste transportation and storage on the life of Indian communities. Being a minority group, American Indians have also been overlooked in

[1] A detailed summary of the NTS EIS consultation process can be found in *Nevada Test Site Environmental Impact Statement - Summary of Meeting with Native Americans, Mercury, NV, March 17-19, 1995* (May 1995) and in Section A of the *American Indian Comments for the Nevada Test Site - Environmental Impact Statement* (June 15, 1995).

regard to issues of Environmental Justice. The CGTO recommends that these issues be systematically evaluated by the federal government. The opportunity given to the CGTO to contribute their written comments to the NTS EIS is a highly positive step the DOE has taken toward voicing Indian concerns.

The NTS EIS is a document that (a) evaluates the impacts, consequences, and cumulative effects that alternative management decisions about the future mission of the NTS will have on the environment, (b) proposes strategies for mitigating adverse impacts of the various programs and project activities being considered under each proposed alternative, and (c) develops a *Framework for the Resource Management Plan* for the NTS. The specific organization and content of an EIS is required by the law. The Native American Resource Document, therefore, is organized according to the sequence of topics discussed in the NTS EIS. In the sections that follow this introduction, the document briefly reviews past and present relationships between Indian people and NTS lands, examines impacts of past and present NTS programs and activity projects on American Indian religion, culture and economy, and summarizes the CGTO's position regarding the future mission of the NTS. In short, the Native American Resource Document describes the nature of the relationship between Indian people and NTS lands, from an all-encompassing overview to specific discussion about impacts, consequences, mitigation, and management.

The Native American Resource Document begins with a summary of formal interactions between the CGTO members and NTS EIS management (Section G.1). In Section G.2, the members of the American Indian Writers Subgroup explain their role in the production of this document and the responsibilities and difficulties they had to confront throughout the writing process.

Section G.3, Native American Overview, stresses the central role that NTS lands have had in American Indian life from antiquity to contemporary times. Moving from the concept of cultural landscape as a whole to the resources contained in a landscape, this section also examines impacts to cultural resources, Environmental Justice, health, and socioeconomics, which are categorized by the EIS as part of the "affected environment." This section also includes a brief discussion on political integration.

After introducing the American Indians' view of the NTS, Section G.4 addresses the environmental consequences of proposed NTS actions and discusses specifically the position of the CGTO toward each alternative management decision for the NTS EIS.

In the view of Indian people, the ideal mitigation strategy would be to avoid any action that further disturbs NTS lands. However, the CGTO is aware that actions must be taken to restore NTS lands and resources and keep the site safe and clean for future human use. The CGTO recommendations for mitigating adverse consequences of such actions are summarized in Section G.5.

Section G.6 explains step-by-step consultation procedures that American Indians would like federal agencies to follow in order to achieve positive government-to-government consultation relationships. This section is complemented with Attachment C, a detailed Consultation Model originally produced for the U.S. Department of Defense (DoD) that was reviewed and edited by the AIWS. Section G.7 contains the American Indian comments on the Transportation Study (Appendix I of the NTS EIS).

The Native American Resource Document concludes with a response to the draft document entitled *Framework for the Resource Management Plan.* The Native American Resource Document explains the importance of taking into consideration ecological categories of Indian people for resource management. This section (Section G.8) also provides a brief picture of future co-management relationships between the DOE and the CGTO that could potentially be implemented as part of the mission of the NTS.

American Indian Participation in the NTS EIS

The CGTO consists of the following tribes and official Indian organizations:

- *Southern Paiutes*

  Kaibab Paiute Tribe, Arizona
  Paiute Indian Tribe of Utah
  Moapa Band of Paiutes, Nevada
  Las Vegas Paiute Tribe, Nevada
  Pahrump Paiute Tribe, Nevada
  Chemehuevi Paiute Tribe, California
  Colorado River Indian Tribes, Arizona

- *Western Shoshones*

  Duckwater Shoshone Tribe, Nevada
  Ely Shoshone Tribe, Nevada
  Yomba Shoshone Tribe, Nevada
  Timbisha Shoshone Tribe, California

- *Owens Valley Paiutes and Shoshones*

  Benton Paiute Tribe, California
  Bishop Paiute Tribe, California
  Big Pine Paiute Tribe, California
  Lone Pine Paiute Tribe, California
  Fort Independence Paiute Tribe, California

- *Other Official Indian Organizations*

  Las Vegas Indian Center, Nevada
  Southern Paiute Tribal Chairman's Association, Arizona, Nevada, Utah
  Owens Valley Board of Trustees, California

American Indian Writers Subgroup

Representing the Western Shoshone:

Maurice Frank	Yomba Shoshone Tribe, Nevada
Glen Hooper	

Representing the Owens Valley Paiute/Shoshone:

Neddeen Naylor	Lone Pine Indian Tribe, California
Gaylene Moose	Big Pine Indian Tribe, California

Representing the Southern Paiute:

Betty Cornelius	Colorado River Indian Tribes, Arizona
Don Cloquet	Las Vegas Indian Center, Nevada

Coordinator

Richard Arnold	Pahrump Indian Tribe, Las Vegas Indian Center, Nevada

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G.1 American Indian Writers Subgroup

On March 17-19, 1995, representatives of the CGTO met with U.S. Department of Energy, Nevada Operations Office (DOE/NV) personnel regarding American Indian participation in the preparation of the NTS EIS. The CGTO's recommendations covered a wide range of issues.

One CGTO recommendation was that two representatives from the Western Shoshone, Owens Valley Paiute, and Southern Paiute groups be appointed to write the American Indian perspective for the NTS EIS. The CGTO recommended that all six members of the AIWS be provided with funding, technical assistance, and resources to participate in writing the American Indian perspective for the NTS EIS. Richard Arnold, executive director of the Las Vegas Indian Center in Las Vegas, Nevada, would coordinate the activities of the AIWS. The draft text produced by the AIWS was reviewed by the DOE/NV and incorporated into the Final NTS EIS, as well as being an appendix to the NTS EIS.

The DOE/NV accepted this recommendation, offering to compensate the writers for their services and travel expenses, and to provide the AIWS with funding, technical assistance, and resources needed to write the American Indian perspective for the NTS EIS. The DOE/NV and the CGTO agreed that the AIWS should meet in Las Vegas, Nevada, as frequently as needed to complete the writing tasks. The Bureau of Applied Research in Anthropology (BARA), University of Arizona, Tucson, Arizona, was contracted by the DOE/NV to assist the AIWS with this work.

G.1.1 First AIWS Meeting

The first meeting of the AIWS was held May 1-5, 1995, at the offices of IT Corporation in Las Vegas, Nevada. The goal of this meeting was to develop a writing strategy, draft an outline of writing tasks, and produce draft text. The (BARA), University of Arizona, facilitated the meeting and all AIWS members were present. The AIWS identified three major issues to be addressed in the American Indian sections of the NTS EIS:

1. That American Indians have lived on NTS lands since these people were created

2. That American Indian culture, economy, religion, and health could be affected by the proposed NTS EIS alternatives

3. That the NTS EIS actions could have long-term and cumulative consequences for American Indian culture, economy, religion, and health.

G.1.1.1 Nevada Test Site Environmental Impact Statement Implementation Plan Review. The plan contains comments and recommendations made by the CGTO during the March 1995, NTS EIS American Indian consultation meeting. The plan refers to American Indian consultation as a main component of the scoping process and as a critical source of information regarding the impact of NTS EIS proposed alternatives on natural and cultural resources important to American Indians.

The AIWS noted that three major issues discussed in the plan still do not address American Indian concerns: socioeconomic, health and safety, and Environmental Justice and equity. The AIWS felt that the CGTO should be systematically consulted about these critical issues and their direct and cumulative effects on American Indians living in the vicinity of the NTS.

G.1.1.2 Outline of Writing Tasks. The AIWS made the following three decisions regarding the writing of the American Indian perspective for the NTS EIS:

1. The AIWS will produce short technical essays to expand sections of the NTS EIS, particularly those sections that refer to cultural resources, economics, and health. These essays could be included in the main text of the NTS EIS.

2. The AIWS will also produce an Native Indian Resource Document that will become an NTS EIS appendix.

3. The text produced will be included in the report entitled *American Indian Comments for the NTS EIS.*

G.1.1.3 Draft Text. The AIWS produced short essays that document the American Indian perspective for the NTS EIS.

G.1.2 Second AIWS Meeting

The second meeting of the AIWS was held May 22-26, 1995, at the offices of IT Corporation in Las Vegas, Nevada. The goal of this meeting was to complete portions of Chapter 4 and continue writing sections of Chapter 5 of the NTS EIS. The BARA facilitated the meeting, and all seven members of the AIWS attended.

The AIWS completed the write-up of draft text for Chapters 2 and 4 of the NTS EIS and drafted sections on Environmental Justice and equity, social and economic impacts, and waste transportation and tribal enterprises to be included in Chapter 4.

Additionally, the AIWS produced draft text for the cultural resources section in Chapter 5, Environmental Consequences. This text included (1) an overview of potential impacts of the NTS EIS alternatives on American Indian cultural resources and (2) specific comments on the potential impacts of programs and activities proposed for each of those alternatives. The AIWS also discussed mitigation issues for proposed programs and activities.

G.1.3 Third AIWS Meeting

The third meeting of the AIWS was held June 9-12, 1995, at the offices of IT Corporation in Las Vegas, Nevada. The goals of this meeting were to complete and edit the cultural resources section of Chapter 5 of the NTS EIS and to produce draft text on mitigation issues for proposed programs and activities. The BARA facilitated the meetings and all AIWS members were present.

The AIWS completed and edited draft text for Chapter 5 of the NTS EIS and expanded Chapter 4 sections on Environmental Justice and equity, social and economic impacts, and waste transportation and tribal enterprises, and produced draft text on mitigation to be included in Chapters 5 and 7. The AIWS's main activities focused on a discussion of the meaning of mitigation and related concepts in the NTS EIS. The AIWS reviewed the archaeology section of Chapter 5 of this EIS, as well as all other available text, in order to establish a proper style for the American Indian text.

In addition to the writing activities, the AIWS reviewed information about other EIS projects, such as Hickinson Petroglyph Recreation Park, Navy Project Shoal Area Land Withdrawal, and the Solar Request for Proposal. The AIWS suggested that, to obtain an integrated view of present and future activities in the area and evaluate potential impacts, it is necessary to tie these outside projects to the NTS EIS.

G.1.4 Review of the *Framework for the Resource Management Plan* for the Nevada Test Site

A key issue of this meeting was the discussion of DOE/NV's commitment to prepare a resource management plan outline for the NTS. MaryEllen Giampaoli, NTS EIS Project Manager, and Kurt Rautenstrauch, EG&G Energy Measurements, Inc., the DOE/NV contractor who prepared the outline, led the discussion. The *Framework for the Resource Management Plan*, Volume 2 of the Final NTS EIS, describes how DOE/NV will prepare the Resource Management Plan following the release of the Record of Decision. The AIWS reviewed the outline and drafted an action plan to address the outline.

G.1.5 Fourth AIWS Meeting

Two AIWS meetings were held in Las Vegas, Nevada, after the public review period for the Draft NTS EIS (issued January 1996). The main purposes of these meetings were (1) to review and edit the Draft American Indian Comments for the NTS EIS, (2) to respond to public comments on document, and (3) to write additional text for inclusion in the NTS EIS. The meetings were

sponsored by the DOE/NV and facilitated by the University of Arizona.

The fourth AIWS meeting was held at the Science Applications International Corporation offices in Las Vegas, Nevada, on March 18-21, 1996. Present at this meeting were:

AIWS
Betty Cornelius
Richard Arnold
Maurice Frank
Don Cloquet

University of Arizona
Richard Stoffle
M. Nieves Zedeno

At this meeting, the AIWS refined the original list of writing tasks and identified those tasks to be completed before the Final NTS EIS is issued. The writing tasks were:

1. Socioeconomic issues
2. Risk perception
3. Summary of the CGTO position regarding the four NTS EIS alternatives
4. Waste transportation study
5. Comments on the Draft *Framework for the Resource Management Plan*
6. Consultation procedures
7. Executive summary.

The AIWS completed the write-up of text on socioeconomic issues, specifically, the impact of NTS alternative actions on tribal employment and education. This section is suggested for inclusion in Chapter 4 of the NTS EIS (Volume 1). An outline of American Indian consultation procedures was also drafted for Chapter 8 of the NTS EIS (Volume 1). A draft executive summary for Appendix G and summary of the CGTO position regarding the four NTS EIS action alternatives were completed as well. Additionally, information on American Indian nuclear risk perception was collected from the AIWS. This information was developed into a section on Environmental Justice for Chapters 4 and 5 of the NTS EIS.

On Wednesday, March 20, 1996, the AIWS met with DOE officials to discuss the current American Indian involvement in the NTS EIS, as well as other consultation issues. The DOE/NV officials present at this meeting were Don Elle, Director of the Environmental Protection Division; Kathy Izell, Assistant Manager for Environment, Safety, Security, and Health; Joe Fiore, Acting Deputy Manager; Terry Vaeth, Acting Manager; and Robert Furlow, Project Manager and Agency Point of Contact for American Indian consultation.

On Thursday March 21, 1996, MaryEllen Giampaoli, NTS EIS manager, and Timothy Killen, task leader of the Draft *Framework for the Resource Management Plan*, gave a brief presentation of this document to the AIWS. The AIWS decided to focus on comments for the Resource Management Plan at the following meeting. The text produced the fourth AIWS meeting and was compiled into a workbook to be submitted to the CGTO for review and comment.

G.1.6 NTS EIS Consultation Meeting with the CGTO

On April 15-17, 1996, the DOE/NV conducted a consultation meeting at the NTS with the CGTO representatives to update them on the changes, final schedule, and public comments for the NTS EIS. The NTS EIS manager provided updated information on these issues. The AIWS gave a report of activities and writing tasks completed during the fourth AIWS meeting. The CGTO reviewed and commented on the draft text developed by the AIWS and offered suggestions for expanding sections of this text.

The AIWS also presented a draft of their paper entitled *Voicing American Indian Concerns through an Indian EIS Writing Team* to CGTO representatives. The AIWS explained that this paper will be presented at the Meetings of National Association of Environmental

Professionals in Houston, Texas, on June 4-6, 1996. The CGTO approved this presentation and recommended that the DOE/NV fully support this effort.

G.1.7 Fifth AIWS Meeting

After the CGTO meeting the AIWS continued working on the write-up of new text for the NTS EIS. The fifth AIWS meeting was held at the offices of Science Applications International Corporation in Las Vegas, Nevada, on April 18-21, 1996. The main goals of this meeting were (1) to incorporate the CGTO comments, and complete and edit the text developed during the fourth AIWS meeting, (2) to focus writing efforts on the Transportation Study and the *Framework for the Resource Management Plan*, and (3) to complete an expanded inventory of American Indian traditional-use plants and animals for the NTS EIS. The AIWS also completed sections of text on Perceived Risks and Environmental Justice to be included in Chapter 5 of the NTS EIS.

On April 21, the AIWS completed the write-up of new text for Appendix G, as well as sections of text to be included in four chapters of Volume 1 and in three chapters of Volume 2 (*Framework for the Resource Management Plan*) of the NTS EIS. By the end of the fifth AIWS meeting, new text produced for the two volumes of the NTS EIS and for Appendix G included:

- Glossary
- Executive Summary
- AIWS meeting paper
- Summary of the CGTO position regarding the NTS EIS alternatives
- Socioeconomic Issues
- Environmental Justice
- Consultation Procedures
- Comments on the Transportation Study
- Framework for the Resource Management Plan.

The following section is an excerpt from the paper entitled *Voicing American Indian Concerns through an Indian EIS Writing Team.* The AIWS will present this paper at the annual meeting of the National Association of Environmental Professionals in Houston, Texas. The excerpt explains how the AIWS proceeded to write this text, their role and responsibilities in the production of the American Indian Resource Document, and the difficulties they had to overcome throughout the preparation of text for the NTS EIS. A copy of the published proceedings paper (National Association of Environmental Professionals Conference Proceedings) will be available through the DOE/NV Environmental Protection Division Office after June 7, 1996.

G.2 Voicing American Indian Concerns Through an Indian EIS Writing Team

Prepared By:

Richard Arnold, Pahrump Indian Tribe, Pahrump, NV
Don Cloquet, Las Vegas Indian Center, Las Vegas, NV
Betty Cornelius, Colorado River Indian Tribe, Parker, AZ
Maurice Frank, Yomba Shoshone Tribe, Austin, NV
Glen Hooper, Yomba Shoshone Tribe, Austin, NV
Gaylene Moose, Big Pine Indian Tribe, Big Pine, CA
Neddeen Naylor, Lone Pine Indian Tribe, Lone Pine, CA

G.2.1 Abstract

An American Indian writing team appointed by the 19 members of the CGTO prepared text for direct inclusion in the NTS EIS, prepared under the supervision of the DOE/NV. The procedure of having American Indians work directly on this EIS has produced relevant text in a timely manner, while keeping secret certain knowledge about Indian cultural resources.

G.2.2 Excerpt Introduction

American Indian concerns are by law and regulation to be incorporated into the environmental impact assessments of planned federal projects. Tribes do not consider themselves as "stakeholders" as defined, but rather a sovereign government within the boundaries of the United States who have a unique relationship and status unlike any other. All too often tribal input is gathered through regularly scheduled public scoping meetings. This approach is not the appropriate manner in which to involve Indian tribes. These tribal governments, and the people they represent, generally desire to have their environmental action preferences fully voiced in the NTS EIS on a government-to-government basis.

Two factors directly impact the quantity and quality of Indian participation: (1) the time permitted for their involvement; and (2) the level of confidentiality that can be provided to protect cultural resources. Time is needed for Indian tribes to understand what actions are being proposed and to learn what rules govern the production of this EIS so that knowledgeable tribal members can be selected to participate and devote sufficient time for the identification and evaluation of potentially impacted resources. When past American Indian studies can be used as a base, shorter evaluation periods are appropriate; unfortunately, there is a national tendency to involve tribes late in this EIS process or not at all. Indian people demand rights of meaningful involvement and confidentiality of information shared about sacred places and natural resources used in ceremonies, and do not want these threatened by being made public during this EIS process. Indian people would prefer not to participate in this EIS unless they can be assured that sharing culturally sensitive information with the agency will afford more protection rather than threaten cultural resources. This paper describes the formation and successful performance of the first American Indian EIS writing team established and supported by a major federal agency. The paper describes how past DOE/NV consultations with the 19 members of the CGTO provided the foundation of knowledge and trust that made the Indian EIS writing team possible. The paper includes how the DOE/NV EIS writing team trained the Indian writing team so that Indian EIS text would be produced under common assumptions and with similar quality controls. The paper ends with a general model for involving American Indian tribal governments and organizations into the EIS process, using the Indian EIS writing team approach.

G.2.3 Issues in the Functioning of the Subgroup

G.2.3.1 Translating Ideas. Members of the AIWS had to learn about this EIS and how to translate American Indian concerns into the EIS language. When members of the CGTO talk among themselves, they do so from the perspective of a common culture and history. Many issues are understood, and these remain an unspoken dimension of American Indian conversations. Some issues are specific to gender; there are issues that women are assumed to know about and when discussion turns to these subjects men listen rather than speak. Other issues involve respect for age; elders have a special place in these Indian societies, so when they speak special attention is given. Even the style of speech is an understood issue of communication, because there is an appropriate amount of time after a speaker ends his presentation before someone else should speak. There are certain understandings that should not be expressed in public communication, especially when non-Indians are present. When certain issues are discussed, Indian speakers may be accused of "Talking Too Much or Telling Too Much." All these dimensions of culturally based Indian communication can be challenged when AIWS members translate their assessments of potential project impacts into the language of the EIS.

The amount of responsibility placed on the AIWS members is in direct proportion to the amount of consultation that has occurred between the agency and the culturally affiliated tribes. When the AIWS has years of consultation on which to build an EIS argument, they are more confident of what variables they suggest and of ways to study the issue. Key here is the issue of cultural

confidentiality, because certain issues may be inappropriate for public discussion. The AIWS will always be concerned about "Not saying too much to non-Indians." If the issues have emerged in previous consultation studies, however, the AIWS can simply raise the variable and cite the report. The NTS consultation has produced 10 years of issues raised and studies completed, so when talking about cultural resources, the AIWS worked from a position of strength. When they moved to topics that had not been previously assessed, however, they were much more tenuous about raising issues and suggesting research methodologies and anticipating the findings of systematic research.

G.2.3.2 Negotiating Text. In an EIS, all variables, levels of analysis, and descriptive text is negotiated. By this, it is understood that something like the relationship between economics and residence on a reservation or radiation and air as a living organism cannot become a variable for consideration in the EIS unless a strong and reasonable argument can be made by someone that it is potentially impacted by the proposed actions under consideration. Generally, variables are established very early in the scoping stages of an EIS. Clear cause and effect hypotheses must be described before a variable is included and before a study can be designed to assess potential impacts. Once a variable becomes a part of the EIS analysis, it is necessary then to specify the type and level of analysis required to fully or appropriately assess the potential impact of the proposed project on it. A study design is agreed to, funds are allocated, and a research team is selected to conduct the research. When the analysis is completed, the EIS team must decide how much space to allocate for presenting the findings. Since all EIS text is negotiated, the further along the EIS process proceeds the more difficult it is to change the structure of the document. Early involvement of Indian writers assures them a better chance to produce and argue the EIS studies and findings.

Consensus decisionmaking characterizes how most American Indian committees operate. In this context, alternative views are carefully expressed so as not to imply others are incorrect. Forceful debate is not encouraged, because of the mutual respect observed and the ongoing relationships between the committee members is considered more important than a specific issue under discussion.

The EIS process is a virtual battle-ground of debate over which variables should be included, how much data collection is needed, and the amount of report space to allocate for presenting the findings. EIS teams typically have dozens of experts who represent the subject in the agency, and generally have not and will not again work directly with one another. The DOE EIS writing team, for example, consisted of 80 experts with more than 1,082 years of collective professional research and EIS preparation experience. Their performance is judged by their unit in the agency according to how much attention the EIS devotes to their subjects. Good debate resolutions are often described as being when everyone is equally unhappy about the decision. In this environment, the AIWS had to change the rules under which they would operate and become each other's first critic. If they could not convince each other, then they probably could neither convince the EIS writing team nor the agency decisionmakers who would use the findings to formulate a Record of Decision.

G.2.3.3 Supporters and Detractors. The Indian writers' involvement in this EIS process would not have occurred or been as successful without the foresight and continuous commitment of key federal employees and program managers who supported the American Indian writing effort. Since the inclusion of Indian writers in an EIS had never been undertaken previously by the DOE, various apprehensions developed, as might be expected. Interestingly enough, during this EIS scoping period, many of the concerns about the potential adverse effects of American Indian involvement were voiced by individuals who neither worked on the EIS study team nor worked with the DOE/NV. These concerns ranged from questioning the appropriateness of actually including American Indian perspectives in an EIS, to the fear of setting a precedence within the DOE and in other federal agencies.

Throughout the development of the actual text and the final source document, those individuals who originally expressed doubts about the process regained their confidence, and eventually concluded that American Indians should be included in the EIS process in order to share important cultural information relating to the area. Additionally, the Indian writers provided interpretative information that many times either expanded or contradicted the conclusions of other scientists involved in the EIS. Often times, reconsideration and estimations about the cumulative effects on their reservations were provided, which were typically overlooked or misunderstood. Many of those who initially were considered detractors have now seen the demonstrated value of Indian writers in the EIS. Both the U.S. Bureau of Land Management and the U.S. Forest Service (not initial critics) have now contacted the CGTO about similar involvement in their agency's EIS and resource management plans.

G.2.3.4 Trainers. How do you get a team of Indian people up to speed quickly so they can understand what data and writing rules govern the production of an EIS? Probably one of the most challenging tasks for both the American Indian writers and the DOE scientists was learning about each other's frame of reference. According to one member of the AIWS, although we never fully understood each other, a better understanding and familiarity was achieved. This was followed by explanations about the scientific outcomes and data in a manner which was responsive to the needs of the Indian writers. Some of the primary ways of presenting this information was to respond to direct questions, provide background information about the project, thoroughly explain the study design, and finally concluding with an analysis and interpretation of scientific findings. This approach worked successfully and allowed the presented information to be discussed among the writers who in turn formulated the information within their own cultural context and frame of reference. Occasionally, difficulties arose due to the complexities of a sitewide EIS and in understanding the relationship, if any, to other EIS's and environmental assessments that were occurring simultaneously within the DOE.

To further ensure that the text developed by the Indian writing team was appropriate and consistent with the rest of the EIS document, ongoing critiques of Draft Indian text were requested by the Indian writers. Key people were identified from the EIS writing team to help critique the format and style of the EIS text produced by the Indian writers. These key people possessed previous cross-cultural interactions and had experience with diverse populations. This type of background proved to be invaluable throughout the entire process.

G.2.4 Where Do We Go From Here?

After completion of the final text, the AIWS made a formal presentation to the entire CGTO for review and acceptance. This presentation provided an opportunity for writers to describe the EIS process, dilemmas, and a comprehensive overview of the text. Members of the CGTO were asked to thoroughly review the document, make editorial changes, and provide any new information not previously addressed. This information was then synthesized by the AIWS for inclusion into the text.

This particular meeting was a very intense experience due to the complexities surrounding the NTS EIS. However, when discussions revolved around familiar topics such as Indian place names, or plant and animal identification, the demeanor of the meeting changed drastically. At the conclusion of the meeting, the CGTO made various recommendations including support for the AIWS to present this paper describing their experiences with the NTS EIS.

The CGTO hopes that their effort will encourage other federal agencies to include American Indian tribes and organizations into their EIS processes and to encourage American Indian tribes and organizations to become actively involved in the protection of their interests.

Over the last decade, the DOE NV has supported a series of systematic American Indian studies that have provided an extensive set of elders' opinions about the cultural significance of the lands and the natural resources of the NTS. Despite this

extensive effort, many studies are yet to be undertaken, and some kinds of studies are yet to be proposed. Naturally, a full assessment of potential projects requires a complete database of American Indian opinion regarding a variety of topics. As new studies are completed, Indian people will be able to speak with increasing confidence when invited to participate in the assessment of potential DOE activities.

The AIWS and the CGTO are becoming recognized for their knowledge and expertise gained throughout the EIS process. Their efforts can serve as a model for involving American Indians in future EIS efforts. Already other Indian tribes and federal agencies are reviewing this process and considering similar American Indian participation in the management of Indian holy lands.

G.3 Native American Overview

G.3.1 Centrality Issue

For many centuries, the NTS has been a central place in the lives of American Indians. The NTS and nearby lands contain traditional gathering, ceremonial, and recreational areas for Indian people. From antiquity to contemporary times, this area has been used continuously by many tribes. It contains numerous ceremonial resources and power places that are crucial for the continuation of American Indian culture, religion, and society. Until the mid-1900s, traditional festivals involving religious and secular activities attracted Indian people to the area from as far as San Bernardino, California. Similarly, groups came to the area from a broad region during the hunting season and used animal and plant resources that were crucial for their survival and cultural practices.

Many non-Indian peoples hold a different view of these lands. For example, the U.S. Federal Government has maintained the perception that the NTS is a remote wasteland with very low population density and other characteristics that make it ideal for developing defense and energy projects. Because of this "wasteland perception," NTS lands have been withdrawn by the Federal Government since 1943.

Despite the loss of some traditional lands to pollution and reduced access, Indian people have neither lost their ancestral ties to, nor have forgotten, their cultural resources on the NTS. There is continuity in the American Indian use of and broad cultural ties to the NTS. Indian people have cared for NTS resources and will continue to do so.

The NTS land was part of cultural landscapes that extended many miles in all directions. Because this land is a part and not the whole, it is, therefore, essential that DOE determinations of cultural affiliation, ancestral ties, and impact of NTS actions and programs on traditional Indian culture, religion, and society be made according to the broad regional use of NTS lands.

Recognizing this continuity in traditional ties between the NTS and Indian people, in 1985 the DOE began long-term research involving the inventory and evaluation of American Indian cultural resources in the area. This research was designed to comply with the AIRFA, which specifically reaffirms the First Amendment of the United States Constitution and protects the rights of American Indian people to have access to lands and resources essential in the conduct of their traditional religion. These rights are exercised not only in tribal lands, but also beyond the boundaries of a reservation (Stoffle et al., 1994a).

To reinforce their cultural affiliation rights and to prevent the loss of ancestral ties to the NTS, 17 tribes and organizations have aligned themselves together to form the CGTO. This group is formed by officially appointed representatives who are responsible for representing their respective tribal concerns and perspectives. The CGTO has established a long-standing relationship with the DOE. The primary focus of the group has been the protection of cultural resources. The DOE and the CGTO have participated in cultural resource management projects, including the Yucca Mountain Project (Stoffle, 1987; Stoffle et al., 1988b, 1989a, 1989b, 1990a, 1990b, 1990c; Stoffle and Evans, 1988,

1990, 1992) and the Underground Weapons Testing Project (Stoffle et al., 1994b).

The extensive information compiled through long-term research sponsored by the DOE demonstrates that American Indian cultural resources are not limited to archaeological or historical remains of native ancestors, but include all natural resources, as well as geological formations contained in the NTS landscape. Natural resources constitute critical components of American Indian daily life and religious beliefs. Plants and animals are a source of food, raw materials, and medicine. Ritual practices cannot be properly carried out without plants and animals. Similarly, natural landforms mark locations that are significant for keeping the historic memory of American Indian people alive and for teaching children about their culture and history.

This land and its resources are well-known by American Indian people, who consider the NTS as a central part of their cultural landscape. This knowledge has allowed them to be self-sufficient and to transfer all their cultural values and practices to future generations until this day.

G.3.2 American Indian Cultural Resources

G.3.2.1 Nevada Test Site. The CGTO knows, based upon its collective knowledge of Indian culture and past American Indian studies, that American Indian people view cultural resources as being integrated. Thus, certain systematic studies of a variety of American Indian cultural resources must be conducted before the cultural significance of a place, area, or region can be fully assessed. Although some of these studies have been conducted on the NTS and nearby lands, many studies still need to be completed. In some portions of the NTS, a number of American Indian studies have been conducted, while in other areas studies have not begun. A number of studies are currently planned.

Indian people can fully assess the cultural significance of a place and its associated natural and cultural resources when all studies have been completed and our governments and tribal organizations have reviewed the recorded thoughts of our elders and have officially supported these conclusions. American Indian studies focus on one topic at a time so that tribes and organizations can send experts in the subject being assessed. The following is a list of studies that are required for a complete American Indian assessment:

1. Ethnoarchaeology - the interpretation of the physical artifacts produced by our Indian ancestors

2. Ethnobotany - the identification and interpretation of the plants used by Indian people

3. Ethnozoology - the identification and interpretation of the animals used by Indian people

4. Rock art - the identification and interpretation of traditional Indian paintings and rock peckings

5. Traditional Cultural Properties - the identification and interpretation of places of central cultural importance to a people, called Traditional Cultural Properties; often Indian people refer to these as "power places"

6. Ethnogeography - the identification and interpretation of soil, rocks, water, and air

7. Cultural Landscapes - the identification and interpretation of spatial units that are culturally and geographically unique areas for American Indian people.

When all of these subjects have been studied, then it will be possible for American Indian people to assess three critical issues: (1) What is the natural condition of this portion of our traditional lands? (2) What has changed due to DOE activities? and (3) What impacts will proposed alternatives have on either furthering existing changes in the natural environment or restoring our traditional lands to their natural condition? Indian people believe that the natural state of their traditional lands was what existed before 1492, when Indian people were fully responsible for the continued use and management of these lands.

The NTS and nearby lands were central to the Western Shoshone, Owens Valley Paiute, and Southern Paiute people (see Figure G-1, American Indian region of influence map). The lands were central in the lives of these people and so were mutually shared for religious ceremony, resource use, and social events (Stoffle et al., 1990a and b). When Europeans encroached on these lands, the numbers of Indian people, their relations with one another, and the condition of their traditional lands began to change. European diseases killed many Indian people; European animals replaced Indian animals and disrupted fields of natural plants; Europeans were guided to and then assumed control over Indian minerals; and Europeans took Indian agricultural areas.

The withdrawal of Nevada's lands for the use of the War Department as an aerial bombing and gunnery range in 1942 (Executive Orders No. 8578 of October 1940 and No. 9019 of January 12, 1942) and later the final land withdrawal of February 12, 1952 (Public Law Order 805), for use by the Atomic Energy Commission, continued the process of Euroamerican encroachment on these Indian lands. Pollution and destruction followed in the form of bombs and atomic testing, thus causing some places to become unusable again for Indian people. On the other hand, many places were protected by this land withdrawal because pothunters were kept from stealing artifacts from rock shelters and European animals were kept from grazing on Indian plants. The forced removal of Indian people from the NTS lands was combined with their involuntary registration and removal to distant reservations in the early 1940s. Indian people were thus removed from lands that had been central in their lives for thousands of years.

Despite the pollution and destruction of some cultural resources and the physical separation from the NTS and neighboring lands, Indian people continue to value and recognize the central role of these lands in their continued survival. Recognizing this continuity in traditional ties between the NTS and Indian people, the DOE in 1985 began long-term research involving the inventory and evaluation of American Indian cultural resources in the area. This research was designed to comply with AIRFA, which specifically reaffirms the First Amendment of the U.S. Constitution rights of American Indian people to have access to lands and resources essential in the conduct of their traditional religion. These rights are exercised not only in tribal lands, but also beyond the boundaries of a reservation (Stoffle et al., 1994a and b).

To reinforce their cultural affiliation rights and to prevent the loss of ancestral ties to the NTS, 17 tribes and organizations have aligned themselves to form the CGTO. This group is formed by officially appointed representatives who are responsible for representing their respective tribal concerns and perspectives. The CGTO has established a long-standing relationship with the DOE. The primary focus of the group has been the protection of cultural resources.

The DOE and the CGTO have participated in cultural resource management projects, including the Yucca Mountain Project (Stoffle, 1987; Stoffle et al., 1988b, 1989a, 1989b, 1990a, 1990b, 1990c; Stoffle and Evans, 1988; 1990; 1992;) and the Underground Weapons Testing Project (Stoffle et al., 1994a and b). These studies are used in this report, along with the collective knowledge of the CGTO, as the basis of the comments in this NTS EIS. The cultural resource management projects sponsored by the DOE have been extremely useful for expanding the inventory of American Indian cultural resources beyond the identification of archaeological remains and historic properties.

To date, the DOE/NV's American Indian Program in the Environmental Protection Division has supported the in-depth study of 107 plants and more than 20 animals that are present on the NTS. These plants and animals (see Tables G-1 and G-2) were identified by Indian elders as part of their traditional resources. Attachments A and B contain all plants and animals that are both present on the NTS and potentially will affect American Indian cultural resources within an area roughly bounded and known from various sources to have been used by either Western Shoshone, Southern Paiutes, or Owens Valley Paiutes. Attachments A and B also contain the Indian names for these plants and animals.

Table G-1. American Indian traditional-use plants present at the NTS (Page 1 of 4)

Scientific Name	Common Name	GC/UTTR	YM	PM/RM
1. *Ambrosia dumosa*	White bursage	X		
2. *Amelanchier utahensis*	serviceberry		X	
3. *Amsinckia tesselata*	fiddleneck		X	
4. *Anemopsis californica*	yerba mansa		X	
5. *Arabis pulchra*	wild mustard		X	
6. *Artemisia ludoviciana*	sagebrush, wormwood	X	X	
7. *Artemisia nova*	black sagebrush	X		X
8. *Artemisia tridentata*	big sagebrush		X	X
9. *Atriplex canescens*	four-winged saltbush	X		
10. *Atriplex confertifolia*	shadscale		X	
11. *Brodiaea pulchella*	desert hyacinth		X	
12. *Calochortus bruneaunis*	sego lily			X
13. *Calochortus flexuosus*	mariposa lily		X	
14. *Carex spp.*	sedge	X		
15. *Castilleja chromosa*	Indian paintbrush		X	
16. *Castilleja martinii*	narrowleaf paintbrush			X
17. *Ceratoides lanata*	winterfat			X
18. *Chenopodium fremontii*	Fremont goosefoot			X
19. *Chrysothamnus nauseosus*	rabbitbrush	X	X	X
20. *Cirsium mohavense*	desert thistle		X	
21. *Coleogyne ramosissima*	black brush		X	
22. *Coryphantha vivipara* var.	fishhook cactus	X	X	
23. *Coryphantha vivipara* var.	foxtail cactus			X
24. *Datura meteloides*	jimsonweed	X	X	
25. *Descurainia pinnata*	tansy mustard		X	
26. *Distichlis spicata*	salt grass		X	
27. *Echinocactus polycephalus*	cotton-top cactus		X	
28. *Echinocereus englemannii*	hedge hog cactus	X	X	
29. *Eleocharis palustris*	spikerush			X
30. *Elymus elymoides*	squirrel tail			X
31. *Encelia virginensis* var.	brittlebush		X	

NOTE: American Indian traditional-use plants present in the NTS area are identified in the project reports entitled *Native American Plant Resources in the Yucca Mountain Area, Nevada* (YM) (Stoffle et al., 1989b) and *Native American Cultural Resources on Pahute and Rainier Mesas, Nevada Test Site (PM/RM)* (Stoffle et al., 1994b). This table includes traditional-use plants identified in the Colorado River Corridor Study (GC) and in the Utah Test and Training Range Study (UTTR) that are also present at the NTS (see NTS EIS, Table 4-38).

Table G-1. American Indian traditional-use plants present at the NTS (Page 2 of 4)

Scientific Name	Common Name	GC/UTTR	YM	PM/RM
32. *Ephedra nevadensis*	Indian tea	X	X	X
33. *Ephedra viridis*	Indian tea		X	X
34. *Eriastrum eremicum*	desert eriastrum			X
35. *Eriogonum inflatum*	desert trumpet		X	
36. *Erodium cicutarium*	herringbill			X
37. *Euphorbia albomarginata*	rattlesnake weed		X	X
38. *Geastrum spp.*	earthstar		X	
39. *Gilia inconspicua*	gilia			X
40. *Grayia spinosa*	spiny hop sage			X
41. *Gutierrezia microcephala*	matchweed	X	X	
42. *Juncus mexicanus*	wire grass		X	
43. *Juniperus osteosperma*	juniper, cedar	X	X	X
44. *Krameria parvifolia*	range ratany		X	
45. *Larrea tridentata*	creosote bush	X	X	
46. *Lewisia rediviva*	bitter root			X
47. *Lycium andersonii*	wolfberry	X	X	
48. *Lichen*	lichen		X	X
49. *Lycium pallidum*	wolfberry		X	
50. *Menodora spinescens*	spiny menodora		X	
51. *Mentzelia albicaulis*	desert corsage		X	X
52. *Mirabilis multiflora*	four o'clock	X		X
53. *Nicotiana attenuata*	coyote tobacco			X
54. *Nicotiana trigonophylla*	Indian tobacco	X	X	
55. *Opuntia basilaris*	beavertail cactus	X	X	
56. *Opuntia echinocarpa*	golden cholla cactus		X	
57. *Opuntia erinacea*	Mojave prickly pear	X	X	
58. *Opuntia polycantha*	grizzly bear cactus			X
59. *Orobanche corymbosa*	broomrape, wild			X
60. *Oryzopsis (Stipa) hymenoides*	Indian ricegrass	X	X	X
61. *Penstemon floridus*	Panamint beard tongue			X
62. *Penstemon pahutensis*	Pahute beard tongue			X

NOTE: American Indian traditional-use plants present in the NTS area are identified in the project reports entitled *Native American Plant Resources in the Yucca Mountain Area, Nevada* (YM) (Stoffle et al., 1989b) and *Native American Cultural Resources on Pahute and Rainier Mesas, Nevada Test Site* (PM/RM) (Stoffle et al., 1994b). This table includes traditional-use plants identified in the Colorado River Corridor Study (GC) and in the Utah Test and Training Range Study (UTTR) that are also present at the NTS (see NTS EIS, Table 4-38).

Table G-1. American Indian traditional-use plants present at the NTS (Page 3 of 4)

Scientific Name	Common Name	GC/UTTR	YM	PM/RM
63. *Peraphyllum ramosissimum*	squawapple		X	
64. *Phragmites australis*	cane, reed	X	X	
65. *Pinus monophylla*	pinyon pine		X	X
66. *Prosopis glandulosa*	mesquite	X	X	
67. *Prosopis pubescens*	screwbean		X	
68. *Psorothamnus polydenius*	dotted dalea		X	
69. *Purshia glandulosa*	buckbrush		X	
70. *Purshia mexicana*	cliffrose			X
71. *Purshia tridentata*	buckbrush			X
72. *Quercus gambelii*	scrub oak		X	X
73. *Rhus aromatica*	skunkbush, sumac			X
74. *Rhus trilobata* var. *anisophylla*	squawbush		X	
75. *Rhus trilobata* var. *simplicifolia*	squawbush	X	X	
76. *Ribes cereum*	white squaw currant			X
77. *Ribes velutinum*	desert gooseberry			X
78. *Rosa woodsii*	woods rose			X
79. *Rumex crispus*	curly dock, wild rhubarb		X	
80. *Salix exigua*	willow	X	X	
81. *Salix gooddingii*	black willow	X	X	
82. *Salsola iberica*	Russian thistle	X		X
83. *Salvia columbariae*	chia sage		X	
84. *Salvia dorrii*	purple sage, Indian	X		
85. *Sarcobatus vermiculatus*	greasewood	X		
86. *Sisymbrium altissimum*	tumbling mustard			X
87. *Sphaeralcea ambigua*	globe mallow	X	X	X
88. *Stanleya pinnata*	Indian spinach	X	X	X
89. *Stephanomeria sp. spinosa*	spiny wire lettuce, gum	X	X	
90. *Stipa speciosa*	bunchgrass			
91. *Streptanthella longirostris*	wild mustard		X	
92. *Streptanthus cordatus*	wild mustard		X	
93. *Suaeda torreyana*	seepweed		X	
94. *Symphoricarpos longiflorus*	snowberry		X	

NOTE: American Indian traditional-use plants present in the NTS area are identified in the project reports entitled *Native American Plant Resources in the Yucca Mountain Area, Nevada* (YM) (Stoffle et al., 1989b) and *Native American Cultural Resources on Pahute and Rainier Mesas, Nevada Test Site* (PM/RM) (Stoffle et al., 1994b). This table includes traditional-use plants identified in the Colorado River Corridor Study (GC) and in the Utah Test and Training Range Study (UTTR) that are also present at the NTS (see NTS EIS, Table 4-38).

Table G-1. American Indian traditional-use plants present at the NTS (Page 4 of 4)

Scientific Name	Common Name	GC/UTTR	YM	PM/RM
95. *Symphoricarpos spp.*	snowberry			
96. *Tessaria sericeae*	arrowweed	X	X	
97. *Thamnosma montana*	turpentine bush	X	X	
98. *Thelypodium integrifolium*	wild cabbage		X	
99. *Typha domingensis*	cattail		X	
100. *Typha latifolia*	cattail	X	X	
101. *Veronica anagallis-aquatica*	speedwell		X	
102. *Vitis arizonica*	wild grape	X	X	
103. *Xylorhiza tortifolia*	desert aster		X	
104. *Yucca baccata*	banana yucca	X	X	X
105. *Yucca brevifolia*	Joshua tree		X	
106. *Yucca spp.*	yucca		X	
107. *Yucca schidigera*	Mojave yucca ;Spanish		X	

NOTE: American Indian traditional-use plants present in the NTS area are identified in the project reports entitled *Native American Plant Resources in the Yucca Mountain Area, Nevada* (YM) (Stoffle et al., 1989b) and *Native American Cultural Resources on Pahute and Rainier Mesas, Nevada Test Site* (PM/RM) (Stoffle et al., 1994b). This table includes traditional-use plants identified in the Colorado River Corridor Study (GC) and in the Utah Test and Training Range Study (UTTR) that are also present at the NTS (see NTS EIS, Table 4-38).

Table G-2. American Indian traditional-use animals present at the NTS

Scientific Name	Common name
Alectoris chukar	chukar
Ammospermophilus leucurus	white-tailed antelope squirrel
Amphispiza bilienata	black-throated sparrow
Aquila chrysaetos	golden eagle
Buteo jamaicensis	red-tailed hawk
Callipepla gambelii	Gambel's quail
Canis latrans	coyote
Cicadidae spp.	cicada
Cnemidophorus tigris	western whiptail lizard
Canis latrans	coyote
Colaptes auratus	northern flicker
Crotalus spp.	rattlesnake
Eutamias dorsalis	cliff chipmunk
Felis concolor	mountain lion
Felis rufus	bobcat
Formicidae formicinae	mound-building ant (red and black ant)
Gopherus agassizii	desert tortoise
Haliaeetus leucocephalus	bald eagle
Odocoileus hemionus	mule deer
Ovis canadensis	bighorn sheep
Sauromalus obesus	chuckwalla
Spizella breweri	Brewer's sparrow
Stagmomantis spp.	praying mantis
Sylvilagus spp.	cottontail
Vulpes velox	kit fox
Zanaida macroura	mourning dove

NOTE: American Indian traditional-use animals are identified in the project report entitled *Native American Cultural Resources on Pahute and Rainier Mesas, Nevada Test Site* (Stoffle et al., 1994b). This table presents only a partial list of traditional-use animals present at the NTS (see NTS EIS, Table 4-39). To date, no systematic or extensive animal studies have been conducted at the NTS.

The CGTO knows that the actions considered in the NTS EIS potentially will affect American Indian cultural resources within an area roughly bounded by where these people live today on their traditional lands (see Figure G-1). The proposed NTS EIS actions will have cultural effects within this region of influence because of the cultural centrality of these lands to all three ethnic groups (Western Shoshone, Owens Valley Paiute, and Southern Paiutes). Within this region of influence, specific actions will have direct local impacts. Ultimately, however, any action that moves the NTS away from or back towards its natural state has influence on all Indian people.

The CGTO recognizes that some of the actions proposed in the NTS EIS will have direct impacts on other Indian tribes and organizations. For example, the Project Shoal Area is located on the traditional lands of Northern Paiute people. The Eldorado Valley actions potentially impact the Mohave people. The return of radioactive waste to the NTS has permitted and potentially will permit people like the Alaskan natives to have their lands restored to a natural state (see Project Chariot Report, DOE/NV, 1994). Therefore, the CGTO defines the No Action Alternative region of influence map in an effort to focus on the cultural concerns of those people having traditional ties to the NTS itself, but in so doing does not intend to preclude the cultural concerns of other Indian ethnic groups.

G.3.2.1.1 Mercury Valley, Section 4.1.10—The CGTO knows that the Mercury Valley hydrographic area contains a wide range of important cultural resources, including plants, animals, and archaeological sites. This knowledge comes from frequent visits by CGTO members to this area. Observed plants in this valley include Indian rice grass (*Oryzopsis hymenoides*), prince's plume (*Stanleya pinnata*), yucca (*Yucca Baccata*), and sacred datura (*Datura meteloides*). These plants represent sources of food, fiber, and medicine. Some important animal resources are rabbit, turtle, coyote, and chuckwalla. These and other Indian cultural resources found in Mercury Valley were and continue to be critical in the lives and culture of Indian peoples. No systematic American Indian studies have been conducted in Mercury Valley; therefore, at this time, it is not possible to completely assess the cultural significance of this area.

G.3.2.1.2 Rock Valley, Section 4.1.10—The CGTO knows that the Rock Valley hydrographic area contains a wide range of important cultural resources, including plants, animals, archaeological sites, and minerals. One formal American Indian plant study involving tribal elders who are plant experts was conducted in Rock Valley as part of the Yucca Mountain Project. A total of 32 medicine and food plants in upper Rock Valley were identified as part of the Yucca Mountain Project ethnobotany study (Stoffle et al., 1989b). Another 10 traditional-use plants were identified at the northeast base of Little Skull Mountain near the divide between Rock Valley and Jackass Flats (Stoffle et al., 1988a). Some of the important animals in the valley include rabbit, turtle, coyote, and whiptail lizard, which were used for food, ceremony, and eye surgery. Systematic American Indian studies of animals and archaeology have not been conducted in Rock Valley; therefore, a complete assessment of the cultural significance of this area is not possible at this time.

G.3.2.1.3 Fortymile Canyon and Jackass Flats, Section 4.1.10—The CGTO knows that the Fortymile Canyon and Jackass Flats hydrological area contains a wide range of important cultural resources, including plants, animals, archaeological sites, minerals, and power places. Three formal plant studies were conducted in this area as part of the Yucca Mountain Project; these studies identified 13 traditional-use plants (Stoffle et al., 1988a).

Fifteen formal ethnoarchaeological studies were conducted in this area as part of the Yucca Mountain Project; these studies identified numerous archaeological resources in this area, dating as early as Clovis (10,000 years ago) (Stoffle et al., 1989a). Also present in this area are important minerals, which were extracted by Indian people to make tools and other stone artifacts. Traditional quarry sites and localities are associated with these mineral resources. At least one power place known to be associated with traditional healing ceremonies is located in this area. Fortymile Canyon is well-known among Indian people who continue to use

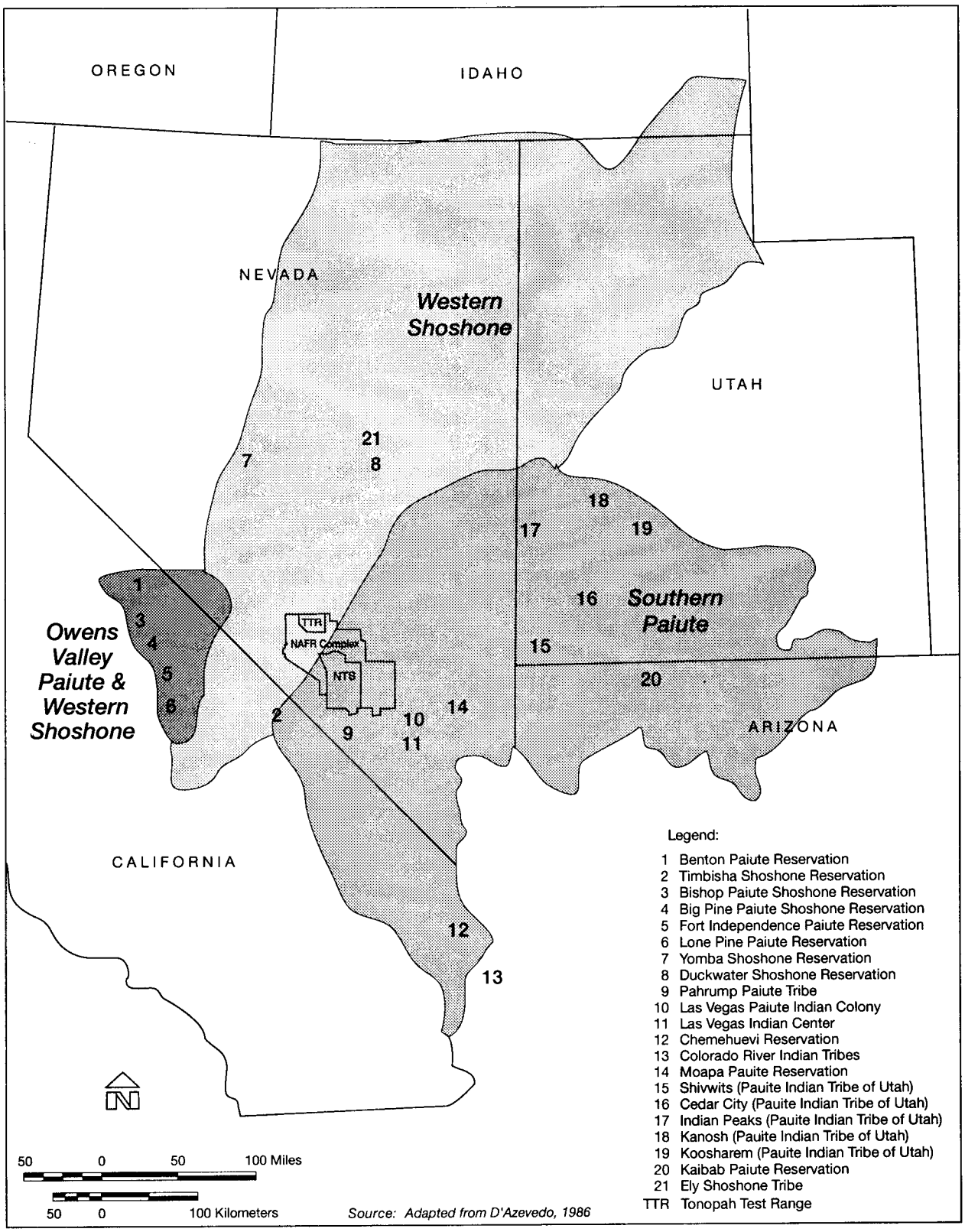

Figure G-1. American Indian region of influence for the NTS EIS

either its traditional Shoshone name *Dogowya Hunumpi* (Snake Wash) or the Owens Valley name *Towahonupi* (Snake Canyon) to describe it. The canyon was a significant crossroad where numerous traditional Indian trails from distant places like Owens Valley, Death Valley, and the Avawtz Mountains came together (Stoffle et al., 1989a). While many American Indian studies have been conducted in this area, other cultural resources have not been systematically studied. Other needed studies include rock art (which is called in Southern Paiute *tumpituxwinap* or literally "storied rocks") (Stoffle et al., 1995), power places, and animals.

G.3.2.1.4 Buckboard Mesa, Section 4.1.10 — The CGTO knows that the Buckboard Mesa hydrological area contains a wide range of important cultural resources, including plants, animals, archaeological sites, minerals, and power places. Two ethnoarchaeological site visits have been conducted in this area. One study was focused on a power rock and a series of petroglyph panels located at the southern end of Buckboard Mesa (Stoffle et al., 1994a) and the second study included a visit to rock shelters containing obsidian nodules, artifacts, and Indian rock paintings. To the north of Buckboard Mesa is an extensive area of obsidian nodules which were significant in many ways to Indian people. Scrugham Peak, a volcanic cone, was preliminarily identified by Indian people as a place of traditional power and ceremony. A full cultural assessment of this place and its role in the Buckboard Mesa area awaits systematic American Indian traditional cultural property studies. While some American Indian studies have been conducted in this area, only a few archaeological sites have been assessed. There have been no systematic studies of plants, animals, and traditional cultural properties.

G.3.2.1.5 Oasis Valley, Section 4.1.10—The CGTO knows that the Oasis Valley hydrologic area is a part of the agricultural core area of a much larger Indian district called *Ogwe'pi* by the Indian people who used this farming, gathering, and medicine area. The cultural significance of the *Ogwe'pi* District is well established by document research (Stoffle et al., 1988b), one plant area study, one archaeological study area (Stoffle et al., 1994a), and by interviews conducted during the 1930s. According to Indian people interviewed in the 1930s (Steward, 1938), the *Ogwe'pi* District contained agricultural lands next to springs and streams in Oasis Valley itself, while the uplands formed by nearby mountains contributed pine nuts and deer to the diet of the Indian people (Stoffle et al., 1990b). The *Ogwe'pi* District was an important place for Indian trade and ceremonialism. Mineral hot springs were used by Indian people for curing, thus further increasing the cultural importance of the Oasis Valley core area. During much of the historic period, Indian people continued to live in Oasis Valley and use the surrounding uplands of the *Ogwe'pi* District. Much of the Oasis Valley hydrological basin has not been systematically studied by American Indian people. Therefore, at this time, it is not possible to fully assess the cultural significance of all places in the Oasis Valley.

G.3.2.1.6 Gold Flat, Section 4.1.10—The CGTO knows that the Gold Flat hydrological area contains a wide range of important cultural resources including plants, archaeological sites, and power places. This conclusion is based on American Indian studies conducted along the central and northern portions of Pahute Mesa. These studies identified 42 species of Indian plants found in this area (Stoffle et al., 1994b). American Indian archaeological studies in this area document the presence of living areas, food and tool processing areas, burial sites, and power places. Initial animal studies indicate the presence of culturally significant species, such as hawks and eagles. At this time, it is not possible to make a full cultural assessment of this hydrological area because only the Pahute Mesa has been studied and additional studies are planned to assess rock art and traditional cultural properties.

G.3.2.1.7 Kawich Valley, Section 4.1.10—The CGTO knows that the Kawich Valley hydrological area contains a wide range of important Indian cultural resources, including plants, animals, archaeological sites, and places of both power and ceremony. This knowledge comes from a series of systematic American Indian studies on Pahute Mesa regarding plants and animals and by selected observations by individual Indian people. A total of 42 plants were identified from 6 plant locations,

36 of which are still used today (Stoffle et al., 1994b). Interviews with Indian experts about animals indicated a number of culturally significant species, including hawks and eagles, and a unique species of ant valued as both food and medicine. Archaeological studies at sites indicate the presence of living areas and places where food and plants were processed (Stoffle et al., 1994b). Kawich Valley contains an important trail used within the current memory of Indian people. Members of the Kawich family visited this area and recounted family memories of Kawich Valley and the use of Pahute Mesa. Individual Indian people identified places in Gold Meadows where places of power and ceremony traditionally occurred, but no systematic interviews on this issue have been conducted. The CGTO has recommended that the Gold Meadows area be set aside for special protection and use by Indian people because of the concentration and variety of Indian cultural resources it contains. The cultural significance of the entire Kawich Valley hydrological area cannot be assessed at this time because studies have been limited to Pahute Mesa and because both traditional cultural properties and animal studies are planned for the area.

G.3.2.1.8 Emigrant Valley, Section 4.1.10—The CGTO knows that the Emigrant Valley hydrological area contains a wide variety of important cultural resources, including plants, animals, and archaeological sites because it is next to Gold Meadows and Rainier Mesa areas (Stoffle et al., 1994b). Indian people have requested access to this area but have not been permitted to either visit or conduct systematic interviews here; therefore, all current information about this area derives from recorded and unrecorded Indian oral history. It is known that an Indian man who received the Anglo name Panamint Joe Stuart was from the Belted Range, which is the western boundary of the Emigrant Valley (Steward, 1938). Steward's Indian interviews conducted in the 1930s indicated that, in the late 1800s, there were 15 known locations of Indian camps in the Belted Range (Steward, 1938). Steward's interviews revealed that the Indian people of these Belted Range villages associated with the Indian people in the Kawich Range to the east and the Beatty people to the southwest. These data support the tentative conclusion of the AIWS that the two valleys have similar levels of cultural significance. No systematic Indian studies have been conducted in Emigrant Valley, so a complete cultural assessment is not possible at this time.

G.3.2.1.9 Yucca Flat, Section 4.1.10—The CGTO knows that the Yucca Flat hydrological area contains a wide variety of culturally important Indian resources, including plants, animals, archaeological sites, rock paintings, and ceremonial areas. Systematic American Indian studies have been conducted along the southern rim and base of Rainier Mesa, in the Eleana Range, on the northeastern flank of Shoshone Mountain and along the western edge of Yucca Flat itself. Plant studies indicate that 2 species are located in the more arid lowlands, 13 species at Tippipah Spring, 21 species at Captain Jack Spring, 11 species at White Rock Spring, and 4 species on the mesa rim (Stoffle et al., 1988a). The few interviews with Indian people about animals observed in this area do indicate that many significant animals are present, including mountain lion, deer, and hawks. The area is archaeologically complex with major camps located at permanent springs and food and tool processing places scattered throughout the area. All the springs in this area were permanent Indian camps. White Rock Spring, *Toshatimbibah*, had a major settlement call *Tunava* in the late 1880s and was a central place for interethnic gatherings. Indian people came to these ceremonies from distant communities. These ceremonies included major annual rabbit drives and dances that lasted up to a month (Steward, 1938). This spring was the home of a regional chief whose name was *Wangagwana* (Steward, 1938). The White Rock Spring was occupied by Indian people until the 1930s and used until the mid-1950s after the NTS was officially withdrawn from public use. The cultural significance of the western portion of this hydrological area is well established; however, no studies have been conducted in the central, eastern, and southern portions of this area. Because additional American Indian studies are planned and some areas have not been studied, a full cultural assessment of this area is not possible at this time.

G.3.2.1.10 Frenchman Flat, Section 4.1.10—The CGTO knows that the Frenchman Flat hydrological area contains a wide variety of plants, animals, and

archaeological sites of cultural importance to Indian people. Systematic studies of both plants and archaeology sites have been conducted in the west-central portion of this area. A total of 20 plant species were identified at 2 plant study locations, with 2 species identified on a flat area near the eastern flank of Mt. Sayler and another 18 species identified at Cane Spring (Stoffle et al., 1988a). A complete cultural assessment of this area is not possible at this time because past studies were geographically and topically restricted.

G.3.2.1.11 Tonopah Test Range, Section 4.1.10—The CGTO knows that the Tonopah Test Range contains significant cultural resources, including plants, animals, archaeological sites, and places of historic value to Indian people. This is known from Indian interviews conducted in the 1930s (Steward, 1938) and from recent plant, animal, and archaeology studies conducted south of this area in comparable environments (Stoffle et al., 1990b, 1994a and b). These studies document long-term and extensive involvement of Indian people in these traditional lands. These were among the last areas lived in before Indian people were forced out of the area to live on more distant Indian reservations. As a result of oral history, Indian people know there are various types of cultural resources located in this study area, but cannot provide site-specific information at this time. No Indian people officially representing the CGTO have visited the Tonopah Test Range or any other portion of the Nellis Air Force Range (NAFR) Complex, although such interviews have been requested and one initial meeting with an NAFR Complex archaeologist has occurred. Therefore, it is not possible to fully assess the cultural significance of the Tonopah Test Range at this time.

G.3.2.1.12 Nellis Air Force Range Complex, Section 4.1.10—The CGTO knows that the Double Tracks Test Area contains significant cultural resources, including plants, animals, archaeological sites, and places of historic value to Indian people. This is known from Indian interviews conducted in the 1930s (Steward, 1938) and from recent plant, animal, and archaeology studies conducted south of this area in comparable environments (Stoffle et al., 1990b, 1994a and b). These studies document long-term and extensive involvement of Indian people in these traditional lands. These were among the last areas lived in before Indian people were forced out of the area to live on more distant Indian reservations. As a result of oral history, Indian people know there are various types of cultural resources located in this study area, but cannot provide site-specific information about these areas at this time. No Indian people officially representing the CGTO have visited the Double Tracks Test Area or any other portion of the NAFR Complex, although such interviews have been requested and one initial meeting with an NAFR Complex archaeologist has occurred. Therefore, it is not possible to fully assess the cultural significance of the Double Tracks Test Area at this time.

G.3.2.1.13 Area 13, Section 4.2.10—The CGTO knows that Area 13 contains significant cultural resources, including plants, animals, archaeological sites and places of historic value to Indian people. This is known from Indian interviews conducted in the 1930s (Steward, 1938) and recent plant, animal, and archaeology studies conducted south of this area in comparable environments (Stoffle et al., 1990b, 1994a and b). These studies document long-term and extensive involvement of Indian people in these traditional lands. These were among the last areas lived in before Indian people were forced out of the area to live on more distant Indian reservations. As a result of oral history, Indian people know there are various types of cultural resources located in this study area, but cannot provide site-specific information about these areas at this time. No official representatives of the CGTO have visited Area 13 or any other portion of the NAFR Complex, although such interviews have been requested and one initial meeting with an NAFR Complex archaeologist has occurred. Therefore, it is not possible to fully assess the cultural significance of Area 13 at this time.

G.3.2.2 Project Shoal Area, Section 4.3.10. This study area is not within the traditional lands of the Indian people represented by the CGTO. It is recommended by the CGTO that the DOE EIS team directly contact Indian tribes and organizations having traditional lands in the Project Shoal Area. The following tribes were suggested: Fallon Paiute,

Walker River Paiute, Pyramid Lake and Lovelock Paiute.

G.3.2.3 Central Nevada Test Area, Section 4.4.10. The CGTO knows that there are a variety of cultural resources contained in the Central Nevada Test Area. Information about this area comes from previous ethnographic research (Steward, 1938) and recent archaeology reports (Edwards and Johnson, 1994). The area contains a number of cultural resources of special interest to the CGTO. These include (1) hot springs, (2) a cold spring, (3) petroglyph panels, and (4) more than 100 archaeological sites. Earlier archaeological research conducted by the University of Nevada Las Vegas collected between 20,000 to 30,000 artifacts. The simple fact that so many artifacts were recovered from this small area indicated the long-term involvement of Indian people with this site. The CGTO has requested the opportunity to visit the area as part of this EIS in order to more fully understand its cultural significance. Until this site visit occurs, it is impossible to more fully assess the cultural significance of this area.

G.3.2.4 Dry Lake Valley, Section 4.6.10. The CGTO knows that the Dry Lake Valley area contains a wide range of important cultural resources. This knowledge derives from previous American Indian cultural resource studies of the area conducted during the Harry Allen-Warner Valley (Bean and Vane, 1979) and the Intermountain Power Project (Stoffle and Dobyns, 1982; Stoffle et al., 1983) studies of Indian concerns along various proposed power line routes. These power line study areas were located in the bottom and along the eastern edge of Dry Lake Valley. During these studies, elders identified a wide range of plants, animals, and archaeological sites within this valley. A 1982 mail survey of Indian people indicated an "Intensity of Concern" score of 2.5 on a 4.0 scale (Stoffle and Dobyns, 1982). A 1983 on-site visit to the Dry Lake Valley area indicated numerous rock shelters that Indian people considered very significant and the presence of 10 Indian plants (Stoffle et al., 1983). The cultural assessment of the Navajo-McCullough right-of-way indicated the presence of eight plants identified elsewhere as American Indian plants, numerous archaeological sites, and artifact scatters in Dry Lake Valley (Brooks et al., 1975). Previous studies have been geographically limited, so a complete cultural assessment of the Dry Lake Valley is not possible without visiting other portions of the valley.

G.3.2.5 Eldorado Valley, Section 4.5.10. The CGTO knows that the Eldorado Valley study area contains a wide variety of cultural resources, including plants, animals, and archaeological sites. This knowledge is derived from previous American Indian cultural resource studies of the area conducted during the Harry Allen-Warner Valley (Bean and Vane, 1979) and Intermountain Power Project (Stoffle and Dobyns, 1982; Stoffle, 1983) studies of Indian concerns along various proposed power line routes and the Ivanpah Generating Station Study (Bean and Vane, 1982) conducted in a neighboring valley. Identified Indian plants include creosote (*Larrea tridentata)*, desert trumpet (*Erigonum inflatum*), and Indian tea (*Nevada ephedra*). Indian animals include bighorn sheep (*Ovis canadensis*), desert tortoise (*Gopherus agassizii*), and speckled rattlesnake (*Croatalus mitchellii*). The valley is a theme of songs that are sung at funerals and also in the Cry Ceremonial. There are both spiritual and physical Indian trails associated with this valley. Eldorado Valley trails were used by Pahrump and Las Vegas Paiutes to travel to places along the Colorado River, especially Cottonwood Island. Traditional Indian trails are a significant Indian cultural resource because they were both physical and spiritual paths (Laird, 1976). The Ivanpah Generating Station Study concluded that the MuCullough Mountains (which defines the western edge of Eldorado Valley) are of much concern to Indian people, both Southern Paiute and Mohave. According to the Ivanpah study, these Indian people have trails, sacred sites, plants, and animals of cultural importance in the MuCullough Mountains, the associated Eldorado Valley, and in the Eldorado Mountains (Bean and Vane, 1982). A 1975 study of the Navajo-McCullough transmission line right-of-way further indicates the presence of traditional-use plants, early Pinto Series-style projectile points, numerous lithic scatters, and grinding stone fragments that are related to the seed gathering activities possibly of the later Paiute peoples (Brooks et al., 1975). Previous studies have been geographically limited to a few places within

Eldorado Valley or in neighboring areas, so a complete cultural assessment of the Eldorado Valley is not possible without visiting other portions of the valley with Indian people.

G.3.2.6 Coyote Spring Valley, Section 4.7.10. Coyote Spring Valley is an area on the west flank of the Meadow Valley Mountains. The CGTO knows that this site contains a wide variety of American Indian cultural resources. The site was studied by Indian people during the Intermountain Power Project (IPP) (Stoffle and Dobyns, 1982). Nine Indian-use plants were identified during that on-site visit, including white bursage (*Ambrosia dumosa*), four-winged saltbush (*Atriplex canescens*), salt grass (*Distichlis spicata*), desert trumpet (*Eriogonum inflatum*), matchweed (*Gutierrezia microcephala*), range ratany (*Krameria parvifolia*), desert willow (*Chilopsis linearis*), prince's plume (*Stanleya pinnata*), and Wolfberry (*Lycium andersonii*) (Stoffle and Dobyns, 1982). The large desert tortoise was observed at this location. The area contains portions of an original Indian trail-wagon road from Moapa Valley to Pahranagat Valley. Archaeological survey of the IPP corridor revealed 9 sites and 20 scattered finds (Tucker et al., 1982). Known Indian cultural resources exist in the Coyote Spring Valley area, but it is impossible to fully understand the potential impacts to cultural resources without additional systematic on-site resource studies by Indian people.

G.3.3 Occupational and Public Health and Safety/Radiation

Indian people believe that various perceived risks are present and occur as a result of DOE activities. Although there are no Indian words for terms such as *radiation* in the Indian language, early ethnographic studies supported by the DOE documented a traditional view of radioactivity that centers on the perception by Indian elders of radiation being produced by an *angry rock* (Stoffle et al., 1989a). Briefly this view is as follows:

Rocks have power. It is recognized that some rocks have more or different power than others. Breaking a rock or removing it from its place without fully explaining these actions not only releases the power inherent in the rock, but also angers the rock. Rocks can also be self-willing, inasmuch as they can reveal themselves to people and act on people. Crystals, for example have a self-willing, animate power and will reveal themselves to a person whom they desire to be with. If this person picks them up, the person will have great luck. The luck, however, is taken away from others and eventually people will come to recognize this fact and single out the excessively lucky person as having used some nonhuman power at the expense of his or her people. Usually the person takes the crystal back to where it had revealed itself and returns it with an explanation of why it was being returned.

Radioactivity was interpreted as being the angry action of a powerful rock that had been quarried without its permission and had its power used for purposes it did not agree to. Now the remains of the rock (radioactive waste) is angry and it is taking its anger out on things around it. Plants, animals, people, water, and even the air itself can be hurt or even killed by the radiation from the angry rock. Indian people express the belief that past radiation releases have contaminated plants and animals traditionally used for foods and medicines. Spiritual people believe that they can see and feel radiation, that it has unique colors. This is why they can neither eat nor collect some plants, animals, and minerals in some areas. It is now impossible for Indian people to go to certain places, do certain ceremonies, and eat certain foods because radiation from the angry rock has been released.

Air: Living and Dead - Indian people express the belief that the air is alive. There are different kinds of air with different names in Indian language. The Creator puts life into the air which is shared by all living things. When a child is born, they pull in the air to begin its life. The mother watches carefully to make sure that the first breath is natural and that there is no obstruction in the throat. It is believed that if the day of birth is a windy day, it is a good day and the child will have a good life. According to one elder:

"The seasons—like winter, spring, summer, and fall—they're all important when a child comes into the world because their spirit is tied in with the harvest, or hunt; they say that it gets kinda like into their blood and they become hunters or farmers.

You can listen to the wind, the wind talks to you. Things happen in nature. Our people had weather watchers, who are kinds of people who will know when crops and things should be done. They watch the different elements in nature and pray to ask the winds to come and talk about these things. Sometimes you ask the north wind to come down and cool the weather. The north wind is asked to blow away the footsteps of the people who have passed on to the afterlife. That kind of wind helps people, it is positive. The wind also brings you songs and messages. Sometimes the messages are about healing people, a sign that the sickness is gone now from the person, or that it is coming to get that sickness to take it away, or it is coming to bring you the strength that you need to deal with the illness."

But air can be destroyed by radiation that has been released by the angry rock, thus causing pockets of dead air. There is only so much alive air which surrounds the world. If you kill the living air, it is gone forever and cannot be restored. Dead air lacks the spirituality and life necessary to support other life forms. Airplanes crash when they hit dead air. One member of the CGTO compared this Indian view of killing air with what happens when a jet flies through the air and consumes all of the oxygen, producing a condition where another jet cannot fly through the air. The atomic blast consumes the oxygen like the jet, killing the air. While this comparison of the Western science view of dead air from burning seems close to the Indian perspective, the latter has a "life force" component that makes killing air more significant than just consuming its natural components.

Some Indian people who were present during the aboveground atomic blasts believe that the sickness they have today came from the radiation. To some of these people, the effects of the radiation were in addition to what happened when the air itself was killed. Some elders today say that even when the plants survive the effects of radiation, the dead air killed them or made them lose their power, their spiritual power to heal things.

BLAST RADIATION—The aboveground atomic detonations were witnessed by many Indian people. Today, these Indian eyewitness accounts are told with retrospective assessment of the risks that were involved by being close to the blasts and from using the natural resources in the area. Indian people continued to regularly enter the NTS to hunt and collect long after atomic testing began. Today, the eyewitnesses are elders talking about when they were younger in the 1950s. A few of these accounts are provided in order to explain to non-Indian people the Indian perception of risk derived from these experiences.

A Western Shoshone woman, who still lives near the NTS, recounted her memories of being a young woman during the blasts. According to her:

"After the bombs (aboveground atomic explosions), my people (Shoshone people) would kill the animals in the area and find something wrong with them. They would kill a deer, but when the hide was skinned off it would just pull apart. When they saw the mushrooms going up (atomic bomb blasts), they knew something was bad. The people (my family and others) were in the mountains picking pine nuts when one of the blasts went off; it felt like an earthquake. I was there, about 8,000 feet. The little animals ran away. The old people looked up into the swaying trees and asked what would happen to those little (bird) nests up there. We Indian people do not go up in the trees, so we will not disturb the birds.

After some of the blasts occurred, the old people told us not to pick the pine nuts off the ground, so after that time we just took the green cones from the trees. This made fewer pine nuts available to us. Lots of animals seemed different after the blasts. The migrating birds did not come through after that. The rabbits, of which we were eating a lot at that time, were not right. We developed a way to test them for sores. Many rabbits we could not even skin properly, the skin would just fall apart. The chuckwallas and tortoises disappeared, like the migrating birds. The old people told us that the plants are not maturing properly, so the tortoises and chuckwallas are dying. Both the Indian women and the Indian cattle lost their unborn children (through miscarriage) at this time.

Many of the essential plants were affected by the blasts, either directly or because the rain would not

come. Those old basket makers would say the willows were really brittle after that, they were hard and would not split easily. Even the greasewood became bad too—it is related to the tortoises and the playas (dry lakes)—the Shoshone songs sing about the tortoises and the greasewood together. The old ones would say that when the plants go away, it (what we need to live) will not be there for us anymore. So, we will go away too. One elder is remembered as saying, "What will become of us?" You know they (the elders) would talk like that when they saw what was changing around them.

A Southern Paiute man remembered his mother (who is still living) telling him stories of the atomic blasts and their effects on plants and animals. His mother would travel with her family to hunt and gather plants. They (old Paiutes) say that the deer would come down over the Bare Mountains and collapse. People would eat other deer that they had killed for themselves, but when they tried to make clothing out of the hides, the hides would fall apart. Plants in the area don't grow as big anymore and were not preferred because they lost some of their power as food and medicine.

A Southern Paiute woman recounted the story of one of her tribal elders who personally experienced the blasts. This elder currently lives on the Colorado River Indian Reservation hundreds of miles to the south of the NTS, thus again reinforcing the need to talk with Indian people regardless of where they live today. (Name withheld) is a 78 year old Chemehuevi woman who lived in this area when she was young. She was here when the blasting occurred and she remembers the white flashes. She has vivid recollections of seeing all of this and now that she is older, she has cancer and is real afraid. She feels good when she comes to the NTS as part of the CGTO studies, but she is real afraid of the rocks and the plants because of what has happened. She says what happened to them, happened to her.

Perceptions such as these are well known among the Western Shoshone, Southern Paiute and Owens Valley Paiute people of this region. These perceptions of risks from radiation are frightening, and remain an important part of our lives. We will always carry these thoughts with us. Today, people are afraid of many things and places in this whole area, but we still love to come out and see our land. We worry about more radiation being brought to this land."

If the DOE wants to better understand our feelings about the impacts of radiation on our cultures, they should support a study of risks from radiation designed, conducted and produced by the CGTO. At this time there has not been a systematic study of American Indians perceptions of risk. Therefore, it is not possible to provide action-by-action estimation of risk perception impacts. We believe it is a topic that urgently needs to be studied so that Indian people may better address the actual cultural impacts of proposed DOE actions. There have been recent workshops funded by the National Science Foundation to understand how to research the special issue of culturally-based risk perception among American Indian communities, and at least one major project has been funded. Although this is a relatively new topic of research, it is one that can be more fully understood by research that deeply involves the people being considered. To understand our view of radiation is to begin to understand why we responded in certain ways to past and present, and why we will continue to respond to future DOE activities.

G.3.4 Environmental Justice and Equity

Federal agencies are directed by Executive Order 12898 to detect and mitigate potentially disproportionately high and adverse human health or environmental effects of its planned programs, policies, and activities to promote nondiscrimination among various populations in the United States. The CGTO knows of three violations of this act that have derived from past NTS programs, policies, and activities. These are (1) holy land violations, (2) health violations, and (3) cultural survival-access violations. Evidence for each of these violations varies. There is no question that only the holy lands of Indian peoples have been, continue to be, and will be impacted by NTS actions. There is no question that only Indian people have lost cultural traditions because they have been denied access to places on the NTS where ceremonies need to occur, where plants need to be gathered, and where animals need to be hunted in a traditional

way. There is no scientific evidence, and there never will be, to completely document the physical health risks of Indian people deriving from NTS-produced radioactivity. Indian people have such poor health care and there are so few of them that it is difficult, if not impossible, to establish the collective health impacts of radiation. Studies of how Indian people perceive themselves to be at risk from radioactivity and what social and cultural impacts derived from these risk perceptions can be conducted, but these have not been conducted.

G.3.4.1 Holy Land Violations. American Indian people who belong to the CGTO consider the NTS lands to be central in their lives today as these lands have been since the creation of these people. The NTS lands are part of the holy lands of Owens Valley Paiute, Western Shoshone, and Southern Paiute peoples. These holy lands have been polluted and their resources damaged by long-term activities involving radioactive materials. The CGTO perceives that the past, present, and future pollution of these holy lands constitutes both Environmental Justice and equity violations. No other people have had their holy lands impacted by NTS-related environmental pollution and damage.

G.3.4.2 Health Violations. The lives and health of Indian people who have occupied this area since their creation have been seriously threatened by continued exposure to radioactivity. This threat is not limited to Indian people who live in the immediate vicinity of the NTS and use its resources on a regular basis, but extends to those Indian people who share resources that have been collected on the NTS region. Indian people fear the continuous invisible peril of radioactive contamination and its cumulative effects on future Indian generations. These Indian people have experienced, and will continue to experience, health effects and perceived risks from NTS radioactivity.

G.3.4.3 Cultural Survival - Access Violations. One of the most detrimental consequences of NTS operations for the survival of American Indian culture, religion, and society has been the denial of access to their traditional lands and resources. Loss of access to traditional foodstuffs and medicine have greatly contributed to undermining the cultural well-being of Indian people. These Indian people have experienced, and will continue to experience, breakdowns in the process of cultural transmission due to lack of access to NTS lands and resources. No other people have experienced similar cultural survival impacts due to lack of access to the NTS. Recently, the DOE has accepted a CGTO recommendation to open access for American Indians who must conduct their traditional ceremonies and obtain resources within NTS lands, provided that these lands are not contaminated; areas set aside for Indian use would be cleaned up. Unfortunately, land disturbance and irreparable contamination of the soil and underground water may render many locations unusable.

To date, a systematic evaluation of traditional places within the NTS has not been made by Indian people; therefore, no specific statements about access to particular locations can be made at this time. An important exception is the recommendation of the CGTO that the Gold Meadows area be set aside for exclusive Indian use because it contains a concentration of important cultural resources. The DOE/NV has acknowledged the importance of this area to Indian people and will make every effort to protect it.

American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival especially access violations.

These concerns are discussed in Section 4.1.10, Cultural Resources, and Section 4.1.11, Occupational and Public Health and Safety/Radiation.

There has not been a systematic study of these issues for any of the areas examined in this EIS. The CGTO maintains that past, present and future activities on the NTS have, are, or will disproportionately impact the American Indian people. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study, before new activities are approved.

G.3.4.4 Tonopah Test Range. Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. There has not been a systematic study of these issues for the Tonopah

Test Range. The CGTO maintains that past, present and future activities on the Tonopah Test Range have, are, or will disproportionately impact these American Indian Environmental Justice issues. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study, before new activities are approved.

G.3.4.5 Project Shoal Area, Section 4.3.12. American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. There has not been systematic study of these issues for the Project Shoal Area site.

This study area is not within the traditional lands of the American Indian people represented by the CGTO. It is recommended by the CGTO that the DOE NTS EIS team directly contact American Indian tribes and organizations having traditional lands in the Project Shoal Area. The following tribes were suggested: Fallon Paiute, Walker River Paiute, Pyramid Lake and Lovelock Paiute Tribes.

G.3.4.6 Central Nevada Test Area, Section 4.4.12. American Indian Environmental Justice concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. There has not been a systematic study of these issues for the Central Nevada Test Area. The CGTO maintains that past, present and future activities on the Central Nevada Test Area have, are, or will impact these American Indian Environmental Justice issues. Even though the CGTO has not been permitted to visit the area, the area is especially important due to the concentration of cultural resources. Therefore, this area provides a special opportunity for the DOE to undue past Environmental Justice impacts. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study, before new activities are approved.

G.3.4.7 Eldorado Valley, Section 4.5.12. American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. There has not been a systematic study of these issues for the Eldorado Valley. The CGTO maintains that past activities in the Eldorado Valley have impacted these American Indian Environmental Justice issues, especially Holy Land violations. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study before new activities are approved.

G.3.4.8 Dry Lake Valley, Section 4.6.12. American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. There has not been a systematic study of these issues for the Dry Lake Valley. The CGTO maintains that past activities in the Dry Lake Valley have impacted these American Indian Environmental Justice issues, especially Holy Land violations. Any activities occurring near Indian reservations further precludes future opportunities for expansion and access to these lands for any purpose. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study before new activities are approved.

G.3.4.9 Coyote Spring Valley, Section 4.7.12. American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. There has not been a systematic study of these issues for the Coyote Spring Valley. The CGTO maintains that past activities in the Coyote Spring Valley have impacted these American Indian Environmental Justice issues, especially Holy Land violations. This area was traditional lands for Southern Paiutes, especially the Moapa Paiute Tribe. Any activities occurring near Indian reservations further precludes future opportunities for expansion and access to these lands for any purpose. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study before new activities are approved.

G.3.5 Outline of Social and Economic Issues

G.3.5.1 American Indian Region of Influence. Within this region of influence, there also are several Indian reservations, tribal enterprises, tribally controlled schools, tribal police departments, and tribal emergency response units. The following reservations are located within the designated region of influence: Duckwater Shoshone Tribe, Las Vegas

Paiute Tribe, Moapa Paiute Tribe, and the Yomba Shoshone Tribe. In addition, there are tribes which are located geographically outside of the region of influence, but are potentially impacted by NTS activities. One of these tribes is the Timbisha Shoshone Tribe, based in Death Valley, California. This tribe is actually located closer to the NTS than many towns in northern Nye County. As a consequence of this proximity, people from the Timbisha Shoshone Tribe are a part of the social and economic region of influence of the NTS. For example, students from the Timbisha Shoshone Tribe attend public school in Beatty, Nevada, whereas many Shoshone students from Tacopa, California, attend school in Pahrump, Nevada. Timbisha tribal members work and shop in Clark and Nye counties.

The Pahrump Paiute Tribe, located in Pahrump Valley, is composed of Indian people who have been historically recognized by state and federal agencies as qualified to receive services as Indian people, and who as a group are currently seeking federal acknowledgment.

G.3.5.2 American Indian Education. Under federal and tribal law, American Indian children can be educated in tribally controlled and federally certified schools located on Indian reservations. Federal funds are available through the Indian Education Act for the education of Indian children. Compensation from the federal government is provided to any school district that has entered into a cooperative agreement with federally recognized tribes, whether it be public, private, or an Indian-controlled school.

One tribally controlled elementary school is in Nye County. It is operated by the Duckwater Shoshone Tribe. In 1995, the school had 32 students enrolled from preschool to 8th grade, who were taught by 3 full-time certified teachers; these included 2 certified elementary teachers, 2 teaching assistants, 1 preschool teacher, and 1 teacher under Chapter 1 Program. Using these numbers, the student-to-teacher ratio was 10.66:1 (Duckwater Shoshone Tribe, 1996).

A tribally operated Headstart Program is located on the Moapa Paiute Indian reservation. The program is open to all eligible preschool students. Both included Indian students and non-Indian students from nearby communities. This program is funded through the Inter-Tribal Council of Nevada, which operates Headstart sites elsewhere in Nevada. Indian students also attend non-Indian public schools.

G.3.5.3 Farming and Ranching. The NTS contains valuable resources for American Indian economy that were lost not only to Euroamerican encroachment but also to land withdrawal, pollution, and radioactive contamination. The NTS is in a desert region where water is the most crucial source. Springs located within the NTS and in its immediate vicinity were the place of Indian settlement and traditional farming until the first half of this century. Although much of the well-watered land in the aboriginal territory was lost to Euroamerican settlers, by the turn of the century American Indian families owned small farms in the area both for their own consumption and for commercial purposes. Livestock was also a part of the Indian economy. Foodstuffs and stock forage were grown and sold by Indian people to supplement wage labor (Stoffle et al., 1990a). With decreased access to spring and agricultural fields, and with some pollution of land and water, traditional Indian farming was seriously impacted.

G.3.5.4 Mining. American Indian people played a major role in the development of mining in the region of the NTS. Many local American Indians were active prospectors on their own behalf, locating their own mining claims. Many of the producing mines in southern Nye County, for example, were located by local American Indian people, whose knowledge of minerals had been developed throughout centuries of mineral collecting. The NTS was one of the areas where Indian people conducted their mining activities. Several American Indian people guided Euroamerican prospectors to valuable ore deposits, providing them with transportation, food and lodging, and teaching them about minerals, water resources and trails. Yet, American Indians were not made equal partners in mineral development as they may have expected and may have been promised (Stoffle et al., 1990a). Perhaps because mining was seen as a primarily Euroamerican economic activity, the rights of American Indians to claim mines was never made explicit. Mining was further precluded when the NTS land was withdrawn. Thus,

Euroamerican settlers began a process that was continued by the withdrawal of NTS lands.

G.3.5.5 Political Integration and Community Cohesion. The process of fragmentation of Indian nations into small, increasingly isolated communities began with Euroamerican settlement and continued with the withdrawal of NTS lands. The loss of cohesion has lowered the ability of Indian people to (1) negotiate, (2) resolve conflicts, (3) keep peace, and (4) share resources. The White Rock Spring area was traditionally where all activities promoting community cohesion and political integration took place. When Indian people were denied access to White Rock Spring, they lost a central place shared by the three ethnic groups. Without this central place, the three ethnic groups did not meet as often. Eventually, the lack of contact weakened interethnic relationships and, to some extent, caused an overall loss of political power and skills among the groups. The political strength of the three ethnic groups, to some extent, has been restored with the NTS American Indian consultation program, which has provided the opportunity for the three ethnic groups to meet on a regular basis, work together, find common ground, and speak with one voice.

G.3.5.6 Waste Transportation and Tribal Enterprises. Other major concerns of the CGTO are the impact and cumulative effects of NTS operations on the tribal economy, particularly regarding the issue of radioactive waste being transported across reservation lands. To date, only minimal efforts have been made to investigate socioeconomic impacts of NTS actions on Indian tribes and organizations. Ongoing research by the AIWS on such effects suggests, for example, that continued or increased transportation is detrimental to the economic success of tribal-owned businesses and may increase the value of insurance policies. Currently, there are no compensation measures planned nor mitigation efforts taken by the federal government to improve the socioeconomic problems of tribes and organizations directly affected by NTS operations. Similarly, no efforts have been made to distribute equally the benefits and losses caused by NTS operations among Indian and non-Indian populations.

G.4 Environmental Consequences

This section contains the overall and integrated responses of the CGTO to five categories of actions. These have been packaged into the categories: (1) Defense Program, (2) Waste Management Program, (3) Environmental Restoration Program, (4) Nondefense Research and Development Program, and (5) Work for Others Program. This section provides a summary of each project and a general response by the CGTO which includes at least one recommended action.

Defense Program. The Defense Program involves actions that range from complying with the nuclear weapons test moratorium of 1991 that precludes new underground nuclear testing to maintaining a state of readiness to resume unlimited nuclear tests if so instructed by Congress. The CGTO believes that any future nuclear testing will continue to adversely impact American Indian cultural resources. Studies have shown that nuclear testing has caused rock shelters and petroglyph panels to be destroyed when the edges of rock outcrops break off due to ground vibrations generated by the test (Stoffle et al., 1994b). Studies have shown that plants have been removed so that roads, power lines, drill pads, and water ponds can be built as part of constructing the underground test chambers. Indian people express the opinion that some plants have been polluted due to releases of radioactivity from underground tests. Indian people also express the opinion that some plants are dying or do not flourish because they are not being prayed for ("talked to") and used in a traditional manner by Indian people. Indian people express the concern that animals and their habitat have been harmed by underground tests. Indian people express concern that future underground tests will continue to crack the earth, releasing radioactivity into the large underground water systems who are themselves alive, as well as being a basis for all other life and a part of the earth itself. Many Indian people indicated that they were emotionally and spiritually troubled by ground-disturbing activities and underground nuclear tests. Even in areas where American Indian studies have occurred, there have not been studies of petroglyphs, power places, or cultural landscapes. Some areas have not been studied at all. It is not possible to

completely assess the potential impacts of future underground tests on these cultural resources.

Another major component of the Defense Program involves construction of a tritium production and recycling facility, expanding stockpile management responsibility, storage and disposal of weapons-usable fissile materials, and counterproliferation research and development. The CGTO has insufficient information and understanding of these issues to make a complete assessment of their impacts on cultural resources. There are some observations that can be made at this time. The NTS is a holy area that is central to these Indian people. In general, the more fearful activities that occur here and the more ground disturbance that occurs, the more cultural risks will be involved if Indian people use these lands. The more such activities occur on these lands, the longer and more difficult it will be to restore these lands to their natural condition.

Waste Management Program. The storage of radioactive and mixed waste generated by the DOE will be an ongoing responsibility regardless of which EIS alternative is selected. This program minimally involves the storage of existing waste and waste generated during the environmental restoration of NTS lands. Under Alternative 3, waste could be received from any DOE facility, which would cause current NTS waste disposal locations to be filled and new waste facilities to be sited and operated. Indian people hold both traditional and scientific views of radioactivity. The former builds on the view that rocks are alive; radioactive rocks are powerful, but they can become "angry rocks" if they are removed without proper ceremony, used in a culturally inappropriate way, disposed of without ceremony, and placed where they do not want to be (Stoffle et al., 1989a and 1990c). Another issue is the ethics of relocating radioactive waste from other American Indian lands so those people can live without fear of radioactivity (see Project Chariot, DOE/NV, 1994). In general, after properly removed rocks have been used, they are either returned to their place of origin or to a place of cultural significance. The practice of dealing with "bad medicine" or neutralizing negative forces was a part of the traditional culture. So, the question of "how to dispose of radioactive waste in a culturally appropriate manner" could be resolved if the time and resources were provided to tribes to participate in a formal study of this issue. Indian people have not studied the cultural impacts of siting any of the existing waste facilities. So, Indian people would like to become a part of a retrospective assessment of these facilities, as well as to participate in the assessment of siting all new waste facilities. The CGTO recommends that adequate funds and time be provided so that Indian people can conduct systematic studies of waste management programs.

Environmental Restoration Program. The Environmental Restoration Program involves actions that would return disturbed land to its natural condition. Up to 1,800 monitoring wells and access roads are a part of this effort. All alternatives involve some environmental restoration and monitoring; however, Alternative 3 would require more restoration because it would disturb more land. Indian people believe that the natural condition of the land existed before 1492 when Europeans arrived. The land was in a natural condition when it was managed and used by Indian people. For example, Indian plant management techniques involved spiritual interactions like praying and conducting ceremonies for the plants, as well as physical actions like selective burning, transplanting cuttings and seeds, pruning of plants like Tumar *(Stanleya pinnata)* and willow, and "whipping" pine nut trees to make them fuller. Indian water management techniques involved spiritual interactions that satisfied the water and its occupants like Water Babies, who need to know why Indian people are using the water. Water ceremonies assured both rain and snowfall; for example, by praying for a continued relationship between wet snow and the little black bugs who are responsible for making the snow become wet. Generally, Indian people managed the land according to religious teachings. From the Indian perspective, environmental restoration should proceed according to Indian culture and with the participation of Indian people. The CGTO recommends that adequate funds and time be provided so that Indian people can conduct systematic studies of environmental restoration actions.

Nondefense Research and Development Program. There are a variety of planned actions considered within this category. Many of these are related to National Environmental Research Park, which

permits universities and other federal agencies to conduct research. Other projects involve testing alternative vehicle fuels, testing techniques for handling chemical spills, and building alternative energy generators like solar collectors. Indian people view each of these as potentially impacting cultural resources. More cars potentially endanger the desert tortoises. University students studying biology may find and collect arrowheads or remove plants that are significant to Indian people. Solar collectors involve scraping the land. Indian people believe they should be involved in assessing the impacts of all these proposed actions.

Only Indian people know which places are appropriate for visits by non-Indian people and how to collect plants, animals, and soil samples so that these activities do not disrupt the land and its associated spirituality. Only Indian people can provide guidance for proper behavior; however, a guidance document has not been collectively produced and approved by the CGTO. On the other hand, with proper guidance by Indian people, university students and other members of the public may learn about the beauty and cultural significance of these lands and begin to change national perceptions of these lands from one of a wasteland to one of an Indian holy land. Thus, the CGTO recommends that adequate funds and time be provided so that CGTO members can develop and field-test an American Indian public education program for the NTS.

Work for Others Program. This program contains two major subcategories of activities: the Conventional Weapons Demilitarization Program and Defense-related Research and Development Program. The first program involves the shipment, storage, disposal, and destruction of conventional weapons. The second program involves military training exercises and weaponry tests.

The CGTO in principle approves of the Conventional Weapons Demilitarization Program, because world peace will reduce the need to use the NTS for nuclear weapon production, storage, assembly, and testing. On the other hand, the CGTO believes that if the NTS becomes the place where most or all weapons are stored, disassembled, and disposed then the NTS lands will be polluted. The presence of conventional and nuclear weapons defines the NTS as a place of destruction, which promotes an image that is inappropriate for a place for peaceful relations between Indian ethnic groups.

The CGTO knows from past experience, but not formal study, that military training exercises and weaponry tests can adversely impact cultural resources. Military people move across the land on foot and in vehicles without either the time or the purpose to pay attention to the plants that are being crushed, the animals that are being dislocated, or the archaeology materials underfoot. Cultural resources are damaged when conventional weapons are fired nearby. Often geographically distinctive power places, like the big white rock near Rattlesnake Ridge, are targeted without regard or knowledge of their cultural significance. Without a formal study, the exact impacts of military training exercises will not be fully understood. Thus, the CGTO recommends that adequate funds and time be provided so that a guidance document can be developed.

G.4.1 Summary of American Indian Responses to the NTS Action Alternatives

The response of the CGTO to the four action alternatives proposed for the NTS and discussed site-by-site in the previous paragraphs can be summarized as follows:

Alternative 1: Continue Current Operations

Under this alternative, the DOE will continue with its current operations and interagency project activities in each of the programs listed above. There will be little or no change planned for the future mission of the NTS.

CGTO Response to Alternative 1:

The CGTO opposes Alternative 1 because of our strong cultural ties to the land. Nevada Test Site operations have adversely impacted the land, causing irreparable damage to traditional resources. If NTS operations continue, it is expected that damage will be increased and more land will be wasted. Access to culturally significant spiritual places and use of

animals, plants, water, and lands may cease because Indian people's perception of health and spiritual risks will increase if nuclear weapon testing, assembly, storage, disassembly, and disposal continues. Nondefense programs are expected to cause adverse impacts if these produce more ground disturbance or if they bring in people who trample and destroy traditional resources.

Alternative 2: Discontinue Operations

Under this alternative, all current and planned programs, activities, and operations would be discontinued. Only activities conducted in support of decommissioning, radiation monitoring, and security functions necessary for human health, safety, and security would be maintained. Environmental restoration would not be done. All defense and nondefense programs would be discontinued. Inactive waste disposal sites would be abandoned. Only a minimum of low-level radioactive and mixed waste disposal capacity would be maintained to support closure of the NTS.

CGTO Response to Alternative 2:

The CGTO supports Alternative 2 because it would allow the land to heal and perhaps return to its natural condition. The CGTO recommends that an evaluation of areas that can be restored for human use be made and that environmental restoration activities be included in this alternative. Access to culturally significant places should be allowed. The DOE should continue to protect all cultural resource sites.

The CGTO would like to have the right of first refusal in the event that NTS lands are turned to public use.

Alternative 3: Expanded Use

Under this alternative, expanded use of NTS and its resources would be made to support national programs of both a defense and nondefense nature. Current defense programs would continue, and a variety of defense-related projects currently under consideration would be pursued. Waste management operations would increase and storage/disposal areas expanded. Waste transportation would be increased as well. Environmental restoration and research and development activities would continue and expand. A solar-energy production facility would be built.

CGTO Response to Alternative 3:

The CGTO opposes Alternative 3 because of our strong cultural ties to the land. Under expanded use, it is expected that the continuation and expansion of current operations, as well as the implementation of additional defense and nondefense project activities and programs would irreparably damage American Indian cultural resources present at the NTS. Expansion of NTS operations would conceivably require use of land that is yet untouched, and would worsen the risk of radioactive contamination. Potentially, American Indian access to resources and sacred sites would be even more restricted. Expanded use would be detrimental for the socioeconomic development and health of Indian communities.

Alternative 4: Alternate Use of Withdrawn Lands

This alternative will evaluate the impacts associated with locating new programs and project activities at the NTS, including nondefense research and development programs, expansion of the Spill Test Facility in Area 5, and various types of personnel training for locating, containing, handling, or transporting hazardous materials, radioisotopes, fuels, explosives, and other materials. Under this alternative, waste management operations, waste-generating operations, and ongoing NTS environmental restoration activities would continue. However, the DOE would not maintain a state of readiness for nuclear testing at the NTS.

The NTS would be opened for unprecedented public access to some of the most remote areas, including areas that contain American Indian rock shelters, archaeological sites, and petroglyphs. Educational and recreational activities would be pursued. The potential for turning back lands to the public domain would depend on the ability to achieve established cleanup and safety levels.

CGTO Response to Alternative 4:

The CGTO tentatively supports Alternative 4 with reservations regarding certain components of this alternative. Aside from the concerns already expressed regarding waste-related pollution and ground disturbance, the CGTO expects that opening the NTS to the public will adversely impact traditional resources, particularly petroglyphs, archaeological sites, and rock shelters, because of their appeal as tourist attractions. Heavy traffic will trample plants, hurt animals, limit American Indian access to sacred sites and power places, and interfere with traditional practices.

The CGTO would like to have the right of first refusal in the event that the NTS lands are turned to public use.

G.4.2 American Indian Cultural Resources Impacts

G.4.2.1 American Indian Place by Action Comments, Alternative 1.

G.4.2.1.1 Nevada Test Site

Defense Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if further underground nuclear tests occur and if natural lands are scraped for construction. Access to culturally significant places will be reduced because Indian peoples' perception of health and spiritual risks will increase if additional testing, storage, disassembly, or disposal of nuclear and conventional weapons occur.

Waste Management Program. Under Alternative 1, it is expected that American Indian cultural resources will continue to be adversely impacted because the waste has not been disposed of in a culturally appropriate manner. Access to culturally significant places on the NTS will be reduced because waste isolation facilities increase Indian peoples' perception of health and spiritual risks.

Environmental Restoration Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted by the well and access road monitoring program, but will be positively impacted by actions that return disturbed lands to their natural condition in a culturally appropriate manner and with the participation of Indian people.

Nondefense Research and Development Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted by increased visits by students and researchers who collect artifacts, visit sacred areas, and remove plants or animals. Cultural resources could be positively impacted if students and researchers receive proper guidance by Indian people regarding how to visit places and interact with the environment.

Work for Others Program Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if the NTS continued to be a place where weapons are stored, disassembled, and disposed. These actions have continued and will continue to pollute these lands.

The presence of conventional and nuclear weapons defines the NTS as a place of destruction, which promotes an image that is inappropriate for a place for peaceful relations between Indian ethnic groups.

American Indian cultural resources will continue to be adversely impacted by military training exercises and weapons tests.

G.4.2.1.2 Tonopah Test Range

Defense Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if further aboveground nuclear tests occur and if natural lands are scraped for construction.

Waste Management Program. Under Alternative 1, it is expected that American Indian cultural resources will not be impacted because there is no Waste Management Program on the Tonopah Test Range and none has been identified for this alternative.

Environmental Restoration Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if natural lands are scraped during environmental restoration. Access to culturally significant places will be increased if environmental restoration is successful, thus reducing Indian peoples' perception of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if natural lands are scraped during any nondefense research and development actions. At this time, no actions are planned for the Tonopah Test Range.

Work for Others Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if the Tonopah Test Range continues to be a place where weapons are researched and developed. These actions have continued and will continue to pollute these lands. American Indian cultural resources will continue to be adversely impacted by military training exercises and weapons tests.

G.4.2.1.3 Nellis Air Force Range Complex

Defense Program. At this time, no defense actions are planned for the Double Tracks site on the NAFR Complex; therefore, American Indian cultural resources will not be adversely impacted under this alternative.

Waste Management Program. Under Alternative 1, it is expected that American Indian cultural resources will not be adversely impacted because there is no Waste Management Program on the NAFR Complex and none has been identified for this alternative.

Environmental Restoration Program Under Alternative 1, it is expected that American Indian cultural resources on the NAFR Complex will be adversely impacted if natural lands are scraped during environmental restoration. Access to culturally significant places will be increased if environmental restoration is successful, thus reducing Indian peoples' perception of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if natural lands are scraped during any nondefense research and development actions. At this time, no actions are planned for the Double Tracks site on the NAFR Complex.

Work for Others Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if the Double Tracks site continues to be a place where weapons are researched and developed. These actions have and will continue to pollute these lands. American Indian cultural resources will continue to be adversely impacted by military training exercises and weapons tests.

G.4.2.1.4 Nellis Air Force Range Complex Area 13

Defense Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if further nuclear safety tests occur and if natural lands are scraped for construction. In this alternative, however, there are no plans for additional tests at the Area 13 site on the NAFR Complex.

Waste Management Program. Under Alternative 1, it is expected that American Indian cultural resources will not be impacted because there is no Waste Management Program on the Area 13 site on the NAFR Complex and none has been identified for this alternative.

Environmental Restoration Program. Under Alternative 1, it is expected that American Indian cultural resources on the Area 13 site on the NAFR Complex will be adversely impacted if natural lands are scraped during environmental restoration. Access to culturally significant places will be increased if environmental restoration is

successful, thus reducing Indian peoples' perception of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if the Area 13 site on the NAFR Complex continues to be a place where weapons are researched and developed. These actions have and will continue to pollute these lands. American Indian cultural resources will continue to be adversely impacted by military training exercises and weapons tests.

Work for Others Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if the Area 13 site on the NAFR Complex continues to be a place where weapons are researched and developed. These actions have and will continue to pollute these lands. American Indian cultural resources will continue to be adversely impacted by military training exercises and weapons tests.

G.4.2.1.5 Project Shoal Area—This study area is not within the traditional lands of the Indian people represented by the CGTO. It is recommended by the CGTO that the DOE NTS EIS team directly contact Indian tribes and organizations having traditional lands in the Project Shoal Area. The following tribes were suggested: Fallon Paiute, Walker River Paiute, and Pyramid Lake and Lovelock Paiute Tribes.

G.4.2.1.6 Central Nevada Test Area

Defense Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if further nuclear tests occur and if natural lands are scraped for construction. In this alternative, however, there are no plans for additional tests or construction at the Central Nevada Test Area.

Waste Management Program. Under Alternative 1, it is expected that American Indian cultural resources will not be impacted because there is no Waste Management Program on the Central Nevada Test Area and none has been identified for this alternative.

Environmental Restoration Program. Under Alternative 1, it is expected that American Indian cultural resources on the Central Nevada Test Area will be adversely impacted if natural lands were scraped during environmental restoration. Access to culturally significant places will be increased if environmental restoration is successful, thus reducing Indian peoples' perception of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if the Central Nevada Test Area becomes a place where weapons are researched and developed. No such actions are planned for this alternative, so American Indian cultural resources will not be adversely impacted.

Work for Others Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if the Central Nevada Test Area becomes a place where weapons are researched and developed. No such actions are considered in this alternative, so American Indian cultural resources will not be adversely impacted.

G.4.2.1.7 Eldorado Valley

Defense Program. Under Alternative 1, American Indian cultural resources will not be impacted because no Defense Program activities are scheduled for Eldorado Valley.

Waste Management Program. Under Alternative 1, American Indian cultural resources will not be impacted because no Waste Management Program activities are scheduled for Eldorado Valley.

Environmental Restoration Program. No environmental restoration activities are planned for

Eldorado Valley; therefore, no adverse impacts to American Indian resources are expected under Alternative 1.

Nondefense Research and Development Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if a solar production facility is constructed and operated.

Work for Others Program. It is unlikely that Work for Others Program activities will be implemented in Eldorado Valley. Therefore, no adverse impacts on American Indian resources are expected under Alternative 1.

G.4.2.1.8 Dry Lake Valley

Defense Program. Under Alternative 1, American Indian cultural resources will not be impacted because no Defense Program activities are scheduled for Dry Lake Valley.

Waste Management Program. Under Alternative 1, American Indian cultural resources will not be impacted because no Waste Management Program activities are scheduled for Dry Lake Valley.

Environmental Restoration Program. No environmental restoration activities are planned for Dry Lake Valley; therefore, no adverse impacts to American Indian resources are expected under Alternative 1.

Nondefense Research and Development Program. Under Alternative 1, it is expected that American Indian cultural resources will be adversely impacted if a solar production facility is constructed and operated.

Work for Others Program. It is unlikely that Work for Others Program activities will be implemented in Dry Lake Valley. Therefore, no adverse impacts on American Indian resources are expected under Alternative 1.

G.4.2.1.9 Coyote Spring Valley

Defense Program. Under Alternative 1, American Indian cultural resources will not be impacted because no Defense Program activities are scheduled for Coyote Spring Valley.

Waste Management Program. Under Alternative 1, American Indian cultural resources will not be impacted because no Waste Management Program activities are scheduled for Coyote Spring Valley.

Environmental Restoration Program. No environmental restoration activities are planned for Coyote Spring Valley; therefore, no adverse impacts to American Indian resources are expected under Alternative 1.

Nondefense Research and Development Program. Under Alternative 1, it is expected that American Indian cultural resources at Coyote Spring Valley will be adversely impacted if a solar production facility is constructed and operated.

Work for Others Program. It is unlikely that Work for Others Program activities will be implemented in Coyote Spring Valley. Therefore, no adverse impacts on American Indian resources are expected under Alternative 1.

G.4.2.2 American Indian Place by Action Comments, Alternative 2.

G.4.2.2.1 Nevada Test Site

Defense Program. Under Alternative 2, there will be no further defense testing and storage activities; however, overflights and monitoring will continue in keeping with the International Arms Control Treaties. American Indian cultural resources will no longer be impacted by defense activities; however, overflights and monitoring have the potential for impacting American Indian cultural resources. Indian people require further information before completely evaluating the cultural impacts of this Defense Program alternative.

Waste Management Program. Under Alternative 2, it is expected that American Indian cultural resources will continue to be adversely impacted because the waste has not been disposed of in a culturally appropriate manner. Access to culturally significant places on the NTS will be reduced because waste isolation facilities increase Indian peoples' perception of health and spiritual risks.

Environmental Restoration Program. Under Alternative 2, it is expected that American Indian cultural resources will be adversely impacted by the Monitoring Well and Access Road Program, but will be positively impacted by actions that return disturbed land to its natural condition in a culturally appropriate manner and with the participation of Indian people.

Nondefense Research and Development Program. Under Alternative 2, it is expected that American Indian cultural resources will not be adversely impacted by visits by students and researchers.

Work for Others Program. Under Alternative 2, it is expected that American Indian cultural resources will not be adversely impacted.

G.4.2.2.2 Tonopah Test Range

Defense Program. Under Alternative 2, there will be no belowground nuclear testing, so American Indian cultural resources will not be adversely impacted.

Waste Management Program. Under Alternative 2, there will be no Waste Management Program on the Tonopah Test Range and none has been identified for this alternative, so it is expected that American Indian cultural resources will not be adversely impacted.

Environmental Restoration Program. Under Alternative 2, it is expected that American Indian cultural resources will be adversely impacted if natural lands are scraped during environmental restoration. Access to culturally significant places will be increased if environmental restoration is successful, thus reducing Indian peoples' perception of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 2, it is expected that American Indian cultural resources will be adversely impacted if natural lands are scraped during any Nondefense Research and Development Program actions. At this time, no actions are planned for the Tonopah Test Range.

Work for Others Program. Under Alternative 2, it is expected that American Indian cultural resources will be adversely impacted if the Tonopah Test Range continues to be a place where weapons are researched and developed. These actions have continued and will continue to pollute these lands. American Indian cultural resources will continue to be adversely impacted by military training exercises and weapons tests.

G.4.2.2.3 Nellis Air Force Range Complex

Defense Program. Under Alternative 2, it is expected that American Indian cultural resources will not be adversely impacted because no defense actions are planned for the Double Tracks site on the NAFR Complex.

Waste Management Program. Under Alternative 2, it is expected that American Indian cultural resources on the Double Tracks site will not be adversely impacted because there is no Waste Management Program there and none is planned in this alternative.

Environmental Restoration Program. Under Alternative 2, it is expected that American Indian cultural resources on the Double Tracks site will be adversely impacted if natural lands are scraped during environmental restoration. Access to culturally significant places will be increased if environmental restoration is successful, thus reducing Indian peoples' perception of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 2, it is expected that American Indian cultural resources on the Double Tracks site will not be adversely impacted by discontinuing research and development actions.

Work for Others Program. Under Alternative 2, American Indian cultural resources will be adversely impacted if the Double Tracks site continues to be a place where weapons are researched and developed. These actions have continued and will continue to pollute these lands. American Indian cultural resources will continue to be adversely impacted by military training exercises and weapons tests.

G.4.2.2.4 Nellis Air Force Range Complex Area 13

Defense Program. Under Alternative 2, American Indian cultural resources will not be adversely impacted because there are no plans for additional tests at the Area 13 site on the NAFR Complex.

Waste Management Program. Under Alternative 2, American Indian cultural resources will not be adversely impacted because there are no waste facilities at the Area 13 site on the NAFR Complex.

Environmental Restoration Program. Under Alternative 2, it is expected that American Indian cultural resources will be adversely impacted if natural lands are scraped during environmental restoration. Access to culturally significant places will be increased if environmental restoration is successful, thus reducing Indian peoples' perception of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 2, it is expected that American Indian cultural resources in the Double Tracks site will not be adversely impacted by discontinuing research and development actions.

Work for Others Program. Under Alternative 2, it is expected that American Indian cultural resources will not be adversely impacted because no Work for Others Program actions are being planned.

G.4.2.2.5 Project Shoal Area—This study area is not within the traditional lands of the Indian people represented by the CGTO. It is recommended by the CGTO that the DOE NTS EIS team directly contact Indian tribes and organizations having traditional lands in the Project Shoal Area. The following tribes were suggested: Fallon Paiute, Walker River Paiute, Pyramid Lake and Lovelock Paiute Tribes.

G.4.2.2.6 Central Nevada Test Area

Defense Program. Under Alternative 2, it is expected that American Indian cultural resources will be adversely impacted if further nuclear tests occur and if natural lands are scraped for construction. In this alternative, however, there are no plans for additional tests or construction at the Central Nevada Test Area.

Waste Management Program. Under Alternative 2, it is expected that American Indian cultural resources will not be impacted because there is no Waste Management Program on the Central Nevada Test Area and none has been identified for this alternative.

Environmental Restoration Program. Under Alternative 2, it is expected that American Indian cultural resources on the Central Nevada Test Area will be adversely impacted if natural lands are scraped during environmental restoration. Access to culturally significant places will be increased if environmental restoration is successful, thus reducing Indian peoples' perception of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 2, it is expected that American Indian cultural resources will be adversely impacted if the Central Nevada Test Area becomes a place where weapons are researched and developed. No such actions are planned for this alternative, so cultural resources will not be adversely impacted.

Work for Others Program. Under Alternative 2, it is expected that American Indian cultural resources will be adversely impacted if the Central Nevada Test Area becomes a place where weapons are researched and developed. No such actions are considered in this alternative, so American Indian cultural resources will not be adversely impacted.

G.4.2.2.7 Eldorado Valley

Defense Program. Under Alternative 2, American Indian cultural resources will not be impacted because no Defense Program activities are scheduled for Eldorado Valley.

Waste Management Program. Under Alternative 2, American Indian cultural resources will not be impacted because no Waste Management Program activities are scheduled for Eldorado Valley.

Environmental Restoration Program. No environmental restoration activities are planned for Eldorado Valley; therefore, no adverse impacts to American Indian resources are expected under Alternative 2.

Nondefense Research and Development Program. Under Alternative 2, it is expected that American Indian cultural resources will be adversely impacted if a solar production facility is constructed and operated.

Work for Others Program. It is unlikely that Work for Others Program activities will be implemented in Eldorado Valley. Therefore, no adverse impacts on American Indian resources are expected under Alternative 2.

G.4.2.2.8 Dry Lake Valley

Defense Program. Under Alternative 2, American Indian cultural resources will not be impacted because no Defense Program activities are scheduled for Dry Lake Valley.

Waste Management Program. Under Alternative 2, American Indian cultural resources will not be impacted because no Waste Management Program activities are scheduled for Dry Lake Valley.

Environmental Restoration Program. No environmental restoration activities are planned for Dry Lake Valley; therefore, no adverse impacts to American Indian resources are expected under Alternative 2.

Nondefense Research and Development Program. Under Alternative 2, it is expected that American Indian cultural resources will be adversely impacted if a solar production facility is constructed and operated.

G.4.2.2.9 Coyote Spring Valley

Defense Program. Under Alternative 2, American Indian cultural resources will not be impacted because no Defense Program activities are scheduled for Coyote Spring Valley.

Waste Management Program. Under Alternative 2, American Indian cultural resources will not be impacted because no Waste Management Program activities are scheduled for Coyote Spring Valley.

Environmental Restoration Program. No environmental restoration activities are planned for Coyote Spring Valley; therefore, no adverse impacts to American Indian resources are expected under Alternative 2.

Nondefense Research and Development Program. Under Alternative 2, it is expected that American Indian cultural resources at Coyote Spring Valley will be adversely impacted if a solar production facility is constructed and operated.

Work for Others Program. It is unlikely that Work for Others Program activities will be implemented in Coyote Spring Valley. Therefore, no adverse impacts on American Indian resources are expected under Alternative 2.

G.4.2.3 American Indian Place by Action Comments, Alternative 3.

G.4.2.3.1 Nevada Test Site

Defense Program. Under Alternative 3, it is expected that American Indian cultural resources will be adversely impacted if new Defense Program operations are undertaken or if current underground nuclear tests are expanded into previously unused areas. Access to culturally significant places will be reduced because Indian peoples' perception of health and spiritual risk will increase if additional testing, storage, disassembly, or disposal of nuclear and conventional weapons occur.

Waste Management Program. Under Alternative 3, it is expected that American Indian cultural resources will continue to be adversely impacted, in particular if waste storage facilities are expanded because the waste has not been disposed of in a culturally appropriate manner. Access to significant places on the NTS will be reduced because waste isolation facilities increase Indian peoples' perception of health and spiritual risks.

Environmental Restoration Program. Under Alternative 3, it is expected that American Indian cultural resources will be adversely impacted by an expansion of the well and access road monitoring program, but will be positively impacted by actions that return disturbed lands to its natural condition in a culturally appropriate manner and with the participation of Indian people.

Nondefense Research and Development Program. Under Alternative 3, it is expected that American Indian cultural resources will be adversely impacted by increased visits by students and researchers who collect artifacts, visit sacred areas, and remove plants or animals. Cultural resources will be positively impacted if students and researchers receive proper guidance by Indian people regarding how to visit places and interact with the environment.

Work for Others Program. Under Alternative 3, it is expected that American Indian cultural resources will be impacted if the NTS continues to be a place where weapons are stored, disassembled, and disposed. These actions have continued and will continue to pollute these lands. The presence of conventional and nuclear weapons defines the NTS as a place of destruction, which promotes an image that is inappropriate for a place for peaceful relations between Indian ethnic groups. American Indian cultural resources will continue to be impacted by military training exercises and weapons tests.

G.4.2.3.2 Tonopah Test Range—Under Alternative 3, it is expected that American Indian cultural resources will be adversely impacted if further aboveground nuclear tests occur or if new areas are used for expanded testing programs.

Waste Management Program. Under Alternative 3, it is expected that American Indian cultural resources will not to be adversely impacted because there is no Waste Management Program on the Tonopah Test Range and none has been identified for this alternative.

Environmental Restoration Program. Under Alternative 3, it is expected that American Indian cultural resources will be adversely impacted if natural lands are scraped during environmental restoration. Access to culturally significant places will be increased if environmental restoration is successful, thus reducing Indian peoples' perception of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 3, it is expected that American Indian cultural resources will be adversely impacted if natural lands are scraped during any nondefense research and development actions. At this time, no actions are planned for the Tonopah Test Range.

Work for Others Program. Under Alternative 3, it is expected that American Indian cultural resources will be impacted if Tonopah Test Range

weapons research and development programs are expanded. These actions have continued and will continue to pollute these lands. American Indian cultural resources will continue to be adversely impacted by military training exercises and weapons tests.

G.4.2.3.3 Nellis Air Force Range Complex

Defense Program. At this time, no defense actions are planned for Double Tracks site on the NAFR Complex. Under Alternative 3, however, it is expected that American Indian cultural resources will not be adversely impacted under this alternative.

Waste Management Program. Under Alternative 3, it is expected that American Indian cultural resources will not be adversely impacted unless a Waste Management Program for the NAFR Complex is begun, and there are no plans identified for this alternative.

Environmental Restoration Program. Under Alternative 3, it is expected that American Indian cultural resources will be adversely impacted if natural lands are scraped during environmental restoration. Access to culturally significant places will be increased if environmental restoration is successful, thus reducing Indian peoples' perception of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 3, it is expected that American Indian cultural resources will be adversely impacted if natural lands are scraped during any nondefense research and development actions. At this time, no actions are planned for the Double Tracks site on the NAFR Complex.

Work for Others Program. Under Alternative 3, it is expected that American Indian cultural resources will be impacted if weapon research and development programs continue or are expanded at the Double Tracks site. These actions have and will continue to pollute these lands. American Indian cultural resources will continue to be adversely impacted by military training exercises and weapons tests.

G.4.2.3.4 Nellis Air Force Range Complex Area 13

Defense Program. Under Alternative 3, it is expected that American Indian cultural resources will be adversely impacted if nuclear safety tests continue or increase and if natural lands are scraped for construction. In this alternative, however, there are no plans for additional tests at the Area 13 site on the NAFR Complex.

Waste Management Program. Under Alternative 3, it is expected that American Indian cultural resources will not to be adversely impacted because there is no Waste Management Program on the Area 13 site on the NAFR Complex and none has been identified for this alternative.

Environmental Restoration Program. Under Alternative 3, it is expected that American Indian cultural resources of the Area 13 site on the NAFR Complex will be adversely impacted if natural lands are scraped during environmental restoration. Access to culturally significant places will get increased if environmental restoration is successful, thus reducing Indian peoples' perception of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 3, it is expected that American Indian cultural resources will be adversely impacted if natural lands are scraped during research and development. These actions have continued and will continue to pollute these lands. American Indian cultural resources will continue to be adversely impacted by military training exercises and weapons tests.

Work for Others Program. Under Alternative 3, it is expected that American Indian cultural resources will be impacted if weapon research and development programs continue or are expanded at the Area 13 site. These actions have continued and will continue to pollute these lands. American Indian cultural resources will continue to be

adversely impacted by military training exercises and weapons tests.

G.4.2.3.5 Project Shoal Area —This study area is not within the traditional lands of the Indian people represented by the CGTO. It is recommended by the CGTO that the DOE NTS EIS team directly contact Indian tribes and organizations having traditional lands in the Project Shoal Area. The following tribes were suggested: Fallon Paiute, Walker River Paiute, Pyramid Lake and Lovelock Paiute Tribes.

G.4.2.3.6 Central Nevada Test Area

Defense Program. Under Alternative 3, it is expected that American Indian cultural resources will be adversely impacted if nuclear tests continue or increase and if natural lands are scraped for construction. In this alternative, however, there are no plans for additional tests or construction at the Central Nevada Test Area.

Waste Management Program. Under Alternative 3, it is expected that American Indian cultural resources will not to be adversely impacted because there is no Waste Management Program on the Central Nevada Test Area and none has been identified for this alternative.

Environmental Restoration Program. Under Alternative 3, it is expected that American Indian cultural resources on the Central Nevada Test Area will be adversely impacted if natural lands are scraped during environmental restoration. Access to culturally significant places will be increased if environmental restoration is successful, thus reducing Indian peoples' perception of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 3, it is expected that American Indian cultural resources will be adversely impacted if natural lands are scraped during weapons research and development. No such actions are planned for this alternative, so cultural resources will not be adversely impacted.

Work for Others Program. Under Alternative 3, it is expected that American Indian cultural resources will be impacted if weapon research and development programs are implemented in the Central Nevada Test Area. No such actions are planned for this alternative, so American Indian cultural resources will not be adversely impacted.

G.4.2.3.7 Eldorado Valley

Defense Program. Under Alternative 3, American Indian cultural resources will not be impacted because no Defense Program activities are scheduled for Eldorado Valley.

Waste Management Program. Under Alternative 3, American Indian cultural resources will not be impacted because no Waste Management Program activities are scheduled for Eldorado Valley.

Environmental Restoration Program. No environmental restoration activities are planned for Eldorado Valley; therefore, no adverse impacts to American Indian resources are expected under Alternative 3.

Nondefense Research and Development Program. Under Alternative 3, it is expected that American Indian cultural resources will be adversely impacted if a solar production facility is constructed and operated.

Work for Others Program. It is unlikely that Work for Others Program activities will be implemented in Eldorado Valley. Therefore, no adverse impacts on American Indian resources are expected under Alternative 3.

G.4.2.3.8 Dry Lake Valley

Defense Program. Under Alternative 3, American Indian cultural resources will not be impacted because no Defense Program activities are scheduled for Dry Lake Valley.

Waste Management Program. Under Alternative 3, American Indian cultural resources will not be impacted because no Waste

Management Program activities are scheduled for Dry Lake Valley.

Environmental Restoration Program. No environmental restoration activities are planned for Dry Lake Valley; therefore, no adverse impacts to American Indian resources are expected under Alternative 3.

Nondefense Research and Development Program. Under Alternative 3, it is expected that American Indian cultural resources will be adversely impacted if a solar production facility is constructed and operated.

Work for Others Program. It is unlikely that Work for Others Program activities will be implemented in Dry Lake Valley. Therefore, no adverse impacts on American Indian resources are expected under Alternative 3.

G.4.2.3.9 Coyote Spring Valley

Defense Program. Under Alternative 3, American Indian cultural resources will not be impacted because no Defense Program activities are scheduled for Coyote Spring Valley.

Waste Management Program. Under Alternative 3, American Indian cultural resources will not be impacted because no Waste Management Program activities are scheduled for Coyote Spring Valley.

Environmental Restoration Program. No environmental restoration activities are planned for Coyote Spring Valley; therefore, no adverse impacts to American Indian resources are expected under Alternative 3.

Nondefense Research and Development Program. Under Alternative 3, it is expected that American Indian cultural resources at Coyote Spring Valley will be adversely impacted if a solar production facility is constructed and operated.

Work for Others Program. It is unlikely that Work for Others Program activities will be implemented in Coyote Spring Valley. Therefore, no adverse impacts on American Indian resources are expected under Alternative 3.

G.4.2.4 American Indian Place by Action Comments, Alternative 4.

G.4.2.4.1 Nevada Test Site

Defense Program. Under Alternative 4, it is expected that American Indian cultural resources will no longer be impacted by defense activities; however, oversight and monitoring have the potential for impacting American Indian cultural resources. Indian people require further information before completely evaluating the cultural impacts of this Defense Program alternative.

Waste Management Program. Under Alternative 4, it is expected that American Indian cultural resources will continue to be adversely impacted because the waste has not been disposed of in a culturally appropriate manner. Access to culturally significant places on the NTS will be reduced because waste isolation facilities increase Indian peoples' perception of health and spiritual risks.

Environmental Restoration Program. Under Alternative 4, it is expected that American Indian cultural resources will be adversely impacted by monitoring well and access road activities, but will be positively impacted by actions that return disturbed lands to its natural condition in a culturally appropriate manner and with the participation of Indian people.

Nondefense Research and Development Program. Under Alternative 4, it is expected that American Indian cultural resources will be adversely impacted by visits by students and researchers.

Work for Others Program. Under Alternative 4, it is expected that American Indian cultural resources will be impacted if activities at the Spill Test Facility in Area 5, the Treatability Test Facility in Area 25, and the newly renovated decontamination pad in Area 6 are expanded. It is expected that American Indian cultural resources

will continue to be adversely impacted by military training exercises and weapons.

G.4.2.4.2 Tonopah Test Range

Defense Program. Under Alternative 4, it is expected that American Indian cultural resources will not be impacted by defense activities; however, overflights and monitoring have the potential for impacting American Indian cultural resources. Indian people require further information before completely evaluating the cultural impacts of this Defense Program alternative.

Waste Management Program. Under Alternative 4, it is expected that American Indian cultural resources will not be adversely impacted because there are no actions planned.

Environmental Restoration Program. Under Alternative 4, it is expected that American Indian cultural resources will be adversely impacted if natural lands are scraped during environmental restoration. Access to culturally significant places will be increased if environmental restoration is successful, thus reducing Indian peoples' perception of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 4, it is expected that American Indian cultural resources will not be impacted because no activities are planned under this alternative.

Work for Others Program. Under Alternative 4, it is expected that American Indian cultural resources will be impacted by military training exercises and conventional weapons tests.

G.4.2.4.3 Nellis Air Force Range Complex

Defense Program. Under Alternative 4, it is expected that American Indian cultural resources will not be adversely impacted.

Waste Management Program. Under Alternative 4, it is expected that American Indian cultural resources will not be adversely impacted.

Environmental Restoration Program Under Alternative 4, it is expected that American Indian cultural resources will be adversely impacted if natural lands are scraped during environmental restoration. Access to culturally significant places will be increased if environmental restoration is successful, thus reducing Indian peoples' perception of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 4, it is expected that American Indian cultural resources will not be impacted because no actions are planned.

Work for Others Program. Under Alternative 4, it is expected that American Indian cultural resources will be impacted if the Double Tracks site continues to be a place where weapons are researched and developed. These actions have and will continue to pollute these lands. American Indian cultural resources will continue to be adversely impacted by military training exercises and weapons tests.

G.4.2.4.4 Nellis Air Force Range Complex Area 13

Defense Program. Under Alternative 4, it is expected that American Indian cultural resources will not be impacted.

Waste Management Program. Under Alternative 4, it is expected that American Indian cultural resources will not be impacted because there is no Waste Management Program on the Area 13 site and none has been identified.

Environmental Restoration Program. Under Alternative 4, it is expected that American Indian cultural resources will be adversely impacted if natural lands are scraped during environmental restoration. Access to culturally significant places will be increased if environmental restoration is successful, thus reducing Indian peoples' perception

of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 4, it is expected that American Indian cultural resources will be adversely impacted if military training exercises and weapons tests continue.

Work for Others Program. Under Alternative 4, it is expected that American Indian cultural resources will be impacted if military training exercises and weapons test continue.

G.4.2.4.5 Project Shoal Area—This study area is not within the traditional lands of the Indian people represented by the CGTO. It is recommended by the CGTO that the DOE NTS EIS team directly contact Indian tribes and organizations having traditional lands in the Project Shoal Area. The following tribes were suggested: Fallon Paiute, Walker River Paiute, Pyramid Lake and Lovelock Paiute Tribes.

G.4.2.4.6 Central Nevada Test Area

Defense Program. Under Alternative 4, it is expected that American Indian cultural resources will not be impacted.

Waste Management Program. Under Alternative 4, it is expected that American Indian cultural resources will not be impacted.

Environmental Restoration Program. Under Alternative 4, it is expected that American Indian cultural resources on the Central Nevada Test Area will be impacted if natural lands are scraped during environmental restoration. Access to culturally significant places will be increased if environmental restoration is successful, thus reducing Indian peoples' perception of health and spiritual risks associated with this area. Indian people wish to be involved in identifying environmental restoration methods and in the evaluation of restoration success.

Nondefense Research and Development Program. Under Alternative 4, it is expected that American Indian cultural resources will not be adversely impacted.

Work for Others Program. Under Alternative 4, it is expected that American Indian cultural resources will not be impacted.

G.4.2.4.7 Eldorado Valley

Defense Program. Under Alternative 4, American Indian cultural resources will not be impacted because no Defense Program activities are scheduled for Eldorado Valley.

Waste Management Program. Under Alternative 4, American Indian cultural resources will not be impacted because no Waste Management Program activities are scheduled for Eldorado Valley.

Environmental Restoration Program. Under Alternative 4, no environmental restoration activities are planned for Eldorado Valley; therefore, no adverse impacts to American Indian resources are expected.

Nondefense Research and Development Program. Under Alternative 4, it is expected that American Indian cultural resources will be adversely impacted if a solar production facility is constructed and operated.

Work for Others Program. It is unlikely that Work for Others Program activities will be implemented in Eldorado Valley. Therefore, no adverse impacts on American Indian resources are expected under Alternative 4.

G.4.2.4.8 Dry Lake Valley

Defense Program. Under Alternative 4, American Indian cultural resources will not be impacted because no Defense Program activities are scheduled for Dry Lake Valley.

Waste Management Program. Under Alternative 4, American Indian cultural resources will not be impacted because no Waste

Management Program activities are scheduled for Dry Lake Valley.

Environmental Restoration Program. No environmental restoration activities are planned for Dry Lake Valley; therefore, no adverse impacts to American Indian resources are expected under Alternative 4.

Nondefense Research and Development Program. Under Alternative 4, it is expected that American Indian cultural resources will be adversely impacted if a solar production facility is constructed and operated.

Work for Others Program. It is unlikely that Work for Others Program activities will be implemented in Dry Lake Valley. Therefore, no adverse impacts on American Indian resources are expected under Alternative 4.

G.4.2.4.9 Coyote Spring Valley

Defense Program. Under Alternative 4, American Indian cultural resources will not be impacted because no Defense Program activities are scheduled for Coyote Spring Valley.

Waste Management Program. Under Alternative 4, American Indian cultural resources will not be impacted because no Waste Management Program activities are scheduled for Coyote Spring Valley.

Environmental Restoration Program. No environmental restoration activities are planned for Coyote Spring Valley; therefore, no adverse impacts to American Indian resources are expected under Alternative 4.

Nondefense Research and Development Program. Under Alternative 4, it is expected that American Indian cultural resources at Coyote Spring Valley will be adversely impacted if a solar production facility is constructed and operated.

Work for Others Program. It is unlikely that Work for Others Program activities will be implemented in Coyote Spring Valley. Therefore, no adverse impacts on American Indian resources are expected under Alternative 4.

G.4.3 Occupational and Public Health and Safety Radiation Impacts

Perceptions of radiation effects are discussed in Section 4.1.1.11 and are well known among the Western Shoshone, Southern Paiute and Owens Valley Paiute people of this region. *"These perceptions of risks from radiation are frightening, and remain an important part of our lives. We will always carry these thoughts with us. Today, people are afraid of many things and places in this whole area, but we still love to come out and see our land. We worry about more radiation being brought to this land.*

If the DOE wants to better understand our feelings about the impacts of radiation on our cultures, they should support a study of risks from radiation designed, conducted and produced by the CGTO. At this time there has not been a systematic study of American Indians perceptions of risk. Therefore, it is not possible to provide action by action estimation of risk perception impacts. We believe it is a topic that urgently needs to be studied so that Indian people may better address the actual cultural impacts of proposed DOE actions. There have been recent workshops funded by the National Science Foundation to understand how to research the special issue of culturally-based risk perception among American Indian communities, and at least one major project has been funded. Although this is a relatively new topic of research, it is one that can be more fully understood by research that deeply involves the people being considered. To understand our view of radiation is to begin to understand why we responded in certain ways to past and present activities, and why we will continue to respond to future DOE activities."

G.4.4 Environmental Justice and Equity Impacts

G.4.4.1 Alternative 1 - Continue Current Operations (No Action).

G.4.4.1.1 Nevada Test Site—The CGTO knows that the actions considered in the NTS EIS

potentially will disproportionately affect the American Indian people. As discussed in Section 5.1.1.10, Cultural Resources, and Section 5.1.1.11, Occupational and Public Health and Safety/Radiation, the American Indian impacts include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations.

The effects of Alternative 1 on American Indian Environmental Justice issues are discussed below by program.

Defense Program. Under Alternative 1, it is expected that all three American Indian Environmental Justice impacts would occur. Holy Land violations occur whenever a portion of traditional land and its resources are taken away from Indian people by contamination or surface disturbance. Perceived risks will occur when more radioactivity is brought to or created at the NTS. Cultural survival impacts will occur if any defense activities reduce the present and future access of Indian people and their children to places where cultural transmission occurs. Because these impacts would be perceived only by American Indian people, an Environmental Justice impact would occur.

Waste Management Program. Under Alternative 1, it is expected that all three American Indian Environmental Justice impacts would occur. Holy Land violations occur whenever a portion of traditional land and its resources are taken away from Indian people by contamination or surface disturbance. Perceived risks will occur when more radioactivity is brought to or created at the NTS. Cultural survival impacts will occur if any waste management activities reduce the present and future access of Indian people and their children to places where cultural transmission occurs. Because these impacts would be perceived only by American Indian people, an Environmental Justice impact would occur.

Environmental Restoration Program. Under Alternative 1, it is expected that all three American Indian Environmental Justice issues would occur. Holy Land violations can be reversed when a portion of traditional land and its resources are returned to the Indian people by eliminating contamination and restoring surface disturbance areas with traditional Indian plants and animals. Perceived risks potentially can be reduced when radioactivity is reduced by the physical and spiritual restoration of the NTS. Cultural survival impacts will reverse if any environmental restoration activities increase the present and future access of Indian people and their children to places where cultural transmission occurs. Because these impacts would be perceived only by American Indian people, an Environmental Justice impact would occur.

Nondefense Research and Development Program. Under Alternative 1, it is expected that all three American Indian Environmental Justice impacts would occur. Holy Land violations occur whenever a portion of traditional land and its resources are taken away from Indian people whether this occurs by contamination or use by students and researchers. Perceived risks will not increase unless more radioactivity is brought to or created at the NTS. Cultural survival impacts will occur if any research and development activities reduce the present and future access of Indian people and their children to places where cultural transmission occurs. Because these impacts would be perceived only by American Indian people, an Environmental Justice impact would occur.

Work for Others Program. Under Alternative 1, it is expected that all three American Indian Environmental Justice impacts would occur. Holy Land violations occur whenever a portion of traditional land and its resources are taken away from Indian people by contamination or surface disturbance. Perceived risks will occur when more radioactivity or hazardous waste is brought to or created at the NTS. Cultural survival impacts will occur if any military training exercises and weapons tests reduce the present and future access of Indian people and their children to places where cultural transmission occurs. Because these impacts would be perceived only by American Indian people, an Environmental Justice impact would occur.

G.4.4.2 Alternative 2 - Discontinue Operations.

G.4.4.2.1 Nevada Test Site—American Indian impacts include: (1) Holy Land violations,

(2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts for all sites are discussed in Section 5.2.1.10, Cultural Resources, and Section 5.2.1.11, Occupational and Public Health and Safety/Radiation. These impacts would only be felt by American Indian people. Therefore, a disproportionate impact would occur. There has not been a systematic study of these issues for the NTS. The CGTO maintains that past, present, and future activities on the NTS have impacted, are impacting, or will impact these American Indian Environmental Justice issues. Although Alternative 2 involves no new activities, it contains the possibility of adversely impacting American Indian issues. For example, if road maintenance is discontinued, it may be difficult for American Indian people to return to the area. Also, if DOE/NV Environmental Protection personnel are not available, there may be a difficulty in maintaining consultation with American Indian tribes through the CGTO. Therefore, it is essential to maintain both the physical access to places and the agreement that facilitates access to these places. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study, before new activities are approved.

Program-by-program impacts are assessed in Section 5.1.1.12.

G.4.4.2.2 Tonopah Test Range—American Indian impacts include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.2.2.10, Cultural Resources, and Section 5.2.1.11, Occupational and Public Health and Safety/Radiation, for all sites. There has not been a systematic study of these issues for the Tonopah Test Range. The CGTO maintains that past, present and future activities on the Tonopah Test Range have disproportionately impacted, are disproportionately impacting, or will have a disproportionate impact on American Indian people. Although Alternative 2 involves no new activities, it contains the possibility of adversely impacting American Indian issues. If DOE/NV Environmental Protection personnel are not available, there may be a difficulty establishing future consultation with American Indian tribes through the CGTO. Therefore, it is essential to establish both the physical access to places and agreements that will facilitate access to these places. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study, before new activities are approved.

G.4.4.2.3 Project Shoal Area—American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.2.3.10, Cultural Resources, and Section 5.2.1.11, Occupational and Public Health and Safety/Radiation. There has not been systematic study of these issues for the Project Shoal Area.

This study area is not within the traditional lands of the American Indian people represented by the CGTO. It is recommended by the CGTO that the DOE NTS EIS team directly contact American Indian tribes and organizations having traditional lands in the Project Shoal Area. The following tribes were suggested: Fallon Paiute; Walker River Paiute, Pyramid Lake and Lovelock Paiute Tribes.

G.4.4.2.4 Central Nevada Test Area—American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.2.4.10, Cultural Resources, and Section 5.2.1.11, Occupational and Public Health and Safety/Radiation. There has not been a systematic study of these issues for the Central Nevada Test Area. The CGTO maintains that past, present and future activities on the Central Nevada Test Area have disproportionately impacted, are disproportionately impacting, or will disproportionately impact the American Indian people. Although Alternative 2 contains no new activities, it contains the possibility of adversely impacting these issues. Even though the CGTO has not been permitted to visit the area, the area is especially important due to the concentration of cultural resources. Therefore, this area provides a special opportunity for the DOE to undo past environmental justice impacts. The CGTO should

be funded to design, conduct, and produce a systematic American Indian Environmental Justice study, before new activities are approved.

Program-by-program responses are assessed in Section 5.1.1.12 and are not repeated here.

G.4.4.3 Alternative 3 - Expanded Use.

G.4.4.3.1 Nevada Test Site—American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.3.1.10, Cultural Resources, and Section 5.3.1.11, Occupational and Public Health and Safety/Radiation. There has not been a systematic study of these issues for the NTS. The CGTO maintains that past, present and future activities on the NTS have disproportionately impacted, are disproportionately impacting, or will disproportionately impact the American Indian people. Under the Expanded Use Alternative 3, there is a high potential of adverse impacts to these issues. As more activities occur, both risks from radiation and reduced access from land disturbance is expected to occur. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study, before new activities are approved.

Action-by-action responses are assessed in Section 5.1.1.12 and are not repeated here.

G.4.4.3.2 Tonopah Test Range—American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.3.2.10, Cultural Resources, and Section 5.3.1.11, Occupational and Public Health and Safety/Radiation. There has not been a systematic study of these issues for the Tonopah Test Range. The CGTO maintains that past, present and future activities on the Tonopah Test Range have disproportionately impacted, are disproportionately impacting, or will disproportionately impact the American Indian people. Under the Expanded Use Alternative 3, there is a high potential of adverse impacts. As more activities occur, both risks from radiation and reduced access from land disturbance is expected to occur. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study, before new activities are approved.

Program-by-program responses are assessed in Section 5.1.1.12 and are not repeated here.

G.4.4.3.3 Project Shoal Area—American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.3.3.10, Cultural Resources, and Section 5.3.1.11, Occupational and Public Health and Safety. There has been no systematic study of these issues for the Project Shoal Area.

This study area is not within the traditional lands of the American Indian people represented by the CGTO. It is recommended by the CGTO that the DOE NTS EIS team directly contact American Indian tribes and organizations having traditional lands in the Project Shoal Area. The following tribes were suggested: Fallon Paiute, Walker River Paiute, Pyramid Lake and Lovelock Paiute Tribes.

G.4.4.3.4 Central Nevada Test Area—American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.3.4.10, Cultural Resources, and Section 5.3.1.11, Occupational and Public Health and Safety/Radiation. There has not been a systematic study of these issues for the Central Nevada Test Area. The CGTO maintains that past, present and future activities on the Central Nevada Test Area have disproportionately impacted, are disproportionately impacting, or will disproportionately impact the American Indian people. Under the Expanded Use Alternative 3, there is a high potential of adverse impacts. As more activities occur, both risks from radiation and reduced access from land disturbance is expected to occur. Even though the CGTO has not been permitted to visit the area, the area is especially important due to the concentration of cultural resources. Therefore, this area provides a special opportunity for the DOE to undo past

Environmental Justice impacts. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study, before new activities are approved.

Program-by-program responses are assessed in Section 5.1.1.12 and are not repeated here.

G.4.4.3.5 Eldorado Valley—American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.3.5.10, Cultural Resources, and Section 5.3.1.11, Occupational and Public Health and Safety/Radiation. There has not been a systematic study of these issues for the Eldorado Valley. The CGTO maintains that past activities in the Eldorado Valley have impacted these American Indian issues, especially Holy Land violations. This constitutes a disproportionate impact on the American Indian people. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study before new activities are approved.

Program-by-program responses are assessed in Section 5.1.1.12 and are not repeated here.

G.4.4.3.6 Dry Lake Valley—American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.3.6.10, Cultural Resources, and Section 5.3.1.11, Occupational and Public Health and Safety/Radiation. There has not been a systematic study of these issues for the Dry Lake Valley. The CGTO maintains that past activities in the Dry Lake Valley have disproportionately impacted the American Indian people, especially the issue of Holy Land violations. Any activities occurring near Indian reservations further precludes future opportunities for expansion and access to these lands for any purpose. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study before new activities are approved.

Program-by-program responses are assessed in Section 5.1.1.12 and are not repeated here.

G.4.4.3.7 Coyote Spring Valley—American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.3.7.10, Cultural Resources, and Section 5.3.1.11, Occupational and Public Health and Safety/Radiation. There has not been a systematic study of these issues for the Coyote Spring Valley. The CGTO maintains that past activities in the Coyote Spring Valley have disproportionately impacted these American Indian issues, especially Holy Land violations. This area was traditionally land for Southern Paiutes especially the Moapa Paiute Tribe. Any activities occurring near Indian reservations further precludes future opportunities for expansion and access to these lands for any purpose. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study before new activities are approved.

Program-by-program responses are assessed in Section 5.1.1.12 and are not repeated here.

G.4.4.4 Alternative 4 - Alternative Use of Withdrawn Lands.

G.4.4.4.1 Nevada Test Site—American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.4.1.10, Cultural Resources, and Section 5.4.1.11, Occupational and Public Health and Safety/Radiation. There has not been a systematic study of these issues for the NTS. The CGTO maintains that past, present and future activities on the NTS have disproportionately impacted, are disproportionately impacting, or will disproportionately impact the American Indian people. Under Alternative 4, there is a high potential of adverse impacts to these issues, even though most DOE activities would be discontinued. The continuation of waste management operations and the physical activities associated with environmental restoration and other planned activities, are expected to cause both risks from radiation and reduced access from land disturbance. The CGTO should be funded to design, conduct, and produce a systematic American Indian

Environmental Justice study, before new activities are approved.

Program-by-program responses are assessed in Section 5.1.1.12 and are not repeated here.

G.4.4.4.2 Tonopah Test Range—American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.4.2.10, Cultural Resources, and Section 5.4.1.11, Occupational and Public Health and Safety/Radiation. There has not been a systematic study of these issues for the Tonopah Test Range. The CGTO maintains that past, present and future activities on the Tonopah Test Range have disproportionately impacted, are disproportionately impacting, or will disproportionately impact the American Indian people. Under Alternative 4, there is a high potential of adverse impacts to these issues. As more activities occur, both risks from radiation and reduced access from land disturbance is expected to occur. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study, before new activities are approved.

Program-by-program responses are assessed in Section 5.1.1.12 and are not repeated here.

G.4.4.4.3 Project Shoal Area—American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.4.3.10, Cultural Resources, and Section 5.4.1.11, Occupational and Public Health and Safety/Radiation. There has not been systematic study of these issues for the Project Shoal Area.

This study area is not within the traditional lands of the American Indian people represented by the CGTO. It is recommended by the CGTO that the DOE EIS team directly contact American Indian tribes and organizations having traditional lands in the Project Shoal Area. The following tribes were suggested: Fallon Paiute, Walker River Paiute, Pyramid Lake and Lovelock Paiute Tribes.

G.4.4.4.4 Central Nevada Test Area—American Indian Environmental Justice concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.4.4.10, Cultural Resources, and Section 5.4.1.11, Occupational and Public Health and Safety/Radiation. There has not been a systematic study of these issues for the Central Nevada Test Area. The CGTO maintains that past, present and future activities on the Central Nevada Test Area have disproportionately impacted, are disproportionately impacting, or will disproportionately impact the American Indian people. Under Alternative 4, there is a high potential of adverse impacts. As more activities occur, both risks from radiation and reduced access from land disturbance is expected to occur. Even though the CGTO has not been permitted to visit the area, the area is especially important due to the concentration of cultural resources. Therefore, this area provides a special opportunity for the DOE to undo past Environmental Justice impacts. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study, before new activities are approved.

Program-by-program responses are assessed in Section 5.1.1.12 and are not repeated here.

G.4.4.4.5 Eldorado Valley—American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.4.5.10, Cultural Resources, and Section 5.4.1.11, Occupational and Public Health and Safety/Radiation. There has not been a systematic study of these issues for the Eldorado Valley. The CGTO maintains that past activities in the Eldorado Valley have disproportionately impacted the American Indian people, especially the issue of Holy Land violations. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study before new activities are approved.

Program-by-program responses are assessed in Section 5.1.1.12 and are not repeated here.

G.4.4.4.6 Dry Lake Valley—American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.4.6.10, Cultural Resources, and Section 5.4.1.11, Occupational and Public Health and Safety/Radiation. There has not been a systematic study of these issues for the Dry Lake Valley. The CGTO maintains that past activities in the Dry Lake Valley have disproportionately impacted the American Indian people, especially the issue of Holy Land violations. Any activities occurring near Indian reservations further precludes future opportunities for expansion and access to these lands for any purpose. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study before new activities are approved.

Program-by-program responses are assessed in Section 5.1.1.12 and are not repeated here.

G.4.4.4.7 Coyote Spring Valley—American Indian concerns include: (1) Holy Land violations, (2) perceived risks from radiation, and (3) cultural survival, especially access violations. These impacts are discussed in Section 5.4.7.10, Cultural Resources, and Section 5.4.1.11, Occupational and Public Health and Safety/Radiation. There has not been a systematic study of these issues for the Coyote Spring Valley. The CGTO maintains that past activities in the Coyote Spring Valley have disproportionately impacted the American Indian people, especially the issue of Holy Land violations. This area was traditionally land for Southern Paiutes especially the Moapa Paiute Tribe. Any activities, occurring near Indian reservations further precludes future opportunities for expansion and access to these lands for any purpose. The CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study before new activities are approved.

Program-by-program responses are assessed in Section 5.1.1.12 and are not repeated here.

G.4.5 Social and Economics Impact

G.4.5.1 Alternative 1 - Continue Current Operations (No Action).

G.4.5.1.1 Nevada Test Site—This section describes the American Indian concerns associated with implementing Alternative 1, as summarized by the CGTO.

Indian people prefer to live in their traditional homelands. One reason for this preference, is that Indian people have special ties to their traditional lands and a unique relationship with each other. When Indian people receive employment near their reservations they can remain on the reservation while commuting to work. This pattern of employment tends to have positive benefits for both the Indian community and tribal enterprises like housing. The reservation Indian community has the participation of the individual and his (her) financial contribution. The individual payment for housing is tied to income level, so the more a person earns with the job the more they pay to the tribal housing office, thus making tribally sponsored housing more economically viable.

When employment opportunities decline on reservations, however, often times Indian families must move away from their reservations to seek employment. These situations have resulted in approximately one-half to two-thirds of the tribal members in the CGTO region of influence moving away from their reservations.

As Indian people move away from reservations due to employment opportunities, Indian culture is threatened because the number of families living on reservations declines. Tribal members who choose to relocate from their reservations impact reservation economies, school, housing and emergency services. Both schools and economies are impacted because federal funding available to tribes is based on population statistics.

With local employment opportunities such as those offered by NTS to neighboring tribes, prices of tribal housing rise because they are based on income. If a positive balance between increased income and increased cost of living in tribal

reservations is achieved, then, both individual members and the tribe benefit from employment opportunities. However, continued salary raises may tip the balance toward a sharp increase in cost of living, making it unable for tribal members to continue living in the reservation.

Tribal housing programs become jeopardized if vacancies occur in tribal housing projects and cannot be reoccupied. If vacancies occur, tribal revenues and federal funding will be adversely impacted and will make it more difficult to expand housing programs in future years. Additionally, vacant units require more maintenance. If tribal members are unavailable to occupy a tribal housing unit, then tribes make units available to non-Indians, and this too potentially impacts Indian culture. The increased presence of non-Indians on a reservation or in an Indian community reduces the privacy needed for the conduct of certain ceremonies and traditional practices. When non-Indian children are in constant interaction with Indian children, it creates a situation that potentially disrupts cultural learning opportunities that occur in everyday life.

Small rural reservations must have a sufficient number of people to generate an emergency response capability. The need for emergency services will decline as people move away from the reservation. Tribal members employed in these emergency service occupations may move away because of their marketable skills. Tribal revenues for administration, school, housing and emergency services will be reduced accordingly, due to a decline in population size.

When Indian people move away from their reservations several dilemmas occur. Typically, Indian people experience a feeling of isolation from their tribe, culture and family. When an Indian person relocates to an off-reservation area, the individual finds that there are fewer people of their tribe and culture around them. As a result, Indian people must decide on the appropriateness of practicing traditional ceremonies in the presence of non-Indian people. Indian people are continually torn between the decision to stay in the city or return to the reservation to participate in traditional ceremonies and interact with other tribal members. This dilemma occurs on a regular basis and potentially impacts the livelihood and cultural well-being of off-reservation employees and their families. When off-reservation individuals choose to return to their homelands to participate in traditional ceremonies, they risk their jobs or disciplinary actions against their children who attend public schools due to excessive absenteeism.

Should an emergency situation resulting from NTS related activities including the transportation of hazardous and radioactive waste occur, it could result in the closure of a major reservation road. Many of the Indian reservations within the region of influence are located in remote areas with limited access by standard and substandard roads. Were a major (only) road into a reservation to be closed, numerous adverse social and economic impacts could occur. For example, Indian students who have to travel an unusually high number of miles to or from school could realize delays. Delays also could occur for regular deliveries of necessary supplies for inventories needed by tribal enterprises and personal use. Purchases by patrons of tribal enterprises and emergency medical services in route to or from the reservation could be dramatically impeded. Potential investors interested in expanding tribal enterprises and on-going considerations by tribal governments for future tribal developments may significantly diminish because of the perceived risks associated with NTS related activities including the transportation of hazardous waste.

Defense Program. Under Alternative 1, the Defense Program would produce a total of 4,274 jobs. It is expected that a percentage of these jobs would be filled by tribal members from reservations within the American Indian Region of Influence. Many of these Indian people will move away from their reservations to take these jobs causing the socioeconomic impacts discussed above. Increased employment can positively impact American Indian employees and their families; however, this off-reservation employment is expected to adversely impact the social structure and cultural activities on the reservation.

Waste Management Program. Under Alternative 1, the Waste Management Program would result in no change to total current

employment. No American Indian socioeconomic impacts are expected.

Environmental Restoration Program. Under Alternative 1, the Environmental Restoration Program would create approximately 1,129 jobs. Although this is approximately one-third the number of jobs created by the Defense Program, it is anticipated that a higher percentage of American Indians would be attracted to the Environmental Restoration jobs because they are more consistent with American Indian land preservation values. American Indians have special skills that may be especially critical to Environmental Restoration activities, and the CGTO has specifically asked that Indian people be involved in these programs. American Indians have asked to be involved when soil mediation actions remove contaminated soil, and afterwards, during habitat restoration.

Nondefense Research and Development Program. Under Alternative 1, no new jobs would be created by the Nondefense Research and Development Program. Were existing research programs, especially the National Environmental Research Park Program, to integrate American Indians into the study designs, it is possible that a few more Indian people would be employed. These shifts in employment are expected to be minor, so no American Indian socioeconomic impacts are expected.

Work for Others Program. Under Alternative 1, no new jobs would be created by the Work for Others Program. No American Indian socioeconomic impacts are expected.

Site Support Activities. Under Alternative 1, no new jobs would be created by the Site Support Activities. No American Indian socioeconomic impacts are expected.

G.4.5.1.2 Tonopah Test Range—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.1.3 Project Shoal Area—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.1.4 Central Nevada Test Area—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.2 Alternative 2 - Discontinue Operations.

G.4.5.2.1 Nevada Test Site—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.2.2 Tonopah Test Range—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.2.3 Project Shoal Area—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.2.4 Central Nevada Test Area—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.3 Alternative 3 - Expanded Use.

G.4.5.3.1 Nevada Test Site—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.3.2 Tonopah Test Range—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.3.3 Project Shoal Area—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.3.4 Central Nevada Test Area—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.3.5 Eldorado Valley—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.3.6 Dry Lake Valley—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.3.7 Coyote Spring Valley—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.4 Alternative 4 - Alternate Use of Withdrawn Lands.

G.4.5.4.1 Nevada Test Site—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.4.2 Tonopah Test Range—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.4.3 Project Shoal Area—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.4.4 Central Nevada Test Area—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.4.5 Eldorado Valley—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.4.6 Dry Lake Valley—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.4.5.4.7 Coyote Spring Valley—American Indian socioeconomic impacts due to fluctuations in DOE employment opportunities for tribal members from the CGTO region of influence are discussed in Section 5.1.1.3.

G.5. Mitigation Recommendations

(NOTE: The AIWS understands that the mitigation recommendations may be divided between NTS EIS chapters and within chapters behind each alternative discussion. Despite the need for breaking this section into its component parts, the AIWS wanted their thoughts on mitigation to be held together in this, their own, document.)

(NOTE: The Council on Environmental Quality's definition of Mitigation (40 CFR Part 1508.19), which guides EIS actions, "includes (a) avoiding the impact altogether by not taking a certain action or parts of an action, (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation, (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment, (d) reducing or eliminating the impact over time by preserving and maintaining operations during the life of the action, and (e) compensating for the impact by replacing or providing substitute resources or environments." The DOE has adopted this definition (10 CFR Part 1021.104).)

Federal and state agencies that must comply with legal requirements for the management and protection of American Indian cultural resources have developed, in the last few years, fairly standard procedures for funding and implementing present and future mitigation programs. The vast majority of these programs have focused on mitigating archaeological and historic sites to the exclusion of other resources found in the American Indian cultural landscape. Only recently have American Indian plants been incorporated into mitigation programs, but these have concentrated mostly on endangered plant species. Animal studies, which require a more complex methodology, are only now being developed. Other components of the cultural landscape, such as geological formations, are not systematically considered for mitigation unless they have potential for tourism.

A key problem of existing procedures for implementing mitigation is the lack of an integrated approach to resources that takes into consideration the functional and reproductive interdependence of American Indian cultural resources. In the view of the CGTO, there is not one type of resource that can continue to reproduce and be of use to the American Indian people without the continuation of all other resources. For Indian people, an adversely impacted resource will most certainly affect the spiritual harmony of the land as a whole. Unfortunately, laws and regulations designed to protect American Indian cultural resources (e.g., National Historic Preservation Act) treat each resource in isolation, without considering that a specific resource is but one component of the American Indian cultural landscape.

G.5.1 American Indian Cultural Resources

The CGTO recommends that mitigation programs implemented at the NTS fully incorporate the assistance of American Indian people so that adverse impacts on American Indian resources can be efficiently averted. American Indian people know the NTS landscape in great depth and thus can help scientists with the identification of plants, animals, geography, archaeological sites, and traditional cultural properties that have been or will be adversely impacted by NTS programs and activities.

The CGTO considers that the natural and spiritual balance of the NTS landscape has been profoundly upset by prolonged nuclear testing activities and that the land must be purified and the spirits appeased in order to fully restore the environment to its previous condition. Through ceremonies, prayer, and offerings, American Indian people will contribute to increase the benefits of mitigation and will aid in restoring the spiritual harmony of impacted landscapes.

There are a number of proposed NTS actions that are of great concern to Indian people because of their adverse impact on the American Indian landscape. To avert or mitigate such impacts, the CGTO recommends that the DOE/NV fund systematic American Indian studies to:

- Identify those areas/resources that are irreparably damaged, as well as areas/resources that can be restored for human use
- Avoid further ground-disturbing activities
- Make mitigation of restorable areas a top priority
- Replace lost plant and animal species integral to the spiritual landscape
- Avert or minimize damage to geological formations important to the spiritual landscape
- Implement environmental restoration techniques that require minimum ground-disturbing activities
- Develop systematic consultation with American Indians so that potentially impacted resources can be identified, alternative solutions discussed, and adverse impacts averted
- Give American Indian people access to adversely impacted areas so that they can contribute their knowledge, purification ceremonies, prayers, and offerings to the restoration of the natural and spiritual harmony of the NTS landscape.

In addition to these recommendations that derive from analysis of potential action and alternative impacts to American Indian cultural resources, the CGTO made the following stipulations and recommendations at the first CGTO meeting with the DOE NTS EIS study team:

1. Consultation with the CGTO does not relieve the DOE/NV of its obligation to maintain a government-to-government relationship with American Indian tribes.

2. The DOE/NV must consult with all culturally affiliated tribes and organizations belonging to the CGTO.

3. The DOE/NV should incorporate other American Indian tribes and organizations when considering activities away from (i.e., outside the American Indian region of influence) the NTS.

4. The CGTO recommends that the DOE/NV incorporate wherever possible in this EIS the "Final Tribal Recommendations to the DOE" prepared at the second mitigation meeting, NTS AIRFA, October 1-3, 1993.

5. The CGTO recommends that the DOE/NV incorporate wherever possible in this EIS all former American Indian recommendations made by the CGTO to the DOE.

6. The CGTO recommends the continuance and expansion of the American Indian consultation program.

7. The CGTO recommends that they be actively involved in the planning, developing, and monitoring of all future DOE/NV ground-disturbing activities.

8. Public meetings are not the proper way to consult with tribes and organizations. They should not be considered "stakeholders" as defined by the DOE.

9. Responses to the various NTS EIS alternatives:

   A. Alternative 1, (No Action, Continue Current Operations). The CGTO opposes Alternative 1 because of our strong cultural ties to the land.

   B. Alternative 2, (Discontinue Operations). The CGTO supports Alternative 2 with the inclusion of access and protection of all cultural resource sites.

   C. Alternative 3, (Expanded Use). The CGTO opposes Alternative 3 because of our strong cultural ties to the land.

      The CGTO recommends that lands set aside for exclusive Indian use continue to be kept free, secure, and monitored for contamination of radioactivity and hazardous waste.

      The CGTO recommends that the Gold Meadows area be set aside for exclusive Indian use because the area contains a concentration of important cultural resources.

   D. Alternative 4, (Alternate Use of Withdrawn Lands). The CGTO tentatively supports Alternative 4 with reservations regarding certain components of this alternative.

The following statements are specifically adapted from the first CGTO meeting by the AIWS to reflect new information compiled during the work of the AIWS. Each of the following recommendations applies specifically to a situation where the DOE has selected an alternative. The recommendation of mitigation by the AIWS does not imply they support the alternative; it merely is the best way of responding to alternative impacts on American Indian cultural resources.

If Alternative 1 is chosen, the following are recommended:

- Continue AIRFA Compliance Program
- Expand American Indian ethnographic studies

- Conduct land-restoration ceremonies
- Provide access to the CGTO and limit access to culturally sensitive areas.
- Continue American Indian monitors needed for cultural resources investigations
- Provide for American Indian monitors needed for oversight of land and DOE activities.

If Alternative 2 is chosen, the following are recommended:

- Continue AIRFA Compliance Program
- Turn back land to the CGTO (designate areas for exclusive Indian control)
- Provide for American Indian monitors needed for oversight of land and DOE activities
- Conduct land-restoration ceremonies.

If Alternative 3 is chosen, the following are recommended:

- Continue AIRFA Compliance Program
- Expand American Indian ethnographic studies
- Conduct land-restoration ceremonies
- Provide access to the CGTO and limit access to culturally sensitive areas
- Continue American Indian monitors needed for cultural resources investigations
- Provide for American Indian monitors needed for oversight of land and DOE activities.

If Alternative 4 is chosen, the following are recommended:

- Designate joint-use area for three ethnic groups
- Restrict/limit access to culturally sensitive areas
- Continue AIRFA Compliance Program.

G.5.2. American Indian Socioeconomics

This section describes the American Indian concerns associated with implementing Alternative 1, as summarized by the CGTO.

When Indian people are hired, special problems emerge for themselves, families and reservation communities. The DOE can assist in mitigating these problems by recognizing the exact nature of the problems and developing a culturally responsive approach to mitigating the problem. For example, an Indian employee may be required to attend a ceremony on the reservation. When this situation occurs, the DOE could grant special leave status to the employee to participate in the ceremony. Children of the Indian employee may go to non-Indian schools, causing cross-cultural stresses. The DOE could potentially mitigate this situation by developing an American Indian outreach/educational program directed at the school system and the surrounding communities. Cultural awareness activities could be implemented similar to the Yucca Mountain Project's outreach program in which knowledgeable Indian people share various aspects of their culture. The DOE could encourage other Indian employees to participate in the development and implementation of these culturally specific programs.

Reservation problems resulting from the loss of tribal members to external employment with the DOE/NV cannot be fully identified without a systematic study of these issues involving the tribes. It is recommended that this issue be mitigated by the DOE/NV, and be specifically addressed by the DOE/NV Diversity Council. The CGTO potentially can serve as a management consultant to the DOE for the development and implementation of culturally specific programs that address the unique issues that may arise due to off-reservation migration caused by the employment of Indian people.

G.6 American Indian Consultation Procedures

American Indian tribes are sovereign nations who acknowledge the U.S. government and expect that, in return, the U.S. government recognize tribal sovereignty. In a memorandum dated April 29, 1994, President William J. Clinton wrote "I am strongly committed to building a more effective day-to-day working relationship reflecting respect for the rights of self-government due the sovereign tribal rights." American Indian governments expect that federal agencies and state officials will honor President Clinton's explicit commitment to building such a relationship and follow his mandate (Executive Orders Nos. 12875 and 12866, DOE, 1994). Accordingly, government officials must implement comprehensive consultation policies that take into consideration the vast cultural, social, and political diversity of American Indians, as well as the needs, concerns, and impacts that are shared by our nations.

American Indian tribes are not considered as, nor do they fit the definition of, businesses or "stakeholders." Formal government-to-government consultation with tribal governments require diplomacy. U.S. government officials who are in charge of maintaining friendly and productive day-to-day relationships with foreign countries, such as Japan, Mexico, or Germany, must acquire knowledge on the languages, culture, and politics of those countries in order to best represent the interests of the United States of America and to achieve success in international economic and political negotiations. Yet, there is little or no interest among government officials to educate themselves as to how American Indians living in their own country, organize themselves culturally and politically. How, we ask, are federal agencies and state officials going to succeed in following President Clinton 's mandate if they do not work at improving their knowledge of American Indian life ways?

The AIWS, who represents the concerns of the CGTO for the NTS EIS, suggests a series of procedures for implementing a comprehensive, day-to-day consultation relationship with the DOE. The Environmental Protection Division of DOE/NV has maintained its commitment to consultation and has established a working relationship with culturally affiliated American Indian tribes regarding cultural resources at Yucca Mountain and the NTS since 1985. There are, however, numerous other areas of great concern for tribal governments that are currently addressed in the NTS EIS, but that have not been explored or systematically subjected to consultation with tribal governments. Some of these areas are:

- Land use
- Risk assessment
- Socioeconomic issues
- Nuclear waste transportation
- Environmental restoration
- Mitigation.

The AIWS is aware that at present there are programmatic EISs taking place without the direct involvement of American Indian people. This lack of involvement is a source of great concern for culturally affiliated tribes. The gravity of past and proposed future nuclear and defense-related programs and activities at the NTS and other areas withdrawn by the DOE calls for a broadening of the scope of American Indian consultation programs. As stated in the American Indian Policy (DOE, 1994), the DOE must identify and seek to remove impediments to working directly and effectively with tribal governments on DOE programs and activities. The DOE has already recognized that there may be certain procedural impediments which limit or restrict the ability to work effectively and consistently with American Indian tribes. In keeping with the American Indian Policy, which requires government-to-government consultation, this federal agency must make every effort to remove such impediments. In the following paragraphs we present a step-by-step consultation procedure that is culturally and politically appropriate.

The following consultation procedures are drawn both from past and current consultation relationships between DOE/NV and the CGTO. Furthermore, these procedures reflect the need for adjustments on consultation strategies for future DOE programs and activities that may potentially impact the traditional culture and contemporary well-being of Indian people. Therefore, this section

not only highlights the accomplishments of DOE/NV consultation with tribal governments, but also points out procedures that have yet to be developed and implemented. Because the NTS EIS will be read by government officials from sister DOE facilities and perhaps by other federal and state agencies as well, the AIWS expects that the following consultation procedures will serve as a model for future interaction between tribal governments and federal and state agencies. It is important to note that specific consultation procedures should be approved by tribal governments at the onset of each consultation process.

G.6.1 Outline of Consultation Procedures

- *Initial Notification.* A formal letter addressed to the tribal government head or chairperson must be sent to inform the tribe of any proposed action that may affect American Indian resources and/or may impact the well-being of tribal members. Initial formal letters must be followed up to ensure that the tribal government is aware of the proposed action and has received copies of all pertinent documentation. When a Notice of Intent is part of an ongoing consultation relationship, it should also be sent to official tribal contact representatives.

- *Pertinent Documentation.* A non-technical document that clearly and concisely presents the scope and goals of the proposed action, including an explanation of potential effects and consequences of such action, both positive and negative, should accompany the Notice of Intent.

- *Formal Visitation.* A request for a formal visitation with the tribal government(s) to make an oral presentation of the proposed action and its effects and consequences should follow a Notice of Intent. Presentations must be concise and no more than 15 minutes. Visual aids and non-technical language will greatly facilitate communication.

- *Official Tribal Contact Representative.* For new proposed actions, the federal agency should request that the tribal government review this information and appoint an Official Tribal Contact Representative(s) who will directly interact with DOE officials. If representatives have already been appointed, then the DOE has the responsibility to keep the tribal contacts informed and periodically double-check whether new representatives have been appointed by the tribal government.

- *Agency Point of Contact.* A permanent agency point of contact should be appointed for all DOE consultation activities (e.g., cultural resource management, NTS EIS write-up). This individual(s) must have prior knowledge of consultation procedures and American Indian culture, long-range vision, and be responsible for maintaining long-term consultation with the tribes. Continuity in consultation relationships achieved and maintained between the DOE/NV and the CGTO could not have been possible without the commitment of responsible and knowledgeable agency officials.

- *Memorandum of Agreement.* Consultation with the CGTO representatives is a productive opportunity for sharing information and voicing common tribal concerns regarding DOE programs and activities at the NTS and other areas withdrawn by the agency. However, there are more specific impacts of these programs and activities that directly affect those tribes that live in the vicinity of the NTS. For example, radioactive waste transportation affects directly the Moapa Paiute and the Las Vegas Paiute Tribes. A Memorandum of Agreement between the federal agency and the affected tribal governments should be signed before implementing a proposed action.

- *Information Updates.* Tribal governments involved in consultation with the DOE must be kept informed of the progress of programs and activities, modifications of the original action plans, and changes of agency personnel that may affect the consultation relationship. Draft reports should be sent to the tribal governments for review and comment.

- *Indian Monitoring Program.* Appointing Indian Monitors is essential for ensuring that cultural resource management and mitigation of adverse impacts of DOE programs and activities to American Indian cultural resources is conducted in an appropriate manner. The involvement of officially appointed Indian Monitors in archaeological research at the NTS, for example, has been successful and will continue to be so in the immediate future. Monitoring should be expanded to other areas of potential impact to American Indian culture and well-being.

- *Formation of American Indian Task Subgroups.* Ideally, tribal governments should be directly involved in the design and implementation of programs and activities that could potentially impact Indian culture and society. This involvement can be made possible if task subgroups formed by Official Tribal Contact Representatives are allowed to work alongside federal agency planners or managers. For example, during the preparation of the Draft NTS EIS, the CGTO suggested to DOE/NV that a subgroup of its Official Tribal Contact Representatives (representing three ethnic groups) be allowed to write American Indian text directly into this EIS. This task subgroup became the AIWS. A positive response from the DOE/NV was needed to demonstrate that American Indians can work effectively with federal agencies. It is expected that Indian task subgroups will become an established consultation procedure.

- *Regular Meetings Between Agency Managers and Official Tribal Contact Representatives.* Periodically, DOE managers should agree to a formal meeting with tribal representatives to share information on current and future plans, ongoing consultation, needs and concerns of both the tribes and the agency, and policy updates. These meetings are useful for reassuring both agency managers and tribal governments that consultation is being conducted in a culturally and politically appropriate manner and for mutual benefit.

- *Co-management.* Ideally, tribal governments who are involved in consultation with the DOE should share tasks and responsibilities in the management of resources that are significant for Indian people. Future agency efforts should target the development of a resource co-management plan.

- *Funding.* Funding for consultation, including Official Tribal Contact Representatives meetings, site visits, task subgroups, and monitoring should be provided for the continuation of current compliance programs and future projects.

- *Time Allowance.* Tribal governments are often overworked and understaffed. Proposal reviews by the tribal council, personnel appointments, and review and comment of draft documents take time. Agencies should send notices of intent and any other documentation within a reasonable timeframe so that tribes can respond on a timely basis. Proposal and document review periods should be 30 to 45 days.

G.6.2 Consultation Issues

- *Land Use.* Land has no monetary value for Indian tribes. Indian people do not recognize boundaries other than their traditional territories. Land was traditionally respected for its ability to sustain the people economically, spiritually, and socially. American Indian perspectives on land use should be incorporated into all federal agency programs and activities that will potentially transform the natural landscape of traditional Indian land or impact its biological resources.

- *Biological Resources.* The DOE's projects and activities have impacted the region's plant and animal species. A number of them are currently candidates for listings as either threatened or endangered. Indian people have deep knowledge of the biological resources of the area and should participate directly with scientists responsible for the protection of its biological resources. Although systematic traditional-use plant studies have been

conducted in Yucca Mountain, Pahute Mesa, and Rainier Mesa, American Indians would like to see the DOE take a step further and invite them to assist the agency in the planning and implementing of ecosystem management programs at the NTS.

- *Air Quality and Climate.* The DOE should make an effort to record systematically the adverse effects of nuclear testing on the air quality of American Indian communities located near the NTS.

- *Visual Resources.* All land forms within the NTS have high sensitivity levels for American Indians. The ability to see the land without the distraction of buildings, towers, cables, roads, and other objects is essential for the spiritual interaction between Indian people and their traditional lands. Landscape modifications should be done in consultation with American Indians.

- *Occupational and Public Health and Safety.* The DOE's programs and activities are performed in accordance with the regulations of the Occupational Safety and Health Administration. Tribes that live near the NTS would like to be included in systematic research aimed at ensuring that public health and safety measures devised by the DOE extend into tribal lands and communities.

- *Nuclear Waste Transportation.* Portions of the current road system within the western United States is based on ancient pathways and trails of Indian people. The Southwest Desert Trail System was not used for trivial activities but for trade, commerce, pilgrimage, and often for a hasty retreat or to pursue an enemy in the act of warfare. Trails were used to relay important messages to distant tribal groups.

- Tribal governments would like to cooperate with the DOE in the development and implementation of safe transportation policies. However, no systematic consultation with tribal governments has been conducted to date. Indian communities located along transportation routes are continuously exposed to risks of accidents, spills, and adverse impacts of transportation on tribal economies. The cumulative effects of long-term nuclear waste transportation through tribal lands would be traumatic and potentially life-threatening to the well-being of the Indian people.

  The DOE has the responsibility to assist neighboring tribes in developing an emergency response management program in regard to transportation of low-and high-level nuclear waste as it passes through tribal lands. A Memorandum of Agreement should be signed.

- *Geology and Soils.* Severe disturbance of the geology and soils in large portions of the NTS has been caused by repeated nuclear testing (e.g., mountain sides, craters). These impacts have made certain areas unfit for human use. These areas have become inaccessible to American Indians for religious purposes.

- *Surface Hydrology and Groundwater.* Surface waters of the NTS, the Tonopah Test Range, and the NAFR Complex are not used for human consumption. Animals in these regions must drink this water: they do not have a choice. Water pollution also puts plant communities in jeopardy. Tribal governments are concerned that the migration of polluted water from contaminated areas into land outside the NTS will have long-term adverse effects.

The AIWS reviewed and edited the Consultation Model produced for the U.S. Department of Energy Legacy Project (Stoffle et al., 1994c). A detailed version of this American Indian Consultation Model, which has been tailored to meet current DOE/NV consultation procedures, is included in Attachment C of Appendix G.

G.7 Transportation Study

G.7.1 Consultation

The compilers of the NTS EIS Transportation Study refer to meeting with various American Indian individuals, groups, and tribes. The interactions are listed as tables and discussed throughout the text.

These meetings do not constitute full government-to-government consultation with American Indian tribes, nor have they led to an American Indian transportation study. Instead, the meetings simply informed Indian people that an NTS EIS transportation study was being conducted. Information about pending studies is an important first step in consultation with American Indian tribes and organizations; however, no additional consultation steps were taken. The Transportation Study, therefore, cannot be supported by the American Indian tribes and organizations represented by the CGTO.

Especially disturbing to the CGTO is an apparent confusion regarding the purpose of CGTO consultation during the NTS EIS. For example, the response to Question #16 (D-8, D-9) where a public response raised the issue of the DOE going to the tribes for consultation, rather than them having to come to the DOE. The writers of the Transportation Study responded by referring to the CGTO involvement with other portions of the NTS EIS as though it was an example of consultation specific to the transportation study. This is an incorrect statement, in as much as the CGTO was informed by the DOE NTS EIS Transportation Study team that the CGTO did not have to respond to transportation issues because the Transportation Study team was working directly with the tribes in a parallel but separate consultation. The CGTO is only now responding to the Transportation Study because it neither identifies nor assesses American Indian impacts.

American Indian tribes are not "stakeholders" and, thus, meetings designed to elicit the opinion of public stakeholders are not an appropriate method for consulting with tribes who are to be addressed on a government-to-government basis according to the President of the United States. Thus, there are misleading and incorrect statements in Chapter 2, Stakeholder Issues, that indicate that American Indian tribes were given the opportunity to identify issues during public meetings. No public meetings should be considered as a replacement for government-to-government consultation. All reference to American Indian consultation should be removed from this section of the report unless it specifically refers to American Indian consultation on a government-to-government basis.

G.7.2 American Indian Transportation Issues

Although some American Indian transportation issues were suggested during the NTS EIS scoping period and again raised in the CGTO meetings with the Transportation Study team, the report does not include these issues. Despite a record of meetings with American Indian people, groups, and tribes, the study does not present critical American Indian concerns. These include, among others, the impact of radioactive and hazardous waste travel along rail and highway on nearby existing and planned American Indian businesses, especially those of the Moapa Paiute Tribe and the Las Vegas Paiute Tribe. American Indian people, especially elders, express a fear of radiation as an "angry rock" which can impact people as it travels, even though it remains packaged and no transportation accident occurs to spill the contents of the package. Although this perception of radioactivity was expressed by American Indian people in the 1987 DOE archaeology study, the nature and extent of this fear has not been addressed by the transportation study. American Indian people also express concern that places of spiritual power are being and could be additionally harmed by the transportation of radioactive and hazardous waste. American Indian people are currently reacting to these concerns by worrying about the past and current impacts of waste transportation and by avoiding certain places they believe have been adversely impacted by the transportation of radioactive and hazardous waste.

The CGTO recommends that the cultural concerns of other American Indian tribes and organizations should be included in the Transportation Study. The CGTO understands that the Transportation Study is focused on what it called "local issues" (Volume 1, Appendix I, p. 1-1), but is not certain why other Indian tribes, who potentially are impacted by transportation and who live in the West and Southwest, are not included in this study. When most statistics cited in the report are statewide from Nevada, why are other Nevada Indian tribes not considered in this transportation study?

The CGTO would like to know if probability calculations are based on transportation safety nationwide or in the local area of the Transportation Study. If the calculations are based on national statistics, why were local statistics not used instead, given the local-issue focus of the analysis.

The CGTO recommends that recent rail derailments in the west and southwest be incorporated into the probability calculations of railroad accidents.

The CGTO would like to express the opinion that the probability of either railroad or highway accidents has increased and is increasing owing to domestic acts of violence directed at the federal government, its employees, and its activities. These increased accident probabilities should be calculated into the Transportation Study and the report should clearly inform readers how these accident trends and potential domestic terrorist activities were incorporated into the transportation analysis.

G.7.3 A Faulty Transportation Assessment (Attachment F, Nevada Test Site Rail Access Study)

Attachment F contains a faulty assessment of potential impacts to American Indian cultural resources that would occur if a variety of new railroad tracks were constructed connecting the NTS with existing railroads. The cultural resource analysis contained in this study was conducted without the involvement of the CGTO who serve as guides, participants, and monitors of all cultural resource studies associated with the NTS. As a result, the study cannot be considered to be even a preliminary assessment of potential American Indian cultural resource impacts.

Some of the more significant flaws in the study are as follows:

- The study in Attachment F is limited to an analysis of archaeological remains, thus failing to consider the full range of American Indian cultural resources which include, among others, Indian plants, animals, traditional cultural properties, mineral deposits, water, sites of historical importance, and cultural landscapes.

- The archaeological site analysis in Attachment F is limited to a review of previously recorded sites. While such an analysis is certainly appropriate as a beginning of an assessment, it cannot be used to make conclusions about potential impacts to these sites unless their cultural significance has been evaluated by American Indian people. Also, previous archaeology studies were not conducted with the railroad development in mind, thus their sampling methods and study locations do not correspond with the ground disturbing activities that would be associated with the construction of a railroad. Also, previous archaeological studies were not conducted with the guidance, participation, and review of American Indian tribes and organizations and, thus, do not reflect current DOE/NV policies of involving Indian people in these studies.

- The cultural resource analysis in Attachment F fails to reflect the well-known and well-documented cultural significance of the area around the Spring Mountains. The area is where the Creator transported all Southern Paiutes into existence, and, therefore, gave them the mandate to use and protect these lands. As such, the area around the Spring Mountains is the center of the Southern Paiute Holy Land, and it is literally filled with places of utmost cultural significance.

- Much of this analysis suggests it is about Yucca Mountain rather than about proposals properly considered in the NTS EIS. Beyond the frequent reference to Yucca Mountain in the study, there is Figure F-1 which specifically indicates that all of the considered routes lead only to the Yucca Mountain Site. If the Transportation Study is to be used as part of the Yucca Mountain EIS, then the CGTO would like to be advised and have the opportunity to respond to the Transportation Study as a component of the Yucca Mountain study. Some other flaws in the Attachment F study are as follows:

- The Moapa Paiute Indian Reservation is missing from the transportation maps.

- Figures F-2 and F-4 incorrectly identify the "Las Vegas Paiute Indian Reservation" as the "Paiute Indian Reservation."

- The term "Southern Paiute Reservation" is used in the text (F-29) to refer to the "Las Vegas Paiute Indian Reservation."

- The term "Indian Reservation" is used without a defined boundary on Figure F-1. Since there is no place with this name, the term could be referring to the "Walker River Paiute Indian Reservation". or the "Yomba Shoshone Reservation". It should also be pointed out that the "Duckwater Shoshone Reservation" is located between railroad routes #8 and #9, but this important place is missing from the figure. The "Ely Shoshone Reservation" is also missing from the map.

- The analysis of Stateline Route (F-30) fails to mention the Pahrump Paiute Tribe, which is a member of the CGTO and which is currently seeking federal recognition. An especially important omission is the Pahrump Paiute Tribe's plan to have lands withdrawn for a new reservation in the Pahrump Valley once the Pahrump Paiute Tribe receives tribal recognition.

- The study has an "error of omission," when it states that impacts on cultural resources are regulated though Section 106 of the National Historic Preservation Act of 1966 (F-28). In fact, cultural resources are also regulated by the AIRFA of 1979 and the NAGPRA of 1990. All three cultural resource acts specify the critical role of American Indian tribes and Indian organizations in the identification and assessment of cultural resources.

G.7.4 Conclusion - A Fatally Flawed Attachment F

The study in Appendix F is fatally flawed and should not be used for its expressed purpose which is:

> to support a dialogue with Nevada stakeholders...(and be) a basis for starting a formal discussion of this issue (Volume 1, Appendix I, Attachment F, page F-1).

The CGTO believes that a reasonable dialogue about potential impacts cannot be begun with Attachment F because it fails to involve an American Indian assessment component in the cultural resources sections. Were a dialogue to begin without involving American Indian issues, it would be a violation of both cultural resource protection laws and regulations, and would not be in keeping with past DOE/NV commitments to involve American Indian tribes and organizations in such discussions.

G.8 *Framework for the Resource Management Plan*

G.8.1 American Indian Participation

American Indian ethnic groups whose aboriginal territories included the NTS lands have accumulated centuries of knowledge on the resources present at this site. Through continued use, Indian people developed a profound understanding of the cycles of resource renewal and natural transformation of the landscape, the relationships between plants, animals, minerals, water, air, and landforms that form the ecosystem, and the spiritual and healing power of this land. Elders describe their relationship with the NTS lands:

> "When you come to this land you feel at home, it gives you a peaceful feeling, the land, the mountains, the birds. Like when I cross over the mountains and see Owens Valley. In the old times the people used to come together and have social gatherings and pow-wows. When we came together here [at Gold Meadow] in 1993 it was the

first time after at least 50 years that the three ethnic groups had the opportunity to get together. It felt very peaceful to be back home among Indian people. This opportunity for tribal elders to return to this holy place was an important pilgrimage after being kept forcefully away from this land for all those years. It was a special gift for tribal elders who still remembered Gold Meadow, and for the younger people who experienced this pilgrimage with us."

American Indians can contribute this knowledge to the development of a comprehensive and culturally sensitive *Resource Management Plan* for the NTS by:

- Assisting the DOE/NV in the development of methods of identification, inventory, and preservation of American Indian resources
- Sharing values and perceptions that Indian people place on the resources at the NTS
- Broadening and refining the goals that DOE/NV will use to guide the conservation and culturally appropriate use of those resources
- Identifying American Indian priorities and constraints on resource management goals, and
- Bringing American Indian views on traditional ecosystems so that the principles of ecosystem management can be incorporated into the *Resource Management Plan* in a culturally sensitive manner.

Ultimately, the goal of American Indian Participation in the *Resource Management Plan* is to develop a long term co-management plan for the cultural resources present at the NTS.

G.8.2 How American Indian Participation may be incorporated into the *Resource Management Plan*

We use the proposed steps of development of the *Resource Management Plan* to offer a framework for American Indian participation:

Step 1. Review Information and Identify Resources. Since 1987 the DOE/NV has worked with the CGTO to identify American Indian resources first at Yucca Mountain and currently at the NTS. Systematic studies of American Indian resources include archaeological sites, traditional cultural properties, and plant resources in Pahute and Rainier Mesas. These studies demonstrate not only how important this land and its resources are for Indian people but also how valuable traditional knowledge can be for developing the Resource Management Plan. Other American Indian resources present at the NTS that need to be systematically investigated are:

- animals
- minerals
- rock art
- water
- air
- soils
- landforms.

Currently, American Indian participation in the protection and management of resources at the NTS is not limited to compliance with section 106 of the Historic Preservation Act, but includes 10 years of consultation with DOE/NV, including the AIRFA compliance program, the NAGPRA compliance program, and the direct participation of American Indians in the writing of sections for the NTS EIS. Consultation that may be implemented in the future, specifically that related to the *Resource Management Plan*, will be successful if it is built on past and present relationships between the DOE/NV and the CGTO.

Step 2. Develop Management Goals for Resource Issues and Constraints. Throughout the years of nuclear testing and other defense-related operations conducted at the NTS, American Indians were extremely concerned by the American government's lack of regard for the tragic effects that these activities had on cultural and environmental resources and the minimal response to public concerns on these activities. The CGTO

is concerned that alternative NTS missions and activities—defense-related or not—may continue to negatively impact Indian resources at the NTS. The goal of the CGTO is to participate as a partner in the development of strategies that the DOE/NV could use to minimize or even completely eliminate impacts to their critical resources.

Step 3. Develop Management Actions to Reach the Goals. The CGTO is concerned that the current *Framework for the Resource Management Plan* has excluded the sovereign nations from the drafting of the list of management actions that the DOE/NV may take during land-use planning and resource management. The CGTO expects that its member tribes and organizations be invited to coordinate and cooperate with the DOE/NV to reach this goal. A critical issue that must be addressed in the future is the socioeconomic impact that NTS activities have had on neighboring tribal lands. The CGTO considers that an expansion of DOE/NV's existing working relationships and a negotiation of agreements with neighboring tribal governments is essential for developing a positive and effective co-management strategy.

Step 4. Identify, Collect, and Summarize Data Needed to Implement the Management Actions. A comprehensive and culturally sensitive *Resource Management Plan* should include systematic identification and data collection on American Indian resources and on contemporary issues of concern for tribal governments, such as health and safety, Environmental Justice, socioeconomic impacts, and risk assessment of nuclear waste transportation. The current working relationship between the DOE/NV and the CGTO includes the identification and partial data collection on American Indian cultural resources. However, issues of concern for the contemporary well-being of Indian people have yet to be addressed. American Indians would like to participate in the identification, collection, and summary of data needed to implement management actions.

Step 5. Develop the Land-Use Planning Tools. American Indian resources should be systematically incorporated into the evaluation of management actions and mapping of data collected through Step 4. At least one member organization of the CGTO, the Kaibab Southern Paiute Tribe, is currently developing a multimedia management plan for their own resources along the Colorado River Corridor, including resource identification, data collection, field monitoring, and long-term education programs on the conservation management of resources by tribal people. In the near future, American Indians will have the technical knowledge and tools to actively collaborate with the DOE/NV in the development of land-use planning tools. An agreement which includes DOE/NV's sponsorship of technical training of Indian people on this step would greatly accelerate learning and improve collaborative efforts.

American Indians would like to be invited to examine, discuss, and provide recommendations on suitable land uses and compatibility between future land-use alternatives and cultural concerns of Indian people. It is important for the DOE/NV to understand that, in the American Indian point of view, "land-disturbing activities" are not limited to construction or land restoration, but include well drilling, waste disposal, opening of the NTS to public use, and other alternative programs and actions being considered in this EIS.

Step 6. Implement the *Resource Management Plan* During Land-Use Planning. American Indian governments would like the DOE/NV to engage in government-to-government consultation during the selection and design of new projects, so that Indian people can evaluate in detail and follow closely the development and progress of projects that can potentially affect their traditional resources. American Indians consider the selection of suitable locations for new projects a critical step in all NTS proposed programs and activities and thus would like to be directly involved during the evaluation, decisionmaking, and implementation stages.

Step 7. Monitor Resources and Adaptively Manage. An American Indian monitoring program is currently in place and has been sponsored by the DOE/NV since 1993. This monitoring program is currently limited to archaeological research at the site. Indian tribes would like to expand the monitoring program to other ground-disturbing activities that may affect

wildlife, forestry, water, air, soils, and minerals of importance to Indian people. Ideally, a training program to provide American Indians with background knowledge and monitoring skills would complement traditional knowledge on ecosystems and would help implement a culturally sensitive monitoring strategy that is positive and feasible for both the DOE/NV and tribal governments. Expanding the American Indian monitoring program to include other resources and training Indian monitors would greatly enhance the DOE/NV's ability to identify, collect, and summarize the data needed to implement the *Resource Management Plan* (Step 4).

A long-term goal of the CGTO has been to achieve co-management of the NTS. Co-management is a term that seems to best describe the relationship between the DOE/NV and the CGTO who have come together over the past 10 years to jointly identify and suggest mitigation recommendations to protect American Indian cultural resources. This co-management relationship must be identified and addressed in detail during the implementation of the *Resource Management Plan.* Tribal governments would like to continue having the opportunity to voice their concerns whenever culturally and socially unacceptable proposals are being evaluated by the DOE/NV.

Step 8. Periodically Review and Update the Plan. American Indians are not just one more resource within the NTS lands, nor are they independent "stakeholders." Tribal governments are sovereign nations which, under President Clinton's mandate (American Indian Policy, DOE, 1994), must be addressed in a government-to-government consultation. Tribal governments would like the opportunity to follow up the development and implementation of the *Resource Management Plan*, engage in formal consultation whenever new programs and activities are being evaluated, and participate in land-use management strategies, including mapping and inventory of resources, monitoring, and risk assessment evaluations. Maintaining communication between the DOE/NV and tribal governments will ensure that the *Resource Management Plan* is responsive to cultural concerns and the well-being of Indian people.

G.8.3 American Indian Ecosystem Perspectives

Ecosystem management is a term that is being used in the current *Framework for the Resource Management Plan* in response to recent federal guidelines. Indian people have a unique view of ecosystems and culturally established procedures for using them in a sustainable manner. These cultural ways, which could be called *ecosystem management strategies*, have been developed out of thousands of years of experience living on and learning from the NTS ecosystems. The Indian ecosystem approach reflects what is being called *cultural landscapes* (Stoffle et al. 1996b) elsewhere in cultural resource management.

The meaning of a natural ecosystem is a key issue within the Indian people's view of ecosystem management. According to traditional ecosystem management perspectives, natural ecosystems contain Indian people interacting with the physical environment, plants, and animals. After thousands of years of interacting with American Indians, the plants, animals, and physical resources of the NTS have adjusted to this relationship. Indian people believe that the land is to be used in a culturally appropriate manner or it becomes infertile. "Talk to it" is what Indian people say. The plant to be picked, the animal to be hunted, the mineral to be mined, the water to be drunk, all need to be talked to so they understand why they are being used and so they can willingly give themselves over to the service of Indian people. In return, the picked plant comes back thicker, the animal herd is stronger, the mineral deposits are used in religious ceremonies, and the water satisfies one of its purposes. The view of a natural landscape containing Indian people interacting with the landscape is already expressed in previous NTS EIS comments as well as in previous NTS documents (Stoffle et al., 1990a).

Defining an American Indian Ecological Unit is a critical issue for implementing an ecosystem management strategy that includes cultural resources. Indian people often accept geographically unique units like hydrological basins as reflecting traditional adaptive units. However, these geographically unique units are bound together into larger culturally-based units. Ultimately it is cultural, not natural geography that reflect the mind of Indian peoples' adaptation. Cultural-geographic units identified by past studies are the (1) local use area, (2) district, and (3) holy land or nation. Additional cultural-geographic units are the (1) regional landscape, (2) ecoscape, (3) story-scape, and (4) landmarks (Stoffle et al. 1996b). The AIWS would like the *Resource Management Plan* to consider using American Indian cultural-geographic units as part of the base management plan.

G.8.4 Comments to *Framework for the Resource Management Plan*

American Indian participation in the protection and management of resources at the NTS is not limited to compliance with Section 106 of the Historic Preservation Act, but includes 10 years of consultation with the DOE/NV, including the AIRFA compliance program, the NAGPRA compliance program, and the direct participation of American Indians in the writing of sections for the NTS EIS. Consultation that may be implemented in the future, specifically that related to the *Resource Management Plan*, will be successful if it is built on past and present relationships between the DOE/NV and the CGTO.

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Attachment A

THREE HUNDRED AND SIXTY-FOUR AMERICAN INDIAN TRADITIONAL USE PLANTS PRESENT ON THE NEVADA TEST SITE

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Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names	Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Abies concolor	White fir	ca-ta-vee[8]	wong-govie[8]	
Abronia turbinata	White sand verbena		nut-zooh-boh-hombe[8]	
Abronia sp.	White sand verbena		bah-gun-boh-hombe[8]	
Achillea millefolium	Milfoil yarrow	i'itsikwasipi[f]		
Achillea sp.	Yarrow	i'itsikwasipi[f] todze-tonega[8] toe-tee-tone-ga[8] wats-ov[8] toh-tee-tone-e-gah[8] toh-tee-tonega[8]	coo-see-pah-wah-zip[8] dogowah-wan-guh[8] donzee-anga[8] pah-ronzee-ah[8]	
Agave utahensis var. *kaibabhensis*	Kaibab agave	kaiva uusiv[b]		
Agave utahensis var. *utahensis*	Utah agave	yaant[b] nanta[f] yant[f]		
Agave sp.	Agave, Mescal	yant (mp)[f]		
Agropyron smithii	Western wheat grass	paxankwa[f]		
Agropyron sp.	Wheat grass	paxankwa[f]		
Agrostis exarata	Spike bentgrass	NF[f]		
Allium sp.	Wild onion	kwichasi[f]	bah-zuh-see[g]	un-zee[g]
Amaranthus albus	Pale amaranth	toki-mont[f] tokimont[f]		
Amaranthus retroflexus	Redroot pigweed	kumutu[f]		
Amaranthus powellii	Powell's amaranth, Pigweed	kumutu[f] pun-kont[f]		

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Amaranthus sp.	Pigweed	toki-mont[f] ku-mont[f] camoot[f] kumutu[f]	tokimont[f] pun-kont[f] punkont[f]		
Ambrosia dumosa	White bursage, Burrobush	kutsiav[f]	tumpisangwav[b]		
Ambrosia artemisiifolia	Ragweed	NF[f]			
Amelanchier alnifolia	Saskatoon service-berry	toyabe[f]	tuvwampu[f]		
Amelanchier utahensis	Utah serviceberry	tungwump[f] tuvwampu[f] NF[e]	kwiyav[f] toyaba[f]	duh-hee yemba[8]	
Amelanchier sp.	Serviceberry	tŭ-ab´ (k)[4] kwiyav[f] tungwump[f] kwiyav[f]	toyabe[f] tuvwampu[f] toyaba[f] tungwump[f]		
Amsinkia tesselata	Fiddleneck	NF[e]			kua[e]
Androstephium breviflorum	Funnel-lily	NF[f]			
Anemopsis californica	Yerba mansa	cheu-pahn-iv (mp)[8] tchupaniv[e]	NF[f]	chew-pon-iv[8] NF[e]	tchawanav[e] tsawaniv[e]
Anemone tuberosa	Desert thimbleweed, Windflower	NF[f]			

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Angelica sp.	Angelica	to'nchavi[f] kibah na-tizuah[8]	tontsabi[f] bogo[8]	bee-ah-bogo[8] be-ah boquah[8]	
Apocynum cannabinum	Dogbane, Indian hemp	NF[1]			
Arabis pulchra	Pretty rockcress	ak[e]	ahk[e]		
Arabis sp.	Rockcress	toxopakuv[f]		don-zeah[8]	
Arceuthobium sp.	Mistletoe	San-hap´ o-tsav[4]		Not-toí-yum	
Arctostaphylos patula	Green-leaf manzanita	ararumpipi[f]			
Arctostaphylos pungens	Pointleaf manzanita, Mexican manzanita	ararumpipi[f]	ada'dimpipi[f]		
Arctostaphylos sp.	Manzanita	ki´-app´e (k)[4] a-rai´-um-pīv (k)[6] tim-go´-op (lv)[6]	ararumpipi[f] ada'dimpipi[f]	yah-he-wat-um[8]	
Arenaria sp.	Sandwort			boo-ee nut-zoo[8]	
Argemone sp.	Prickly poppy	esha-ah-goo-wha[8]		sag-ee-da[8] sag-ee-dump[8] wya-sag-wee-duh[8] wya-sag-gee-gee[8]	
Artemisia bigelovii	Bigelow sagebrush	sangwav[b]			NF[9]
Artemisia dracunculus	Tarragon	sangwavi[f]	pas[f]		
Artemisia ludoviciana	Water sage, Louisiana wormwood, Sage herb	huipata-sangwav[b, c] sangwa[f]	sangwavi[f] pass-pahs[f] pa'sangwav[e]		

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Artemisia nova	Black sagebrush	sangwav[d] sangwav[c]	sua'piv[c]	bah-que-numb[8] boh-hoe-be[8] du-boh-hobe[8] toyabe-behobe[8] bahopi[c]	
Artemisia spinescens	Bud sage, Button brush	kuh-eeb tah-cun-oh-guah[8]	kuh-wepit-tuh-cun-o-guah[8]	doot-see-ab[8] dootsie-up[8] koo-buh tah-cun-o-quah[8] ku-ba-tah-cun-oh-quah[8]	
Artemisia tridentata	Big sagebrush	po-ho´-be (lv)[4] sahng-wav´ [4] sah-wahb´ (k)[4] sangwav[c, e] pah-eesh sah-wavvy[8] pah-hoe-be[8]	sangwavi[f] sangwa[f] sanwa'bi[f] pah-wavvy[8] sah-wah-be[8] sah-wavvy[8]	bah-guh-yoom[8] bah-hoe-be[8] bah-vah-hoe-be[8] boh-hoe-be[8] boh-ombe[8] sah-wah-be[8] wah-gup-pee[8] povi[e] pohovi[e] bahopi[c] povi[c] po-hó-be (ps)[4]	NF[e, c]
Artemisia sp.	Sagebrush	ïnáp´[u l] po-ho´-be (lv)[4] sahng-wav´ [4] sah-wahb´ (k)[4] sangwav[c, e] pa'sangwav[e] huipata-sangwav[b, c] wadzo-ba[8] coo-see pah-wah-zip[8] coo-see quatz-oh-bah[8] coo-see-sah-wah-be[8] coo-see sah-wavvy[8]	chumav[b] sangwa[f] sangwavi[f] sanwa'bi[f] pas[f] pass-pahs[f] salmapweep[f] salm-ap-weep[f] coo-see-wy-up[8] koh-see-wah-ah[8] pah-wadz-oh-buh[8] wat-sob[8] whood-see-tah-cun-oh-quah[8]	bah-vah-hoe-be[8] bav-oh-hoe[8] coo-see-pah-zip[8] coo-see-pah-wah-zip[8] pah-vah-hobe: pava-hobe[8]	

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Asclepias speciosa	Milkweed	nah-quee-dah nat-tizuah[8] toh-hawk-quee[8]	ut-sah-av[8] wee-ab-a-nuh[8]	be-ah bee-sha divo-oh-wip[8] be-jah-no-ko[8] be-sha-no-ko[8] bee-sha-wannup[8] pee-gee-wanna[8]	
Asclepias sp.	Milkweed, broad leaf	hewovey[8] NF[1]	wa-na[8]	we-ā´-vimp (ps)[4]	
Aster frondosus	Leafy aster	tods-e-tonega[8]			
Aster sp.	Aster	NF[f]		hoo-nut-zoo[8] dimbe-be-ett-zee[8] duh-na-eye-go[8]	
Astragalus praelongus	Milkvetch	NF[b]			
Astragalus purshii	Milkvetch	NF[f]			
Astragalus spp.	Locoweed	NF[b]		tim-bah-hay nut-zoo[8] coopi-joomb[8] gup-wuh-ghu[8] tok-quee[8]	
Atriplex canescens	Four-wing saltbush	skump[b] tono[b]	murunibi[f]	noo-roon-up[8]	tonoh[e]
Atriplex confertifolia	Shadscale	NF[2] oavi[f]	kakumb[e]		
Atriplex lentiformis	Big saltbush	NF[f]			
Atriplex sp.	Saltbush	kakumb[e] skump[b] tono[b] oari[f]	oavi[f] que-aheque[f] murunibi[f]		

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names	Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Avena sativa	Wild oats	hoo-wēv´ (c)[4]		
Baccharis sp.	Seepwillow	koauw[b] kanav[b]		
Balsamorhiza sp.	Balsamroot	key-gah-da-goop[8] ah-ku-pah[8] coo-see quah-soop[8] pah-kuk[8]	ah-kuk[8] coo-see ah-kuh[8]	
Berberis fremontii	Freemont's barberry	tonip[f]		
Berberis repens	Creeping barberry	cor-ren-nup pah-vee[8] poo-heg-wee-dah[8] NF[f]	so-go-diem[8] so-go-du-yembe[8] toh-yuh-tu-yuh-bu-huh[8]	
Berberis sp.	Oregon grape, Barberry	tonip[f]		
Betula sp.	Birch	un-gai´-yu-nin-jump (lv)[6] kai´-shu-imp (k)[6]	who-ghee-juup[g]	
Brickellia oblongifolia	Mohave Brickell bush		sahn-a wap[8]	
Brodiaea pulchella	Desert hyacinth	NF[e]	sigo[e]	
Bryophytes	Moss	NF[f]		
Calochortus bruneaunis	Sego lily	sixo'o[c]	se'go[c]	
Calochortus flexuosus	Weakstem mariposa	sixo'o[f] sixo'o[e]	sigo[e]	kogi[e]
Calochortus nuttallii	Sego lily	sigo'o[f]		
Calochortus sp.	Sego lily, Mariposa lily	sixo'o[f] sigo'o[f]		

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Carex douglasii	Sedge	NF[f]			
Carex sp.	Sedge	sambiv[d]	NF[f]		
Castilleja chromosa	Early Indian paintbrush	NF[e]		angawitambu[e]	NF[e]
Castilleja linariaefolia	Paintbrush			anga-quee-ah-wee-tumb[8] dogowah-die-um[8]	
Castilleja martinii	Narrowleaf paintbrush				NF[e]
Castilleja sp.	Indian paintbrush	NF[d]			
Caulanthus crassicaulis	Squaw cabbage	NF[f]		wah-numb[8]	
Ceratoides lanata	Winterfat			NF[e]	
Cercoparpus ledifolius	Curl-leaf mountain mahogany	tonumpi[f] dunumbe[f](mp)[8] toobe-[8]	Dunumbe[f] too-pee[8] toobe-buh-ah[8]	doh-numbe[8] toh-nombe[8] toobap-ee[8] too-be[8] too-bee-boh-ah[8] too-nambe[8] too-pee[8]	
Cercocarpus sp.	Mountain-mahogany	to-namp´ (k)[4] tonumpi[f]	dunumbe[f] dunumbe[f]	too-num´-be (ps)[4] too-namp´-pe[4] toó-nam-be[4]	NF[9]
Chaenactis douglasii	Douglas dusty-maiden	hoot-see-eva[8] si-af-iv[8]	toh-hoe-quah[8]	witch-ah das-ah-dee-ah[8] witch-ah-numba[8] yahn-gan-gooie[8]	

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Chamaebatiaria millefolium	Fernbush	par-o-wah tah-cun-o-quah[f,8]		ting-wee-buh[8]	
Chenopodium fremontii	Frèmont goosefoot	sax'watikup[c]		u'uphi[c]	
Chenopodium sp.	Goosefoot	sax'watikup[c]			
Chorizanthe rigida	Rigid spine-flower	sanuv[f]	kamuhurusanuv[f] kanumuvusanuv[f]		
Chorizanthe sp.	Spine-flower	sanuv[f]	kamunuru[f]		
Chrysothamnus nauseosus	Rubber rabbitbrush	s'kump[c, e] sikomp[b] sikump[f]	sikump[f] pantus'kump[d]	see-bape[8] su'pimba[c] NF[e]	
Chrysothamnus viscidiflorus	Little rabbitbrush	see-gu-pee[8] tah-bee-she-goop[8]	tah-beese-see-goop[8]	nagaha-see-bup-ee[8] oh-ha-see-bup-e[8]	
Chrysothamnus sp.	Rabbitbrush	koo-chum´-ahv (lv)[4] koo-tsam´-mah hav´ (c)[4] sikomp[f]	sikump[f] sikump[f] s'kump[c, e]	siġ-um-bip´ (ps)[4]	
Cirsium mohavense	Desert thistle	tsiev[e]			
Cirsium sp.	Pink thistle	manavip[b]			
Claytonia sp.	Spring beauty	NF[f, 8]			
Clematis ligusticifolia	Virgin's bower, Wild clematis	esha-wanna[8]		esha-wanna[8] esha-wannup[8]	
Coleogyne ramosissima	Blackbrush	NF[f, e]			

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names	Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Comandra umbellata	Bastard toad-flax	NF[f]		
Cordylanthus sp.	Birdsbeak		tim-bah-hay nut-zoo[8]	
Cornus stolinifera	Dogwood	NF[f]		
Cornus sp.	Dogwood	NF[f]		
Coryphantha vivipara var. *desertii*	Fishhook cactus, Coryphanth cactus	manav[d]		NF[e]
Coryphantha vivipara var. *rosea*	Foxtail cactus	manav[d] yuav[c] manav[c]	NF[c]	
Cowania mexicana (see *Purshia stansburiana*)	Cliffrose			
Crepis sp.	Hawksbeard		ah-zah-div-o-wip[8] bee-sha-no-go[8] bee-jee div-o-wip[8]	
Cryptantha sp.	Cryptantha	NF[f]		
Cucurbita foetidissima	Coyote gourd, Missouri gourd	ankompi[f] ahn-noquav[f] ahn-no-quav (mp)[8, f] arnocup[f] arno-cup[f, 8]	poo-nono[8]	
Cuscuta spp.	Dodder	canaza-kwee-sha[8] too-vah-saah[8]		
Cymopterus globosus	Golfball spring-parsley	ye-duts[8] ye-luts[8]		
Cymopterus sp.	Spring-parsley	nampip[f]		

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Dalea fremontii (see *Psorothamnus fremontii*)	Fremont indigo bush				
Dalea polyadenia	Smokebush	ma-good-du-hoo[8] ma-good-tu-hoo[8]	moh-goon-du-hoop[8] moh-goon-du-hoopie[8]	ma-good-tu-hoo[8] moh-goon-du-hu[8]	
Dalea sp.	Indigobush	kaatamonup[f] i-era-midja[f]	i-eramidja[f]		
Datura meteloides	Sacred thorn-apple, Sacred datura, Jimsonweed	moa-nump[7] momomp[b, e] momompu[f] mimip[f] man-op-weep[f]	main-oph-weep[f] mainophweep[f] manopweep[f] moh-mope (mp)[8]	moh-eep[8]	
Datura sp.	Jimsonweed	mu-maup´ (k)[6] moa-nump[7] momomp[b, e] momompu[f] mimip[f]	main-oph-weep[f] man-op-weep[f] mainophweep[f] manopweep[f]		
Delphinium parishii	Larkspur	NF[e]			
Descurainia pinnata	Tansy mustard	aku[f] aku[f] NF[b]	hahck[f] ku'u[e]	poyah[e]	
Descurainia sophia	Tansy mustard, Herb sophia	ahk[e]		poyah[e]	
Descurainia sp.	Tansy mustard	ahk[e] ku'u[e] aku[f] aku[f]	hahck[f] ak[f] ok[f]		

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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Dichelostemma pulchellum	Bluedicks	NF[f]			
Distichlis spicata	Saltgrass	ē´-shŭ (lv)[4] e-soov´ (c)[4]	Nf[f] mo-nump´ (k)[4]	pas-shoo-tum (ps)[4] ó-hah só-nĭp[4] ŏ-hah só-nip[4]	ongavi[e]
Dyssodia pentachaeta (=*D. thurberi*)	Scale glandweed	sakwapi[b]	NF[f]	ahn-dah-gah nut-tah-zoom[8]	
Echinocactus polycephalus	Cotton-top cactus	tash[e]		NF[e]	NF[e]
Echinocactus sp.	Barrel cactus	pavio[f] tamar (lv)(p)[f]	tamar (mp)[f]		
Echinocereus engelmannii	Engelmann hedgehog cactus	usivwuits[f] tule[e]	manav[d]		
Echinocereus triglochidiatus	Claretcup cactus	chuamanav i'mamanavi[b] ova'xobi[f]	cacuusov'xobi[f]		
Echinocereus sp.	Hedgehog, Tule cactus	tule[e] chuamanav i'mamanavi[b] usivwuits[f]	ova'xobi[f] cacuusov'xobi[f] usirwuits (lv)(p)[f] NF[d]		
Echinochloa sp.	Cockspur	NF[f]			
Eleocharis palustris	Spikerush	NF[c, f]			
Eleocharis sp.	Spike rush	pahrasiev[c]		bumohap[c]	NF[9]
Elymus cinereus	Wild rye				NF[9]

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Elymus elymoides	Squirrel tail	saxwanartotsivuaium[c]			
Elymus triticoides	Beardless wildrye, Creeping wildrye	NF[f]			
Elymus sp.	Wildrye, Wheatgrass	ph-hoe-buh wah-hava[8] sah-wah-havva[8] wah-havva[8]	saxwanartotsivuaium[c] NF[f]	pay-wah-guave[8] wy-ron-zip[8]	
Encelia farinosa	White brittlebrush	NF[b]			
Encelia frutescens var. resinosa	Brittlebush	sana ich[b] tuwich[b]			
Encelia virginensis (all varieties)	Virgin encelia, Brittlebush	sana ich[b] suopiv[e]	tuwich[b]		
Enceliopsis nudicaulis	Nakedstem			anga-go-ahp[8] coo-see ah-kuk[8]	
Ephedra nevadensis	Nevada Indian tea	tup, tup[b] hutuup[c] tu'up[c] tutuupi[f] tutupi[f, e] tu-tupe (mp)[8]	tutupe[f] utuupi[f] u'tuup[e] yatup[e] NF[d]	coo-see too-roombe[8] tutumbi[e] turundi[c]	turup[e] tutuup[c]
Ephedra torreyana	Torrey Indian tea	tutuupi[f] tutu'pi[f]	tu-tupe[f] u´tup[b] tupi[b]		
Ephedra viridis	Indian tea	tup[b] tup[b] tutuupi[f] soo-roop-ee[8] too-roop-ee[8]	tutu'pi[f] utuupi[f] u'tuup[e] too-toop-ee[8]	too-roombe[8] too-toom-be[8] tutumbi[e] NF[c]	turup[e] NF[c]

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
		NF[c]			
Ephedra sp.	Mormon tea, Jointfir, Indian tea	too-troop´ (c)[4] hoo-toop´ (k)[4] tup, tup[b] u'tuup[e] yatup[e] hutuup[c] tu'up[c]	tutuupi[f] utuupi[f] tutu'pi[f] tutupi[e, f] tutupe[i] tu-tupe[f]	too-toom´-bip (ps)[4]	
Equisetum laevigatum	Smooth scouring rush	sakwa-'ivi-p[b]	paxwav[f]		
Equisetum sp.	Scouringrush			bah-see-noo[8] kah-wah-quah-see[8]	
Eragrostis sp.	Love grass	NF[f]			NF[9]
Eriastrum eremicum	Mohave eriastrum	NF[c]			NF[c]
Erigeron sp.	Daisy	booie na-tizuah[8] dootsie tah-bah-she-up[8]	kah-noop-ah[8] too-bee-man-ob[8]	boo-ee nut-zoo[8]	
Eriodictyon angustifolium	Narrow-leaf yerba santa	wee-poo-en-ub (mp)[8, f] weepoo-enub[f]	kutsa'rimpi[f] pa'sinipi[f]	wee-pah-got-um[8]	
Eriogonum inflatum	Desert trumpet, Bladderstem, Indian pipeweed	papakurum[f] papakurum[f, e]	papakurum(p)[e]	tusarambokup[e]	
Eriogonum microthecum	Wild buckwheat	pee-wee-guy-womb-mutz-zee[8]		ahn-ga-see-ga wee-ub[8] anga-kah-sah-rumba[8]	
Eriogonum ovalifolium	Butterballs	ya-paw-taw-the[8]		naka-donup[8]	

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Eriogonum caespitosum	Buckwheat brush	NF[f]			
Eriogonum umbellatum	Sulphur flower	na-ka-donip[8]	wadda-e-goh[8]	bah-hoe-zee[8] naka-donup[8]	
Eriogonum sp.	Buckwheat	ya-paw-taw-the[8]			
Erodium cicutarium	Storksbill, Heronbill	wyuvimp[c]			
Euphorbia albomarginata	Rattlesnake weed	tuvika'xaiv[c] tuvipukaxi[f] tuvipukaxi[f]	tava'namu'obi[f] tuvipaxghaiv[e]	nah-com-boot-zip[8]	
Euphorbia sp.	Spurge	tuvipaxghaiv[e] tuvika'xaiv[c] tuvipukaxi[f] tah-wee-carib (mp)[8]	tava'namu'obi[f] tuvipukaxi[f] tah-wee-carib[f]	nah-comb-boh-zip[8] nah-wah-go bud-zip[8]	
Eurotia lanata	White sage, Winter fat	boo-see-ah-wah-be[8]	she-shu-bah[8]	shee-shub[8] tuh-veep[8]	
Fallugia paradoxa	Apache plume	muup[b]			
Forsellesia nevadensis	Nevada greasebush	bas-un-dook nut-zoo[8]			
Frasera albomarginata (see *Swertia albomarginata*)	White-margined swertia				
Fraxinus anomala	Singleleaf ash	tuav[f]	tuav[f]		
Fraxinus sp.	Ash	wam-pīp (k)[6] wan-pimp´ (lv)[6]	tuav[f] NF[b]		

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names	Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Fritillaria atropurpurea	Spotted missionbells, Leopard-lily	NF[f]		
Garrya flavescens	Ashy silktassel	ka'ninkwap[f]		
Gaura coccinea	Scarlet beeblossom	NF[f]		
Gilia aggregata (see *Ipomopsis aggregata*)	Scarlet gilia, Skyrocket			
Gilia congesta (see *Ipomopsis congesta*)	Ballhead gilia			
Gilia inconspicua (see *Ipomopsis inconspicua*)	Floccose gilia			
Glycyrrhiza lepidota	Desert root, American licorice	NF[f]		
Grayia spinosa	Spiny hop sage			NF[c]
Grindelia squarrosa	Gum plant	oha tonega[8] sah-nah tonegan[8]	sah-nah cav-oh-no-ah[8] sah-nah-goop-ah-rah[8] woh-ah-gum[8]	
Gutierrezia microcephala	Matchweed, Small-head snakeweed	NF[e] yainup[b] waarump[b]	tavishepi[e]	
Gutierrezia sarothrae	Snakeweed, Matchweed	s'kump[d]	see-gupe[8] too-goot-se-ooh-goope[8] toom-bee-see-bupe[8]	
Haplopappus acaulis	Stemless Goldenweed	pau'p[f] apu'p[f]		

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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Haplopappus sp.	Goldenweed	pau'p[f]	apu'p[f]		
Helianthus annuus	Common sunflower	ah-kump´ (k)[4]	bah-kuk[8]		
Helianthus sp.	Sunflower	ah-kump´ (k)[4]	akump[f]		
Heliotropium curassavicum	Heliotrope	tube-manabe[8] wa'ateyowimpi[f]	tu-ma-nabe[8]	i-yah-oh-ho[8] i-yah-oh-ho[8] tu-man-ah-be[8]	
Hermidium alipes	Four-o'clock	he-wov-bee[8]	hewovey[8]		
Heuchera rubescens	Alum root			toya-dimba-wah-rumb[8] zee-guoy[8]	
Hilaria rigida	Big galleta	NF[f]			
Holodiscus dumomus	Mountain spray	oh-na-nut-tiz-u-wabbe[8]	tah-see-vuh[8] wah-poose-oh-guay[8]	tot-zip[8] toya-huhnabbe[8]	
Hymenoclea salsola	White cheesebush, Burrobush	paiab[f]			
Ipomoea sp.	Morning glory	NF[f]			
Ipomopsis aggregata	Scarlet gilia, Skyrocket	anka'siti[f] soh-noy tah-cun-oh-quah[8]	pah-wah-gopish[8] para-give[8]	enga-mo-wanya[8] enga-mutz-oh-y-newie[8] tem-piute[8] tin-ah-piute[8]	

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Scientific Name	Common Name	Southern Paiute Ethnic Group Names	Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Ipomopsis congesta	Ballhead gilia	quoy-hee nooma natiz-u-ah[8]	bas-oh-nup[8] be-he-vah[8] bee-ah-du-hu[8] bee-hee-vah[8] hoe-ni[8] hoo-na[8] hoo-ni[8] sah-tone-zee[8] sah-tone-zee-yung[8]	
Ipomopsis inconspicua	Floccose gilia			NF[c]
Ipomopsis sp.	Gilia	eck-quee-hu-binga[8] sigh-yah-gava[8] si-yah-gum[8] too-bee man-a-ba[8] too-bee too-ben-aba[8] too-man-aba[8]	din-ah-ee-goom[8] duh-na-ee-go[8] duh-nah-eye-go[8] duh-nah-eye-gum[8] tin-ah-ee-go[8] NF[c]	
Iris missouriensis	Wild iris	pah-see-toob-ah[8] poo-gooey-roop[8] poo-gooey-rub[8]	pah-sag-ee-dah[8] pah-sag-ee-duh[8] pah-sag-e-dump[8] pah-sag-gee-gee[8] sag-e-dump[8]	
Iris sp.	Iris	NF[f]		
Iva axillaris	Poverty weed	quee-duh-tee-nava[8] too-ha-babba[8]	du-du-zip[8] too-du-zip[8]	
Juncus mexicanus	Wire grass	NF[d] pa'sip[e]	sonophi[e]	NF[e]
Juncus sp.	Rush	paxwav[f] pauv[b]		

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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Juniperus communis	Common juniper	pawa'apu[f] pah-wap-o-ruit[f] dootsie pah-wap-pee[8]	pahwaporuit[f] pah-wap-o-ruitz (mp)[8] wap-pee[8]	mah-hav-wa[8]	
Juniperus osteosperma	Utah juniper, Cedar	wa'ap[c, d, e] wa'apu[f] wa'apu[f] wa'apumpi[f]	wa'apumpi[f] noo-ahntup[f] noo-ahn-tup[f] NF[d]	sahwavi[e] suwavi[c] sawabi[c]	hunuvu[e] hunuvu[c]
Juniperus scopulorum	Rocky mountain red cedar	bah-sah-mabe[8]	bas-um-ah-be[8]		
Juniperus sp.	Juniper, Cedar	wah-ahp´ (lv) [4] che-emp´ (c)[4] pah-wahp´ (k)[4] wahp´ [4] wap (k)[6] wa-op (lv)[6] wa'ap[c, e] pahwaporuit[f] noo-ahntup[f] wah-pee[8]	noo-ahn-tup[f] wa'apu[f] wa'apumpi[f] pawa'apu[f] wa'-pi[f] wap[f] wa'apu[f] wa'apumpi[f] pah-wap-o-ruit[f] wah-puee[8]	sah-mah-be[8] sam-ah-bee[8] sahn-ah-poh[8] sam-ah-bee[8] sahm-wah´-be[4] tsé-kev-ve[4] sah´-nah-be[4]	NF[9]
Krameria parvifolia	Range ratany	nagavaronump[e]	NF[f]		
Krameria sp.	Ratany	nah-kah-vah dah-tohnub (mp)[8, f]		nah-gee too-nah-nib[8]	
Lappula occidentalis	Stickseed	NF[f]			
Larrea divaricata	Creosote bush	yah-temp (mp)[8]		ya-temp[8]	
Larrea tridentata	Creosote bush	yatumpi[f] yatump[f] yatump[f, e]	yah-temp[f] yahtemp[f] ys'ya'mip[f]	yatumbi[e]	NF[e]

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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Larrea tridentata	Creosote bush	yatamp[f, e] ya'tampi[f] yatumb[b]	ya'ta'mpi[f] yatampi[f]		
Lepidium fremontii	Fremont's peppergrass	NF[f]			
Lepidium lasiocarpum	Desert pepperweed	NF[f]			
Lepidium Montanum	Mountain Pepperplant	NF[a]			
Lewisia rediviva	Bitter root	NF[f]		gungah[c]	
Lichen	Lichen	NF[f]	timpapsuchicu[c]		
Linum lewisii	Blue flax, Wild flax	booie-ah-nooma[8] booie na-tizuah[8]	po-eena-tiz-uah[8] NF[f]	boo-ee nut-tah-zoom[8] boo-ee nut-zoo[8] boo-eep nut-zoo[8] poo-ena nut-tiz-zooh[8]	
Lithospermum ruderale	Gromwell, Stoneseed			nem-ish-aw[8] nom-ish-aw[8]	
Lomatium sp.	Biscuitroot, Indianroot	NF[f]			
Lupinus spp.	Lupine	quee-duh-kwana[8]		quee-duh-quen-ah[8]	
Lycium andersonii	Anderson wolfberry	u'upwivi[b] u'up[d, f] pa'up[d]	u'upi[f] hu'up[e] u'up[e]	huupi[e]	huupia[e]
Lycium pallidum	Pale wolfberry	u'upi[f]	pa'up[e]	huupi[e]	huupia[e]

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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Lycium sp.	Squawberry, Wolfberry	u'up[f] pa'up[d, f] hu'up[e] u'upwivi[b] u'up[b]	u'up[f] u'upi[f] pa'up[e, f] u?upi[2]		
Lygodesmia spinosa	Indian gum plant, Skeleton weed	i-goon-zon-um[8] pee-ee-ah-gub[8] see-ko-pe[8]	too-man-abbe[8] too-wan-oo-pah[8]		
Mahonia repens (see *Berberis repens*)	Creeping barberry				
Marrubium vulgare	Common horehound	quee-ban-oob[8]	NF[a]		
Melilotus alba	White sweet-clover	NF[2]			
Melilotus indicus	Yellow sweet-clover	NF[2]			
Menodora spinescens	Spiny Menodora	NF[e, f]		huupi[e]	
Menodora sp.	Menodora	NF[f]			
Mentha arvensis	Field mint, American wild mint	NF[b]			
Mentha sp.	Mint	paxwa'nanimpi[f] pah-guanna[8] pah-guanna-ah[8] pah-guanna-ah[8]	paxananumpi[f] pah-guanna-ay[8] quee-boh-nay[8] toh-see-ten-ava[8]	pah-guanna[8]	
Mentzelia albicaulis	Desert corsage, White-stem blazingstar	ku'u[f] ku'u[c]	NF[e]	pacita[e] kua[c, e]	kua[c] ma'kua[c]

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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Mentzelia laevicaulis	Blazing star				NF[9]
Mentzelia oreophila	Blazing star, Stickleaf	ku'u[f]			
Mentzelia sp.	Stickleaf, Desert corsage	ku'u[c, f]			
Mimulus guttatus	Monkey flower			unda-vitch-quanna[8] pahn-zah-quatum[8]	
Mirabilis multiflora	Colorado four-o'clock	toxo'owatsiv[c]	tukwivi[b]		
Monardella odoratissima	Western bee balm	see-boo moh-goon-up[8]	too-buzz-see-be[8]	guy-moh[8] toya-abba-hobe[8]	
Muhlenbergia asperfolia	Scratchgrass	wichavi ma'ap[b]			
Muhlenbergia sp.	Muhly	nutavi[f]			
Nasturtium officinale	Watercress	pamavu[b] punaxunanar[b]			
Nicotiana attenuata	Coyote tobacco	koapi[f] koap[f] koaop[f] tsaw-wap[f] koap[c]	bah-moh[8] poo-ee-bah-hoon[8] poo-ee-bah-moh[8] poo-wee-buh-hoon[8] toh-quoh-quah[8]	new-wha bah-hoon[8] poo-ee-pah[8] pue-bax[8] NF[c]	NF[c]
Nicotiana trigonophylla	Indian tobacco, Desert tobacco	koapi[f] nungwukoap[f] nungwukoap[f]	saxwaxwapi[e] koap[b] nungwukoap[b]	pombi[e]	

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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Nicotiana sp.	Tobacco, Wild tobacco	ko-op´[6]	koap[f]	pah-hum´-be (ps)[4]	
		sĕ-wah´-wahp (lv)[4]	koaop[f]		
		ko-ahp´ (c)[4]	saxwaxwapi[e]		
		sow-wow´-wahp (k)[4]	nungwukoap[f]		
		sĕ-wah´-gwah'b[4]	nungwukoap[f]		
		koapi[f]	tsaw-wap[f]		
Oenothera pallida	Pale evening-primrose	sixo[b]			
Opuntia basilaris	Beavertail cactus	manav[b]	yuavimpu[f]	nugwia[e]	
		yuavi[f]	yuavimpi[f]	nah-vomb[8]	
		yuavimp[f]	navump[f]	wo-gay-be[8]	
		NF[e]			
Opuntia echinocarpa	Golden cholla, Silver cholla	NF[e]		wiatimbu[e]	
Opuntia erinacea	Mohave prickly pear, Grizzly bear cactus	yuavip[b]	manav[d]		
		manavi[e]			
Opuntia phaeacantha	Engelmann prickly pear	manav[b]			
Opuntia polyacantha	Central prickly pear	usivuwits[c]		NF[e]	
Opuntia spp.	Tuna, "Tule" cactus	manav[b]	manavi[f]		
		yuavimpi[f]	yuavimpu[f]		
		yuavip[b]	yuavimpu[f]		
		usivwuits[f]	yuavimp[f]		
		navump[f]	yuavi[f]		
		manavimpi[f]	manavimp[f]		
Orobanche cooperi	Broomrape	tu'u[f]			

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Scientific Name	Common Name	Southern Paiute Ethnic Group Names	Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Orobanche corymbosa	Broomrape, Wild asparagus	tu'u[c]	tu'tum[c] tu'du[c]	
Orobanche fasciculata	Broomrape	tu'u[f]		
Orobanche sp.	Broomrape, Indian asparagus	tu'u[f] tue-hoo[8] too-hoo[8] NF[a]	doo[8] too-ee[8]	
Oryzopsis hymenoides	Indian ricegrass	wa-i[7] wa'iv[b] wa'ir[e] wa'ai[d,e,f]	wai[e]	wai[e] NF[9]
Osmorhiza occidentalis	Sweetroot	pah-wah-cape[8] pah-wah-capish[8] pah-wah-gah-bish[8] wadda-eye-gop[8] worra-eye-gob[8]	bah-soh-wip[8] bas-oh-gway[8] bas-oh-wip[8]	
Panicum sp.	Panic grass	NF[f]		
Parthenocissus sp.	Virginia creeper	patowanamauv[b]		
Pedicularis sp.	Lousewort, Elephant head		gooie-took-ie[8]	
Penstemon eatonii	Red penstemon		toh-quoh-bag-um[8]	
Penstemon floridus	Panamint beard tongue			NF[c]
Penstemon pahutensis	Pahute beard tongue	NF[c]		NF[c]
Penstemon palmeri	Palmer beardtongue	toxo'awatsip[f]		
Penstemon sp.	Beardtongue	toxoawatsip[f] too-buzz-sah-wop[8] toh-quoh-wat-ziv[8] toxo'awatsip[f] toe-buzz-see-bee[8]	dim-bah-sego[8] dim-bah-shego[8] too-buzz-see-bee[8]	

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Peraphyllum ramosissimum	Squawapple	suovi[e]			
Phacelia sp.	Phacelia	NF[f]			
Phlox sp.	Phlox	moh-goon-zee-eye-ah[8] quee-duh-too-nabba[8] NF[f]	toh-hah-tonegan[8] tu-be-man-up[8]	din-ah-ee-go[8] eye-go-dun-um[8] so-go-div-oh-sah[8] so-go-ron-zee-ah[8]	
Phragmites australis	Common reed, Giant common reed, Cane, Honey dew	po´-ru (k)[6] pa-gump (lv)[6]	paxamp[b, f] pa'xamp[e] pah-gump[f]	NF[e]	pihavi[e]
Phragmites communis	Common reed, Honey dew	moh-goh-koh (mp)[8] pahgump[f] pa-hump[7]	wo-cau-cau-pu[8] hohgohkoh[f]		
Phragmites sp.	Reed	po´-ru (k)[6] pa-gump (lv)[6] pahgump[f]	hoh-goh-koh[f] paxamp[b, f] hohgohkoh[f]		
Physalis crassifolia	Groundcherry	NF[f]			
Physalis sp.	Groundcherry	NF[f]			
Physaria chambersii	Chambers' twinpod	tah-rah-gee-noob[8]	NF[f]	tah-pah-day[8]	
Pinus monophylla	Singleleaf pinyon,	tu-vap´ (lv)[4] toov´ (c)[4] tŭ-bah´-kah-bub (k)[4] tuvap[c, e] sahn-a-pah wah-pee[8] too-bee[8] tu-ba[8]	tu'uv[c] tuva[f] tuva[f] tuvwap[e] tu-bap-ee[8] wah-pee[8]	wahpi[e, c] tuvah[e] wah-pee[8] wahp´ (ps)[4] wah´-pe[4] sah´-nah-wah´-pe[4] tipa[9]	tuvap[e] tuva[c] tiba[9]

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names	Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Pinus ponderosa	Ponderosa pine	yu-vim´ (lv)[4] ŏ-gump´ (k)[4] yu-wim´p [4]	wung-gah-be[4] wun-kó-be (ps)[4]	
Pinus sp.	Pinyon	tu-wop´ (k), (lv)[6] tu-vap´ (lv)[4] toov´ (c)[4] tŭ-bah´-kah-bub (k)[4] yu-vim´ (lv)[4] ŏ-gump´ (k)[4] yu-wim´p[4] tuva[f] tivah[f] tuva[f] tuvap[c, e] tu'uv[c] tuvwap[e]	wong-govie[8]	
Pinus sp.	Sugar pine		wi-ah´-kah-tum (ps)[4]	
Plantago major	Common plantain		wee-dee[8] woo-dee[8]	
Pluchea sericea (see *Tessaria sericea*)	Arrow weed			
Poa bigelovii	Bluegrass	NF[f]		
Poa fendleriana	Muttongrass, Bluegrass	uxwishuv[f]		
Populus fremontii	Fremont cottonwood	sovip[b]		
Populus tremuloides	Quaking aspen		sing-gah-ve[8] sung-up[8]	
Populus trichocarpa	Black cottonwood		sing-gah-ve[8] sing-gop[8] so-ho-be[8] su-nabbe[8] toya-soo-nap[8]	

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Populus sp.	Cottonwood	sho-wīp´ (k)[6] so-vwīp (lv)[6]	sovip[b] só-vip (k)[4] sah´-vip (lv)[4] sah´-vip´ (c)[4]	só-o-vimp´ (ps)[4] sah´-hah-be[4] sig´-ge[4]	
Porophyllum gracile	Odora	pa'kwitupip[f]			
Porophyllum sp.	Odora	pa-guidobe (mp)[8]			
Portulaca sp.	Purslane	topuene[f]	to-puene[f]		
Prosopis glandulosa var. *torreyana*	Torrey mesquite	opimp[b] 'op[f]	'opimpʊ[f] o'pimb[e]	o'phi[e]	
Prosopis pubescens	Screwbean	kwiyarʊ[f] wi'ump[e] kwierum[e]	'opimpʊ (mp)[f] quee-et-umb[8]		
Prosopis spp.	Mesquite	'Op[f] opimp[b] 'opimpʊ[f]	kwiyarʊ[f] quee-et-umb[f] quee-etumb[f]		
Prunus andersonii	Desert peach	sahn-avvie[8] sahn-nab-bee[8]	NF[f]	bahn-zon-ip[8]	
Prunus fasciculata	Desert almond	tonopi[f]	tonapi[f]		
Prunus virginiana	Chokecherry	tonap[f] doh-ish-ah-boo-e[8]	tonapi[f] toh-ish-a-booe[8]		
Prunus sp.	Chokecherry	tonap[f] tonopi[f]	tonapi[f]		
Psathyrotes annua	Turtle back	sebu-moh-goon-a-bu[8]		yoh-nip[8]	
Psathyrotes ramosissima	Turtle back	ka-sigh-yah-gave[8] sebu-moh-goon-a-bu[8]	see-boh mo-goon-ub[8] sigh-yah-gava[8]	quoy-hee nut-zoo[8]	

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Psoralea sp.	Scruf-pea	kwaovi[f]			
Psorothamnus fremontii	Fremont indigo-bush	kaatamonupf	i-era-midja (mp)[8] i-eramidja[f]	quee-um-be[8] tuh-goo-buss-e-emp[8]	
Psorothamnus polydenius	Dotted dalea			muipuh[e]	NF[e]
Purshia glandulosa	Buckbrush	u'nup[e]		hunavi[e]	
Purshia stansburiana (=*Purshia mexicana* and *Cowania mexicana*)	Cliffrose	unapuf uh-nop (mp)[8] hunap[c]	uhnop[f] NF[d]	hunavi[c] be-ah-huh-nabbe[8] huh-nabbe[8]	
Purshia tridentata	Bitterbrush,	unap[c] NF[f]	huh-na-bee[8]	huh-nabbe[8] linna-huh-nabbe[8]	
Purshia sp.	Cliffrose	hunap[c]		hunavi[c]	
Quercus gambelii	Gambel oak, Scrub oak	tuav[c]	kwiav[e]		tsiginoh[e] tsigino[c] we'a[c]
Quercus sp.	Oak	kwi´-uv (k)[6] to-mum-pīv (lv)[6] hēm´-pah (c)[4] kwe´-av[4] we-am´-pe (c)[4] hēm´-pah (c)[4]	tomumpif tuav[c] kwiav[e] tomump[f] tomumpi[f]	wé-ah (ps)[4]	wiya[9]
Rhus aromatica	Skunkbush, Sumac	i'is[e]	su'uv[e] u'up[e]		

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Rhus trilobata (all varieties)	Squawbush	e-is´ [4] i'isi[f] i-siv´ (lv)[6] shen-pimp´ (lv)[6] suuv[b] shuuvi[b] siuvimpu[f] huupi[f] see-a-wimp (mp)[8]	huiupi[f] su'uvimpu[f] i'isi[f] suuvimp[f] i'is[f] see-a-wimp[f] see-awimp[f] su'uv[d, f] su'uv[e]		
Rhus sp.	Skunkbush, Lemonade- berry, Sumac, Poison oak	i'is[c]	su'uv[c]	nat´-soo ō'k[4]	
Ribes aureum	Golden currant	bo-gumbe[8] poh-oh-bis[8]	NF[f]	bo-gumbe[8]	
Ribes cereum	White squaw currant	NF[l]	NF[e]	bogombi[c]	
Ribes velutinum	Desert gooseberry	NF[e]		NF[e]	NF[e]
Rorippa sp.	Watercress	NF[d]			
Rosa woodsii	Woods wild rose	pikikurump[c]	see-avvie[8]	siwa'vit[c] cimbi[c] see-avvie[8] see-am-bip[8]	NF[e]
Rosa sp.	Wild rose	tsi-am-pīv (lv)[6] pikikurump[c]	su'impipi[f]	tsé-ab[1b 4]	
Rubus sp.	Raspberry	nagauvwunatumpipi[f]		see-am-bip[8]	
Rumex crispus	Curly dock, Wild rhubarb	nambitu[e] enga-pah-wee-ub[8]	pah-wee-ah[8] pah-wee-ub[8]	be-ja-no-ko[8] dim-woo-ee[8] enga-pa-wee-ah[8] new-wha no-ko[8]	

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Rumex sp.	Rhubarb	nambitu[c] tuha-kono-be[8]	ku'u[b] tuha-kono-gip[8]	bah-rah-zip[8] tuha-konobe[8] wya nut-zoo[8]	
Salazaria mexicana	Bladder sage	NF[f]			
Salix exigua	Coyote willow	kanav[b, c] kah-nav (mp)[8] coo-see suh-ee-be[8]	soo-vee[8] suh-ee-be[8] suh-ee-wee[8]	kwishisuuvi[e] coo-see see-bupe[8] soo-vee[8] suh-ee-be[8]	su'huva[c]
Salix gooddingii	Goodding willow	pakanav[b]	pawaxanav[c]	suuvi[e]	
Salix sp.	Willow	kahn-nahv (lv)[4] sah'b (c)[4] kah-nahv´ [4] sah-kahv´ [4] kan-av´ (k)[4] ka-nav (lv)[6]	kanavi[f] kah-nav[f] kahnav[f] pakanav[b] pawaxanav[e]	se-oó-be (ps)[4] sĕ-yu'b[4] sĕ-yu-be[4] soó-be[4]	su-hu-vee[8]
Salsola iberica	Russian thistle, Tumbleweed	manavip[b]	manav[c]		
Salvia columbariae	Chia sage, California sage	sangwav[f] saywav[f]	pasiits[e] patsits[f]	pacita[e]	pacita[e]
Salvia dorrii	Purple sage, Indian tobacco	nungwukoap[e] kwatamanum[e]	NF[e] kanarukoap[b]		
Salvia sp.	Sage	siguwiipi[f] pasiits[e] sangwav[f] see-goo-we-up[f] seegoowe-up[f] see-goo-we-up (mp)[8] nungwukoap[b]	nungwukoap[e] kwatamanum[e] saywav[f] sigimwiap[f] kung-nuh sah-wabbe[8] too-bee she-gin-oop[8]	kahn-gwanna[8] suh-goo-wee-up[8] toya-abba-hobe[8] toya-tim-ba-zip[8]	

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Sambucus sp.	Elderberry	koo-booie-du-ney[8] koon-oo-gip[8] ko-nó-wip´ (c)[4]	who-booie[8] hoo-boo[8] koo-noo[ch4] kunukwi[f] kunuxwi[f]	duh-he-yemba[8] du-yembe[8] hoh-tiem[8]	
Sarcobatus vermiculatus	Greasewood	yah-tahmp´ (lv)[4] tah-uh-be[8] toh-no-be[8]	yah-tamp´[4] tone-oh-bee[8] NF[f]	to-nó-be (ps)[4]	
Scirpus acutus	Hard-stem bulrush	to'oivi[f]			
Scirpus validus	Soft stem bulrush, Tule	to'oivi[f]			
Scirpus sp.	Bullrush, Big round tule	he´- taw (lv)[4] pow-ahv´ (k)[4]	to'oivi[f] manav[d]	sī'n-vib'[4] pah sīp[4] bah-sī´'p[4]	
Sclerocactus sp.	Fishhook cactus, Pineapple cactus	manav[d]	NF[b]		
Selinocarpus diffusus	Moonpod	NF[f]			
Senecio sp.	Groundsel	NF[f]			
Sisymbrium altissimum	Tumble mustard	wa'ai[c]			
Smilacina stellata	Solomon-seal	esha-tone-ub[8] pee-havvie[8]	quoh-quavvie[8] quoy-quavvie[8]	wah-toh-voh[8] wom-boh-nomb[8]	
Smilacina sp.	False solomon-seal, Coyote berry	NF[f]			
Solanum sp.	Nightshade	ah-dye-ee na-tizuah[8]			

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Solidago sp.	Goldenrod	NF[2]			
Sonchus oleraceus	Common sow-thistle	mamoiv[b]	mamuiv[b]		
Sphaeralcea ambigua	Apricot globemallow, Desert globemallow	tupwiv[b, c]	NF[c]		
Sphaeralcea sp.	Globemallow	tupwiv[c] kupinav[f]	ku'pinav (mp)[f] NF[b]	quoin-oh-combee[8] quoya-no-comb[8] see-quoy no-ko[8] wee-dah-gom[8] wee-doh-comb[8]	
Sporobolus airoides	Bunchgrass, Alkali sacton	NF[f]			
Sporobolus sp.	Dropseed	postushukunt[f] pas-tu-shu-kunt[f]	kwakwai[f]		
Stanleya pinnata	Prince's-plume, Indian spinach	~~t~~umar[b, f] namvit[f] tumar[c, e] ~~t~~umar~~u~~[f] who-goo-buh[8]	nambit~~u~~[f] tumaru[f] nambitu[f] ~~t~~umaru[f] whoo-goop[8]	tuhuara[e] tu'mara[c] woy-boh-numb[8]	yuhuara[e] NF[c]
Stephanomeria exigua	Wire lettuce	NF[b]			
Stephanomeria sp. *spinosa*	Spiny wire lettuce, Gum bush	NF[e]		NF[c]	
Stephanomeria tenuifolia	Slender wirelettuce	tuwishanakup[b]	NF[8]	NF[8]	

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Stipa comata	Needle-and-thread grass	NF[a]			
Stipa hymenoides (see *Oryzopsis hymenoides*)	Indian ricegrass	wa'ai[c]		wai[c]	pacita[c]
Stipa speciosa	Desert needlegrass	NF[e]			NF[9]
Stipa sp.	Indian ricegrass	wa'aiv[c]			
Streptanthella longirostris	Wild mustard, Long-beak fiddle-mustard	NF[e, f]			
Streptanthus cordatus	Heartleaf twistflower, Wild mustard	NF[e, f]			
Suaeda torreyana	Seepweed	NF[e]	ah-rumb (mp)[8]	attem[8]	
Suaeda sp.	Seepweed	ahrr[f] aah-ap-weep[f]	sah-ap-weep[f] NF (lv)(p)[f]		
Swertia albomarginata	White-margined swertia	NF[8]			
Swertia sp.	Swertia	kwiu[f]		coo-see div-oh-savva[8]	
Symphoricarpos longiflorus	Long-flower snowberry	NF[e, f]	sahn-ah-vee[8]		
Tamarix sp.	Tamarisk	pantumaavu[b]			
Tessaria sericea	Arrow weed	sah-wape (mp)[8]	NF[b, e, f]		

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Tetradymia canescens	Gray horsebrush			nah-ga-ha-boh-be[8] pah-vah-bah-hoe-be[8] tah-beese-ee-goop[8]	
Tetradymia sp.	Horsebrush	coo-see see-bupe[8] see-goop-e[8]	too-hah-see-goop-ee[8]	coo-see see-bup[8] coo-see see-bup-e[8]	
Thalictrum fendleri	Meadow rue			boss-oo-guay[8]	
Thamnosma montana	Turpentine bush	NF[f, e]	kaiva sixwana[b]	mo-gun-du[8] moh-goon-du-oop[8]	
Thelypodium integrifolium	Wild cabbage	nambitu[e]	NF[f]		
Townsendia scapigera	Eaton's townsendia	NF[f]			
Townsendia sp.	Townsendia	NF[f]			
Typha domingensis	Cattail, Southern cattail	NF[e,f]		toyh[e]	NF[e]
Typha latifolia	Cattail, Broad-leaf cattail	taw-e´-vah (lv)[4] to-oiv (k)[4] tø'iv[b]	pantusahwav[b] NF[e]	toyh[e] taw´-e[4] toi[4]	NF[e]
Typha sp.	Cattail	taw-e´-vah (lv)[4] to-oiv (k)[4] ta-oiv[7]	tonovi[f] tonoz[f]		
Urtica sp.	Nettle	quee-bah-noop[8]	quee-quawn-oop[8]	by-wee-ah[8]	
Valeriana sp.	Valerian, Tobacco root	NF[f]			

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Veronica anagallis-aquatica	Speedwell	NF[e]			NF[e]
Viguiera multiflora	Showy goldeneye	NF[f]			
Vitis arizonica	Canyon grape, Wild grape	i'av[e] kuripsup[e]	NF[b]	muvasi[e]	
Vitis spp.	Grape	we'ump[f]			
Wyethia sp.	Mules' ear	taxuichaxantiip[f] tixu'si taxanti[f] taxu'itcaxantip[f]	tikoitcixantipi[f] tixu'si taxantip[f]		
Yucca baccata	Banana yucca, Blue yucca	uusiv[b, c] wiisiv[b] tachumpi[f] tachumpi[f]	uusi[f] tcimpi[f] o-u-se[f] u'wivi[e]	NF[c]	
Yucca brevifolia	Joshua tree	tachumpi[f] NF[e]		umpu[e]	
Yucca kanabensis	Kanab yucca	NF[a]			
Yucca schidigera	Mojave yucca, Spanish bayonet	tachump[e] u'vimp[e] tachumpi[f]	uusivi[f] uusiv[f]	NF[e]	
Yucca sp.	Yucca	cho-ram´-pik (k)[6] sam-ah´-vip (k)[4] tsam-a-vip[7] tcimpi[f] u'wivi[e] wiisiv[b] tachumpi[f]	uusi[f] o-u-se[f] uusivi[f] tachumpi[f] uusiv[f] uus[f]		

Table A-1. Three Hundred and Sixty-Four American Indian Traditional Use Plants Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Zigadenus paniculatus	Foothill death camas	koggie-a-den-up[8] see-goh-oh[8]	tah-beese-e-goh[8]	tah-bah-she-go[8] tah-vah-see-go[8]	
Zigadenus sp.	Meadow death camas	koggie-a-den-up[8]	see-go oh-buh[8]		
Gramineae (grass family)	Grass	pa-wah´ (lv)[4] hoo-wēv´ (c)[4] u-gwīv´ (k) (lv)[6]	o-gweeb´ (k)[4] u-gu´-siv (k)[6] oo-kwiv´[4]	Sah´-nip[4] Só-nip[4] Só-nĭp[4] Pah´-mah-hap[4]	

[1] Work done by Powell between 1867-1880: (Fowler and Matley, 1979)
[2] Work done by Euler between 1956-1966: (Euler, 1966)
[3] Work done by Palmer before 1946: (Palmer, 1978)
[4] Work done by Merriam between 1902- 1935: (Merriam, 1979)
[5] Work done by Sapir in 1910: (Sapir, 1910)
[6] Work done by Powell in 1873: (Fowler and Fowler, 1971)
[7] Work done by Presnall in 1936: (Presnall, 1936)
[8] Work done by Train between 1935-1941: (Train, 1957)
[9] Handbook of North American Indians-Great Basin (Vol. 11, "Owens Valley Paiute") D'Azevedo, 1986

[a] Stoffle et al., 1996
[b] Stoffle et al., 1994
[c] Stoffle et al., 1994b
[d] Stoffle et al., 1989b
[e] Stoffle et al., 1990
[f] Stoffle and Dobyns, 1982
Stoffle and Dobyns, 1983
Stoffle et al., 1983
[g] Names by CGTO members; April 1996 NTS EIS meeting.

NF = Not found; mentioned in text but no Indian name given.
(c) = Chemehuevi
(k) = Kaibab
(lv) = Las Vegas
(mp) = Moapa Paiute
(p) = Pahrump Paiute
(ps) = Panamint Shoshone

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Attachment B

ONE HUNDRED AND SEVENTY AMERICAN INDIAN TRADITIONAL USE ANIMALS PRESENT ON THE NEVADA TEST SITE

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Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Mammals					
Family Antilocapridae					
Antilocapra americana	Pronghorn Antelope	Won'-sits (k)[6] Wants [5,] (lv)[6] Wahn-ze[4] Wongs[4]	Wahntz (k)[4] Waknch[4] Waantsi[f]	Wan-zee[g]	
Family Bovidae					
Ovis canadensis	Desert Bighorn Sheep	Na´-guts (k)[6] Na´-k^{w} (lv)[6] Naaxa[5] Nahk (k)[4]	Nah^{ch4} Nahk[4] Nah-gah[4] Naax[b]		
Ovis sp.	Bighorn Sheep	Nah´-gah (lv)[4]	Nah^{tcht} (c)[4] Nahk´ (k)[4]	Wah´-soo-be (ps)[4] Wah´-sŭp^{tl}[4] Wah´-soo-pe[4] Wahs-pe[4]	
Family Canidae					
Canis latrans	Coyote	Yo-go-wo´-tsi (k)[6] Yoxovwits[5] Yoxovutsi[5] Sunangwavi[5] Turasunav[5] Turasinav[5] Tā´-rā-shin´-nav (lv)[4]	Sin-nav[4] Shin-nah-ab[4] Turasuna'av[b] Turahsunav[c] Sin-nav´ (c)[4] Yo-go´-bits (k)[4]	E-shah-wi´-pah (ps)[4] Ē-jap´-pah[4] E´-jah[4] E´-chah[4] It´-za´[6]	
Canis sp.	Coyote	tu-er-shin-avi[7]		Duhvoe-ee-jah[g]	Ee-sha[g]
Vulpes maerotis	Kit fox			Kuida moss-suguee[g]	

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Vulpes sp.	Fox	Yú-ĭp (lv)[4]	Yó-putch (lv)[4] Yu-pats (c)[4]	Ye-putch-ah (ps)[4] Yu-pitch´-e[4] Wah´-ne[4]	
--	Fox	Sah-vi´-puts (k)[4] Hú-pats (k)[6] Un-si´-ats (k)[6] Hunt-si´ (lv)[6] Tavangwaimpitsi[5] Hon-zăˊ (lv)[4]	Sin-nants[4] Tah-vahn-set[4] Hon-za[4] Onsi'its[b] Onsi'ikarum[b] Hon-ze (c)[4]	Wo´-tse-ah (ps)[4] Wah´-ne[4] Wah-je´-ah[4] Wo´-tse-ah[4] Wa-ni[6] Wo-tsi-a[6] (small)	
Family Cervidae					
Odocoileus hemionus	Mule Deer	Tu-we-ah[4] Yu-oo-e[4] Too-hoo´-e (lv)[4]	Too-hoo-e[4] Tuxia[b] Tŭ-hē´[4] Tŭ-ĕ´ (k)[4]	Dŭ-yah (ps)[4] Dŭ´-he[4] Tŭ-hĕ´-yah[4] Toó-ho´-yah[4]	
Odocoileus sp.	Deer	Ti´-ats (k)[6] Tu-i (lv)[6] Tuxia[5] Tuuyi[f]	Tuhi[c] Tuhuya[c] Tĕ-he´ (lv)[4] NF[b]	Duhayet[c] Ti-hi[6]	Tahenah[c] Tuh'ena[c] Tu-he-nah[g]
Family Cricetidae					
Neotoma sp.	Wood Rat	Kats (k)[6, 4] Kaatsi[5] Kaht´ (k)[4]	Kahts[4] Kaats[b] Kahts´ (lv), (c)[4]	Kow´-wah (ps)[4] Kah´[4]	
--	Wood Rat			Gah"[4]	
--	Rat	Kāts (lv)[6]			
Peromyscus sp.	Mouse	Poo-e´-chet (k)[4] Poo-e-tsets[4] Poo-in´-chets (lv)[4]	Poo-e-chet[4] Poo-in-chets[4] Poo-in´-jets (c)[4]	Poo´-ī (ps)[4] Bo´-ni[4] Po´-ni[4] Poo -nah[4]	

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
--	Mouse	Pu'ichats[5, b] Pŏm poo´-e-chet (k)[4]	Moi (s)[4]	Po-an´-chah (ps)[4]	Poong-way-szhee[g]
Family Equidae					
Equus sp.	Horse	Kah-wi´-yu (ps)[4] Wah-ah-ar (c)[4]	Kah-vah´[4]	Poo'nk[4] Bun´-go[4]	
Family Erethizontidae					
Erethizon dorsatum	Porcupine	Yungumputsi[5] Ye-num-puts (k)[4] Ye-hum-puts[4]	Ye-num-puts[4] Yu[ch 4] NF[b]		
Erethizon sp.	Porcupine	Yú[ch] (lv)[4]	Yŭńg (c)[4] Ye-num´-puts (k)[4]	Yŭ´-hŭ (ps)[4] Yen"[4] Yŭ´-hŭ[4] Yo´-hah[4] Tsa´-gwit[6]	
Family Felidae					
Felis concolor	Mountain Lion	Tu-ma´-mu-ints (lv)[6] Tukumumutsi[5] Piaruku[5] 'Kummo-muts (k)[4] Too-koó-mo-munch (lv)[4]	Too-koo-puts[4] To-ko-mo-muts[4] Too-koo-mo-munch[4] Piaruk[b] Tŏ-koo´-muts (c)[4]	Too-koo´-muts (ps)[4] Toi-yă-too´-koo[4] To-ko-bitch[4] Mi´-yum-be[4] Kong´-gwi-tu-nu[6]	Too-ku-vitchs[g]
Lynx rufus	Bobcat, Wildcat	Tukuputs[b]	Tukuvits[c]	NF[c]	
Lynx sp.	Bobcat, Wildcat	To-ko´-puts (k)[6] Tōk (lv)[6] Tukutsi[5] Tukuputs[5] NF[b]	Took[4] Took[4] Mo-sahts[4] Tukuvits[c] Too-koo´-puts (k)[4]	Too´-koo´-vitch (ps)[4] Doo´-ko-vitch[4] Too´-ko-vitch[4] Too´-ko-bitch[4] To´-ko-pik[6]	Too-ku-vitchs[g]

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Lynx sp.	Bobcat, Wildcat			NF[c]	
Family Geomyidae					
Thomomys sp.	Pocket Gopher	Muyumpitsi[5] Mŭ´-e (c)[4]	Mwe-em-puts[4] Mŭ-e (lv)[4] Me-im´-put (k)[4]	Yu-ab´-bitch (ps)[4] Yĕ´-hah-vitch[4] Yĕ´-hah´-vitch[4] Ye-hah´-vitch-e[4]	
--	Gopher	NF[f]			
Family Heteromyidae					
Dipodomys sp.	Kangaroo Rat	Pi-yu-ah[4] Pi´-ah (c)[4] Tă-wā´-tet (k)[4] Pi´ (lv)[4]	Tah-we-tat[4] Pi-im´-buts[4] tom-we-a-tats[7]	Pi´-yu (ps)[4] Bi´-e[4] Pi´-yu[4]	
Perognathus sp.	Pocket Mouse	Pi-im-buts (k)[4]			
Family Leporidae					
Lepus californicus	Black-tailed Jackrabbit	Ka-mu (k)[6] Kam (k), (lv)[6] Kaamu[5]	Kahm (k)[4] Kaam[b] Kamuntsi[f]		
Lepus sp.	Rabbit	Tă-voots´ (lv)[4] Tah-voots´ (c)[4] Tah-wuts´ (k)[4]	Kahm´ (lv), (c), (k)[4]	Kah´-moo (ps)[4] Tă´-boo´-tse (ps)[4] Tah´-bo[4] Tah´-bot-se[4] Gah´-mo[4] Kah´-mo[4] Kah´-mah[4] Be´-ah gah´-mo[4] Be´-ah qah´-mo[4] Ta-vut´-si[6] Tsi-gut´-si[6]	

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Lepus sp.	Rabbit			Ka-mut´-si[6] To-ha´-kum[6]	
--	Jackrabbit	Kamb[c]		Kamusi[c] Tavusi[c]	Kuma[c] Ka-mua[g]
--	Rabbit	Tsok-um (k)[6] Kamb[c]	NF[b]		
Sylvilagus audubonii	Desert Cottontail	Ta-vwōts´ (k)[6] Ta-vōts (lv)[6] Tavutsi[5] Tah-wuts (k)[4] Tah-boots[4]	Tah-vuts[4] Ta-voots[4] Tavuts[b] Tavuuts[f]		
Sylvilagus sp.	Cottontail	Tavitic[c]	Tavuuts[c]	Dah-voo[g]	Taputsi[c] Ta-votsi[g]
Family Mustelidae					
Spilogale putorius	Western Spotted Skunk	Kah'bo-ne (k)[4] Kah Bo-na[4]	Kah-bo-na[4]		
Spilogale sp.	Skunk	Kah´-bo-nā (lv)[4] Kah´bo-nĕ (k)[4]	Kah´-bo-ne (c)[4]	Yu-hah[4]	
--	Skunk	Pu´-ni (k)[6] Poni'a[5] Po-nĕ´ (k)[4] Po-ne-ets (lv)[4]	Po-na[4] Po-ne-ets[4] Poni[b] Pŏ-ne´ (c)[4]	Po-nē´-ětś (ps)[4] Bō'n-he-atz[4] Baw´-ne-yăts[4] Po-hoi´-ats[4] Po´-nint[6] bo-ho-yetz[g]	
Taxidea taxus	Badger	Hūn (lv)[6] ~~U~~nampu~~t~~si[5] Un-nam-but (k)[4]	Hoon[4] To-chi-e[4] ~~U~~nampu~~t~~s[b]		

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Taxidea sp.	Badger	Hoon´ (lv), (c)[4]	Un-nam´-but (k)[4]	Ho´-nah[4] Hoo´-nah[4] Hoo-nah[4] Ho´-nan[6] Hoo´-nah (ps)[4]	
--	Weasel	Sŭ-sŭg (lv)[4]	Pah-rook´ (c)[4] Pah-ve´-chit (k)[4]	Bah´-bitch-ē't[4] Bah´-tsoo-goo[4] Pah´-moo-kah´[4] Soo´-soo-gah (ps)[4]	
Family Procyonidae					
Bassariscus astutus	Ringtail	Kah-goots[4] te-av-ats[7]			
Bassariscus sp.	Ringtail	Hŏ-run´-tah-vahts (c)[4]		Kah´-wo-dze´-ah (ps)[4]	
Family Sciuridae					
Ammospermophilus leucurus	White-tailed Antelope Squirrel	Tava'atsi[5] Tav-vat (k)[4]	Ta-bats[4] Ta-vats[4]		
Eutamias sp.	Chipmunk	Ta-vwōts (k)[6] O'gun´-to-ats (k)[6] O´-i-chots (lv)[6] Oxontava'atsi[5] Tava'atsi[5] Ho-ă´-tsits (lv)[4]	Tavarungkwits[5] Oi-chits (k)[4] O-gon tav-vah-ats[4] Ho-a-tsits[4] Tavarungkwits[b] Ko-e´-tsets (c)[4] a-oits-its[7]	Woi-che (ps)[4] Woi´[4] Wah´-oi[4] Woh´-oi[4] Wo-i´-tsi[6]	
Citellus sp.	Ground Squirrel	O'itsitsi[5] Aw-oi-chits (k)[4]	Ki-vah skoots[4] Skwe-ets[4]	Ing'wa[c] Zip-pe (field dwelling)[g] Guhm-be (white belly, lives in desert)[g]	

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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
--	Squirrel	Skāts (k)[6] O-'gun´-to-ats (k)[6] Si-kuts´ (lv)[6] Sé-koots (lv)[4] Su-koots´ (c)[4] Skoot´ (k)[4] Skwe´-ĕts (lv)[4] Sŭ-pe´ (c)[4] Aw-oi´-chits (k)[4] Ye-we´-set (k)[4] u-wish-its[7]	Skuts[5, b] Sikuts[5, b] Skuuts[c] Un-tsup´ (k)[4] Tah-vats´ (lv)[4] Tah-vahts (c)[4] Tav-vat´ (k)[4] Ho-uń-tă-vats (c)[4] Ah-wun´ tah-vat (k)[4] NF[f]	Hoo´-kŏn-tah-bi´ (ps)[4] Tă-vah´-che (ps)[4] Kōng´-ah (ps)[4] O-wun´-dah-vi (ps)[4] Eng´-wah (ps)[4] Tseep´[4] Che´-gah[4] Kŭmp[4] Wung-gwah´-rah-bi[4] Koom´-pi[4] Che´-gă[4] Woh´-i[4] Dah´-wah-ni[4] Tah´-bi-i[4] Tsi´-pish[6] Tav´-a[6] Ko´-gwi[6]	
Family Vespertilionidae					
--	Bat	Pacha'ats[5] Pat-sats[4] Paht-sats (c)[4] Pă´-tsats (k)[4]	Pah-chats[4] Pats-ats (lv)[4] Pacha'ats[b]	Ho´-no-vitch[4] Ho-no-bitch (ps)[4] Ho´-e-nah vitch´-e[4]	
Reptiles					
Family Iguanidae	Iguanids				
Crotaphytus collaris	Collared Lizard	Kan´-ne moi-kar-rat´ (k)[4] pomp-ots-ats[7]	Tom-po´-tsat´ (lv)[4] Tum-bo-tats (ps)[4] Towm-po´-tsuts (c)[4]	Tum´-bo-tats´ (ps)[4] Po´-go-che[4] Tem´-im-boi[4]	

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Crotaphytus collaris	Collard Lizard			Doo-kor´-a-ke[4]	
Gambelia wislizenia	Leopard Lizard	Chah-a-mi-ahv (k)[4] Too-ar-rah[4] Sah-we´-vah (c)[4]	Neu-mah-zing-ahts[4] Si-vah (lv)[4]	Sow´-we-vah´[4] Sah´-we-vah[4]	
Sauromalus obesus	Chuckwalla	Saxwaru[5] Chah-kwar-rah (k)[4] Tsah-wahr´ (lv)[4] Sow-wahr´ (c)[4]	Sahk-war-rah[4] Tsah wahr[4] sa-wha-rha[7] Chah-kwar´-rah (k)[4]	Sow-war´-rah (ps)[4] Sah-gwar´-rah[4]	
Sceloporus magister	Desert Spiny Lizard	Tsahng-ahv (k)[4] Chahng-ahnts[4] tsang-a[7]	Ching-ki-ahng-ah[4] Tsang-ants[4]		
Sceloporus sp.	Lizard	Changa´[5] Tsahng-ahv (k)[4] Chahng-ahnts[4]	Ching-ki-ahng-ah[4] Tsang-ants[4] Changa' changats[f]		
--	Lizard	Su-gu´-pits (k)[6] Mu-gwi´ (lv)[6] Pompotsatsi[5] Tsang-ants (lv)[4] Tsang-ah´ (c)[4]	Moxwia[5] Suxuputsi[5] Mow´-wav´-ve (c)[4] Tsahng-ahv´[4]	Tim´-puts[6] Pa´-vo-go-nai[6] Poh-gwua-gee[8] Po-goi´-che (ps)[4] Ah-wah´-poi (ps)[4] Ki´-e-too-ar (ps)[4] Tü´-moi[4] Dĕ´-hoi[4] Dem´-mon-zah[4]	
Family Colubridae	Colubrids				
Lampropeltus	Common Kingsnake	Sing-ump (k)[4] Sung[4]	Shing-aht[4] Nun-too-nav[4]		

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Pituophis melanoleucus	Gopher Snake, Pine	Oxomputsi[5] Ko-hum-buts (k)[4] Kaw´ (c)[4]	Kaw-kum-puts[4] Oxoputs[b] Ko-hum´-buts[4]	Ko´-go (ps)[4] Pas´-să-wah´-kah[4]	
--	Snake	Ta-na´-kuts (lv)[6] Pah´-we-ĕts (lv)[4] Nun´-too-nav´ (lv)[4] Nin-din´-av (lv)[4] Pah-we´-ets (c)[4] Sing´-ump (k)[4]	Kwi´-uts (lv)[6] Sĕu-ung´-ah (c)[4] Ah-wah-rum pă-at (c)[4] Pah´-ro ahv´ (k)[4]	Pah-soo´-go (ps)[4] Ki´-ar-răr´-rah (ps)[4] Nă-boo´-ah-gwah-tsoo´ (ps)[4] Paś-se-neu[4] Gawk´[4] Pah´-rah go-ah[4] Ki´-yă gar´-rah[4] Wun´-gah-rah[4]	Tah-go-ah[g]
Family Viperidae	Pit Vipers				
Crotalus sp.	Rattlesnake	To-go´-avw (k)[6] O-lo´-ga (lv)[6] Toxoavi[5] Tanakitsi[5] To´-go-av´-ve (lv)[4]	To-go-ahb (k)[4] To-ko-ahv[4] To-go-av-ve[4] Kwe-ets (c)[4] To-go-ahb´ (k)[4]	To-to´-a[6] Do-gowah[g] To-go´-ah (ps)[4] To´-gwah[4] To-qo´-ah[4] To´-go-ah[4]	
Birds					
--	Bird	Wi´-chits (k), (lv)[6] Witsi´tsi[5]	Witsi'tsi[b]	Ko´-cho[6] who-choo[g]	Chee-pah[g]
Family Accipitridae	Hawks, Kites, Eagles				
Accipiter cooperii	Cooper's Hawk	Wit se-mor-rat (k)[4] Kwe-sahp[4]	Pah-rahm-puts[4] Kwe-sahp[4]		

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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Accipiter sp.	Hawk, goshawk	Kwen-noonts-a-mord (k)[4]	Ku-shav-i[7]		
Aquila chrysaetos	Golden Eagle	Kwahn-ants (k)[4] Mung[4]	Kwanants[b]		
Buteo jamaicensis	Red-tailed Hawk	Kwī-nat´-sits (k)[6] Kwanantsits[5, c] Kwah-nah-tsits (k)[4] Se-kan-na kwahn-ant[4] Qua-nats-its[7]	Ta-ah kwah-nahts[4] Kwen-nan-zits[4] Kusav[b] Quinnah[c]	NF[c]	
Circus sp.	Hawk, Harrier	Oong-aur-ats[7]			
Haliaeetus leucocephalus	Bald Eagle	Si-kwah (k)[4] Piakwanants[b]	Piasakwanants[b]		
--	Eagle	Kwi´-nants (k)[6] Mung-i´-puts (lv)[6]	Kwanants[5] Kwanantsi[f]	Kwi´-na[6] Kivi-na[6] Bia' quinah[g]	Quing-ah[g]
--	Hawk			G'in-nee[g] Ing´-a-kwi-na[6] Sah-na qui-na[g] Ki´-ni[6]	
Family Alaudidae	Larks				
Eremophila alpestris	Horned Lark	Turanwintsi´tsi[5] Nuva witsi´ts[5] Ter-rah-we-che (k)[4]	Te-we-wit-se[4] Te-rah we-cha-its[4] Ne-vow-we-tsits[4]		
Family Alcedinidae	Kingfishers				
Ceryle sp.	Kingfisher	Wun-na-tus (k)[4]	Wun-nah-taht[4]		

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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Family Anatidae	Swans, Geese, Ducks				
Anas clypeata	Shoveler	Pa choog (k)[4]			
Anas platyrhynchos	Mallard Duck	Oo-chuxa[5] Pe-at choog (k)[4] Choo[ch4]	Choog[4] Paruv[b] Uuchuxa[b]		
Anas sp.	Duck	Chuxa[5]	Chux[b]	Pu´-yan[6] Buhn'yeeh[g]	NF[c] Puh-yuh-ah[g]
Branta canadensis	Canada Goose	Chakoaru[6] Ah-vin-kay-raht (k)[4]	To-o-pah[4] Koo-res-sen[4]		
--	Goose			Nu´-gud[6]	
Oxyura jamaicensis	Ruddy Duck	Pi-ah-kwits (k)[4]			
Family Ardeidae	Herons, Egrets, Bitterns				
Ardea herodias	Great Blue Heron	Pah-too-koo ko-vah kahnt[4]	Pah-koor-kuv[4] Nah-kwah[4]	Wus´-sa[6]	
--	Bittern	Tah-wah woo-ne-ker-rit (k)[4]	Choo-goob (n)[4]		
Family Caprimulgidae	Nightjars				
Chordeiles acutipennis	Lesser Nighthawk	Tuwawitsi'ts[b]			
Chordeiles sp.	Nighthawk	Mono´opangwits[5] Pe-utch (k)[4] Too-gow-wit-se[4]	Mo-mo-pits[4] Mum-mo-paht[4]	Du-va-go[g]	
Phalaenoptilus sp.	Poorwill	Pan-no-witch (k)[4] Pah-nah-kwits[4]	Pi-na-wits[4]		

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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Family Cathartidae	American vultures				
Cathartes aura	Turkey Vulture	Whu-gump´-uts (k)[6] Whi-ku´-puts (lv)[6] Wikumputsi[5] We-kum-buts (k)[4]	We-koo-puts[4] Week[4] NF[b]		
--	Vulture			Wi´-ho[6] Wee-whom-binch[g]	Wee-hoo[g]
Family Charadriidae	Plovers				
Charadrius vociferus	Killdeer	Pantuxwits[5] Pan-te-geetch (k)[4] Pahn-tig-wits[4]	Pah-re koo-its[4] Pa-roo-goo-e'ts[4]	Bah-zah-wee[g]	
Family Columbidae	Pigeons and Doves				
Zenaida macroura	Mourning Dove	Iyov[b]	Ayov[b]		
--	Dove	Ai´-yuv (k)[6] Iyovi[5] Oi-uv (k)[4] Ha-o'v[4]	Che-yu'ch[4] He-ov[4] Hiav[c] Hiuv[c]	High-wee[g]	Hay-wee[g]
--	Pigeon	I-yov[4]			
Family Corvidae	Jay, Magpies, Crows				
Aphelocoma coerulescens	Scrub Jay	NF[b]			
Corvus brachyrhynchos	American Crow	Paht-kot[4]	Ah-tah-bits[4]		
--	Crow			A´-ta[6] Hi[g]	Cuta-puzee[g]

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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Corvus corax	Common Raven	A-ta´-puts (k)[6] A-ta´-puts (lv)[6] Ataputs[5] Atakots[5] Tah-kwots (k)[4] Ha-ta-puits[7]	Ah-tah-pah-ki'p[4] Tah-kwahts[4] Ah-tah-pwits[4] Ataputs[b] Atakots[b]		
Cyanocitta sp.	Jay	O-go´-chi-ok (k)[6] Oxo-chayaku[5] Ah-run Chi-ahk (k)[4]	Sik-koo-ra-gwuts[4] Ho-gon Tsi-ahk[4]		
Gymnorhinus cyanocephala	Pinyon Jay	Aanga[5] Ahng Uv-ve (k)[4] Ki-vah witch et[4] Ahng-av[4] Ahng[4]	Tuvawitsi´ts[b] Tuvavwitsiits[c] Tuuv watsits[c] Yamp[c]	Guy-nutz[g]	
--	Jay	Ong´-a (k)[6]		Wi-at´-si[6]	
Pica sp.	Magpie	Mama´kwa´yavi[5] Mah-kwi-ahv (k)[4] Mah-mah-kwe-as[4]	Mah-mahk kwi-ahv[4] Mah-mah-kew-ahs[4]	Kwi´-da-wo-i[6] Qwithe-woy-yoh[g]	Cui-ta' go'ya[g]
Family Cuculidae	Cuckoos, Roadrunners, Anis				
Geococcyx sp.	Roadrunner	Nants (k)[5] Wuts (k)[4]	Ko cha bo'ki[4] Oo'ts[4]		Unnup-pi[g]
Family Emberizidae	Emberizid Finches and Allies				
Subfamily Cardinalinae	Cardinal-Grosbeaks				
Passerinea cyanea	Indigo Bunting	NF[b]			

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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Subfamily Emberizinae	American Sparrows and Towhees				
Amphispiza bilineata	Black-throated Sparrow	NF[b]			
Junco sp.	Junco	Ne-war-rum po-kuts (k)[4] Nu-wer-rowk[4]	Noo-war-rum po-koots[4]		
Pipilo chlorurus	Green-tailed Towhee	Tam pe-ats (k)[4]			
Pipilo sp.	Towhee	E-se-voo-it (k)[4] Ke-we-rit-se[4]	Tim-mah-tin[4]		
Spizella passerina	Chipping Sparrow	Kam pe-ats (k)[4]	Yu-oo-ro-whats[4]		
Zonotrichia leucophrys	White-crowned Sparrow	Yu-rah-vaht (k)[4] Se-we-cha-et[4]	We-tsids[4]		
--	Sparrow	Wʉ'iatsi[5] Kam pe-ats (k)[4]	Yu-oo-ro-whats[4]		
Subfamily Icterinae	American Blackbirds and Orioles				
Agelaius phoeniceus	Red-winged Blackbird	Paxachakapi[5] Pah rahts-kahp[4]	Pah-ran-to-twit[4]		
Euphagus cyanocephalus	Brewer's Blackbird	Pah-ranch Che-kahp (k)[4] Too we-tse[4]	Cha-kahp[4] Pah-ran-zu-wit[4]		
--	Blackbird			Bah-gan-zuk-qwue[8]	

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
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Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Icterus sp.	Oriole	Oangwintsi´ts (yellow bird)[5] Kah-ni-amp (k)[4]	O-ow-wit-se[4] Wahts-ke-it[4] O-ah-we-tsits[4]		
Sturnella sp.	Meadowlark	Iitotsi[5] A-tawt (k)[4] Tu-we-uk[4]	Kah-nah-we tse-its[4] Te-ve-uk[4]	Pa´-tsi-ton[6]	
Subfamily Parulinae	Wood-Warblers				
Dendroica petechia	Yellow Warbler	Ka-na-wits-its[7]			
Subfamily Thraupinae	Tanagers				
Piranga ludoviciana	Western Tanager, Mountain Tanager	Oo-win-nt (k)[4]			
Family Falconidae	Falcons and Carcaras				
Falco sparverius	Sparrow Hawk, American Kestrel	Kurin´ang kats[5] Ku-we-nah-kut (k)[4]	Te-ze-nah-kahts[4] Kwan-an-tsits[4]	Ku-ti´-ta[6]	
Family Fringillidae	Old World Finches and Allies				
Carpodacus purpureus	Purple Finch	We-etch (k)[4] Waw[4]	We-ets[4] We-we-ets[4]		
Carpodacus sp.	Finch	We-etch (k)[4] Waw[4]	We-ets[4] We-we-ets[4]		
--	Grosbeak	Wah-pum-wer-rah-ka (k)[4] Gus-se-nav (k)[4]	Ker-re-tsawt[4] Kan-now we-tse-its[4]		
Family Hirundinidae	Swallows				

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
(Page 16 of 23)

Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Hirundo pyrrhonota	Cliff Swallow	Pah-sah-rok-pets[4]	Wah-pas-so-pe[4]		
Hirundo rustica	Barn Swallow	Tim-pow-we-ger-rit (k)[4] Tim-pah-ro-we-it[4]	Pas-ser-ro-pe'ts[4]		
Tachycineta thalassina	Violet-green Swallow	Pas-ser-ro-it (k)[4]	Pan-no-av[4]		
Family Laniidae	Shrikes				
Lanius ludovicianus	Loggerhead Shrike	Tah-tso-noint (k)[4] Tah-cho-noint[4]	Tun-dun-nois[4]		
Lanius sp.	Shrike	Tah-tso-noint (k)[4] Tah-cho-noint[4]	Tun-dun-nois[4] NF[f]		
Family Laridae	Gulls, Terns, Allies				
Larus sp.	Gull	Tosa payamputsi (white gull)[5] Che-yu[ch 4]	Pi-yam'b[4] NF[b]		
Family Mimidae	Mockingbirds and Thrashers				
Mimus polyglottos	Northern Mockingbird	Yamp[b]			
Mimus sp.	Mockingbird	Yampa[5] Yamp (k)[4]	Yahmp[4] Yam'p[4]		
Toxostoma sp.	Thrasher	Sah-wah-goo-et (k)[4]	Mo-e-pah-num-bits[4]		
Family Muscicapidae	Old World Flycatchers and Allies				

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
(Page 17 of 23)

Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Sialia sp.	Bluebird	Shok´-wai´ants (k)[6] Nung-un´-chots (lv)[6] Saxwang wintsi´ts[5]	San-nap-po-chet (k)[4] Sa-kwahn at-so-its[4] Sah-wah-wits[4]		
Turdus migratorius	American Robin	Angka-kwaa´nangwants[5] Se-kon kno-av (k)[4] Sin-kum[4]	Sko-we-che-it[4] Se-kin-kon-av[4] Say-kung-quav[7]		
Turdus sp.	Robin			Sue-gwee-cok-coo[g]	
Family Paridae	Chickadees and Titmice				
Parus gambeli	Mountain Chickadee	Tse-gut (k)[4]	Mo-che-et[4]		
Family Pelecanidae	Pelicans				
Pelecanus erythrorhynchos	American White Pelican	Pa-go-moo-e-nav (k)[4]			
Family Phalacrocoracidae	Cormorants				
Phalacrocorax sp.	Cormorant	Pa-at-kut (k)[4]	Pah-wung zits[4]		
Family Phasianidae	Pheasants, Grouse, Quail				
Callipepla gambelii	Gambel's Quail	Akar[b]			
--	Quail	Ka´-ka (k)[6]	Ka-ka (lv)[6]		Tounga-ah-hah[g]
Family Picidae	Woodpeckers and Wrynecks				
Colaptes auratus	Northern Flicker	Un-ka-kwo-nau-ants (k)[6]	Kah-kwah-nah-ahts[4]		

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
(Page 18 of 23)

Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
		Anyka-kwanangwav[5] Un-kah (k)[4]	Kwah-nah-vant[4] Ungkakwa-nangwav[b] Kwar-nah-kits[4]		
Colaptes sp.	Flicker	Angka-qua-no-wùnco[7]			
Melanerpes lewis	Lewis' Woodpecker	Po-wah-che-nint (k)[4] Ahn-kah-pi-ah we-tse[4]	So-wan-nat[4]		
Picoides villosus	Hairy Woodpecker	Peep-e-wor-et (k)[4]	Pe-pe-po-wunts[4]		
--	Woodpecker	Piipung' wantsi[5] Pe-po-wuntz (s)[4]	Pe-po wantz (k)[4] Peep-wunts[7]	Du-ga-hâi[6]	
Family Podicipedidae	Grebes				
Podilymbus sp.	Grebe	Koo-hoot-kit (k)[4]			
Family Rallidae	Rails, Gallinules, Coots				
Fulica americana	American Coot	Sah-sit (k)[4] Sahts[4]	Ke-yu[ch 4] Sats[4]		
Family Recurvirostridae	Avocets and Stilts				
Himantopus mexicanus	Black-necked Stilt	Too-we-e-yoot (k)[4]			
Recurvirostra americana	American Avocet	Tuviyuyu'tsi[5] Koo-weet (k)[4]	Mi-an Koo-wit[4]		
Family Sittidae					
Sitta sp.	Nuthatch	Kan-ka-rik-ket (k)[4] To-pah-we-kent[4]	Yu-ve-nants[4]		
Family Strigidae	Typical Owls				

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
(Page 19 of 23)

Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Athene cunicularia	Burrowing Owl	Muku'uts[f]		Ku´-hu[6]	
Bubo virginianus	Great Horned Owl	Mo´-puts (k)[6] Mo-o´-puts (lv)[6] Mooputs[5] Mo-puts (k)[4]	Moo-oo-put[4] Mo-o-puts[4] Moo-e-pwits[4] Muuputs[b]		
--	Owl	Muuputsi[f] Muku´uts[f] Wah-now-kwits (k)[4] Wanakwitsi[5]	Am-mo-puts[4] Mo-se-ah-kaw-bits[4] Ahn-kah-re Mo-put (k)[4]	Mu-hu[6] Muum-bitch[g]	Moohoo[g]
Family Trochilidae	Hummingbirds				
--	Hummingbird	Mu´-tu-chats (k)[6] Mootuchats[5] Mo-te-tcheh (k)[4] Mo-too-tsahts[4]	Ah-to-e-tsets[4] Moo-tin-zits[4] Mutuchuts[b]	Bi'si'i[c] Pi-a-gun´to-wit-si[6] Sung´-o-wit-si[6]	Pish-coot[g]
Family Troglodytidae	Wrens				
Catherpes mexicanus	Canyon Wren	Tumpikia hoxotsi[5] Tim-pe-ah-soot (k)[4] Tim-pe-its[4]	Timp-pe-ke yah-hots[4] Toom-pe-tah ah-bit[4] Tom-pike-aw-sauts[7]		
Salpinctes obsoletus	Rock Wren	Too-ching-ing[4] Tumpikixots[b]	NF[c]		
Troglodytes sp.	House Wren	Wu-nat tim-be ro-put (k)[4]	T'kes-se chim-mits[4]		
Family Tyrannidae	Tyrant Flycatchers				

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
(Page 20 of 23)

Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
Tyrannus verticalis	Western Kingbird	Chuxu´uvi[5] Che-goo-ritch (k)[4]	Wahts-koo-its[4] Too-pe-wats[4]		
Sayornis saya	Say's Phoebe	Chu-huv[7]			
Amphibians					
--	Frog	Wah´-gah´-tsets (lv)[4] Wah-raht´ (k)[4]	Hah´-pah wah´-ah-tuts (c)[4]	Pah-woo´-go´ (ps)[4] Wah´-ko-ah[4] Bi´-yah-qwat-sah[4] Pi´-ah guz-zah[4]	Yha-gua-zah[g]
Arachnids					
--	Scorpion	Wah´-wah-tsets (lv)[4] Wahm´-bah-kwits (c)[4]	Tah-wur´-rum-kwe-pitch (k)[4]	Woo´-vah-tah (ps)[4] Gwe´-buntz[4] Kwe´-bentz[4]	
--	Spider	Mo-kwam´-be (lv)[4] Hoo-kwahmp´ (c)[4]	Mo-kwahmp´ (k)[4]	Ku´-kwats[6] So-wats´ (ps)[4] Ah´-mah-so´-ans[4] So´-wants[4] So-ar´-rah[4]	NF[g]
--	Tarantula	Nŭ´-e-saw´-bits (lv)[4] We-gaht´-sawt k)[4]	Noo´-wĕ-saw´-pig (c)[4]	Nah´-soo-waht´ (ps)[4] Nah´-we-tsoi'm-bitch[4] Nă´-soo-ar´-rah[4]	
Insects					
Mutillidae sp.	Velvet ant				Togo[g]
--	Ant	T'siev (wood)[c] Tuhsiev (wood)[c]	Ahng-ahv´ (black) (k)[4] Ahng-e-ve (black) (lv)[4]	Hu-wīt´ (large red)[6] To´-ats (small black)[6]	Ah-see-ah[g]

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
(Page 21 of 23)

Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
		Tu'siev[c] Tas´-se-av (lv)[4] Ang-av´ (c)[4] Tas-se´-av (k)[4] Wahnts (red) (c)[4] Pas-se´-av (red) (k)[4]	On´-tat (black) (c)[4] Tas´-se´-ev (red) (lv)[4]	A´-ni (mound building)[6] Ani'e (wood)[c] On'nee (wood)[c] Ta´-siv-av[6] Un-kav´-tu-si (red)[6] Tas´-se-wuts-tse (ps)[4] Ah´-ne[4] Ho´-we-dah[4] Hó-e-dah[4] Tun-gah´-vitch (black) (ps)[4] Ho´-we-dah (black)[4] Too-kah-pe´-pah (red)[4]	
--	Beetle	Kan-nav´-ve-tets (lv)[4] We-po´-set (c)[4]	Wēv-haht (k)[4]	Shun-goo´-ah (ps)[4] Pe´-bos´-se[4]	Huga-pish-ah[g]
--	Bumblebee	See-moo´-rahm (lv)[4] Se´-moo-rahmp (k)[4]	Sho-em´ mo-ro-ram (c)[4]	O´-be-wo[4] Be´-hah-moo[4]	
--	Butterfly	As´-se-wuts (lv)[4] , Ah´-se-ruts´ (c)[4]	Yas´-se-wut (k)[4]	Ah´-se-wer-run´ (ps) Ă-ă´-per-rum I´-yup-pur-ruq´-ă Ap´-per-roo´-ge Wi´-ah-bos´-se	
--	Centipede	Sing-ump (k)[4]			
--	Cricket	Mă-kaht´-sah-roo´-bit (lv)[4] Chĕ-roots´ (k)[4]	Sow-wah´-ar-rum (c)[4]	Thin´-ă-pitch (ps)[4]	

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
(Page 22 of 23)

Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
--	Dragonfly	We-wing´-ga-rits (lv)[4] We-win´-koo-rets (c)[4]	Ah´-witch (k)[4]	Pă-ran´-doo-no (ps)[4] He´-tso-saw[4] Bah´-qah-mo´-anz[4] Pah´-ran-do´-ro[4]	
--	Flea	Po´-ahv (k)[4]			
--	Fly	Mo´-pits (lv)[4] Mo´-bits (c)[4]	Mo´-pitch-ă (k)[4]	Mo-e´-ve-hah (ps)[4] Ah´-ne-moi[4] Ah´-nah-woi´[4] Mo´-pits[6] Mu´-īv[6] A´-nīv (sand)[6]	Mu'e-vee-ha[g]
--	Grasshopper	At´-tah-kah-peets (lv)[4] Ah´-tah-kah-bits´ (c)[4]	Ar´-ron-kah´-pit (k)[4]	Ah-tung´-ge (ps)[4] Ah´-ting[4] Ah´-tunq-que[4] At´-tan´-ge´[4]	
--	Lice	Se-ap´-pit (k)[4]		Bo´-see-ĕts (ps)[4]	Pooh-ze-ah[g]
--	Louse			Pu-si´-a[6]	
--	Mosquito	Mo-oo´-av´-ve (lv)[4] Mo´-av (c)[4]	Mo-ahv´ (k)[4]	Mo´-vo[6] Mo-avw[6] Wah-war´-rah (ps)[4] Maw´-paw[4] Ahng-ē´-ve[4]	NF[g]
--	Moth	Moo-goo´-run-zits (lv)[4] Mo-goo´-ro-tsats (c)[4]	Mo-woo´-ran-tut (k)[4]	Pe-ag´-gah moo-rung-we (ps)[4] Pe-ag´-gah[4] Pe´-ag´-gah[4]	
--	Stink Bug			Ku´-i-tsat[6]	

Table B-1. One Hundred and Seventy American Indian Traditional Use Animals Present on the Nevada Test Site
(Page 23 of 23)

Scientific Name	Common Name	Southern Paiute Ethnic Group Names		Western Shoshone Ethnic Group Names	Owens Valley Ethnic Group Names
--	Tick				Pooh-ze-ah[g]
--	Worm	Pĕ-av´ (k)[4]		Pish-shă-war´-rah (ps)[4] Wo´-ah-be[4] Woo-ah´-be[4]	
--	Yellowjacket	We-koots (lv)[4]	Pah-watch´-av (k)[4]	Pi´-yah (ps)[4] O´-hah ben[4] Pi´-nah[4] Be´-hah-moo[4]	

[1] Work done by Powell between 1867-1880: (Fowler and Matley 1979)
[2] Work done by Euler between 1956-1966: (Euler 1966)
[3] Work done by Palmer before 1946: (Palmer 1978)
[4] Work done by Merriam between 1902-1935: (Merriam 1979)
[5] Work done by Sapir in 1910: (Sapir 1910)
[6] Work done by Powell in 1873: (Fowler and Fowler 1971)
[7] Work done by Presnall in 1936: (Presnall 1936)
[8] Work done by Train between 1935-1941: (Train 1957)
[9] Handbook of North American Indians-Great Basin (vol. 11, "Owens Valley Paiute") 1989

[a] Stoffle, Austin, Halmo, and Banks (1996)
[b] Stoffle, Halmo, Evans, and Austin (1994)
[c] Stoffle et al. (1994)
[d] Stoffle et al. (1989)
[e] Stoffle, Halmo, Evans, and Olmsted (1990)
[f] Stoffle and Dobyns (1982)
Stoffle and Dobyns (1983a)
Stoffle, Dobyns, and Evans (1983)
[g] Names by CGTO members; April 1996 NTS-EIS meeting.

NF = Not found; mentioned in text but no Indian name given.
(c) = Chemehuevi
(k) = Kaibab
(lv) = Las Vegas
(mp) = Moapa Paiute
(p) = Pahrump Paiute
(ps) = Panamint Shoshone

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Attachment C

AN AMERICAN INDIAN CONSULTATION MODEL

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ATTACHMENT C

AN AMERICAN INDIAN CONSULTATION MODEL

This attachment has been reviewed and edited by the American Indian Writers Subgroup from the original source entitled, "A Consultation Model" by Richard Stoffle. This original article was published in Sacred Sites Protection Strategies - Legacy Project, a preliminary report prepared for the National Park Service and the U.S. Army Environmental Center, edited by Vine Deloria, Jr., and Richard Stoffle, produced by the Bureau of Applied Research in Anthropology, University of Arizona, in 1994.

Attachment C presents an American Indian consultation model, a version of which was originally developed for the U.S. Department of Defense Legacy Project (Deloria and Stoffle [eds.], 1994). This model is based to a great extent on the history of consultation relationships between DOE/NV and tribes and organizations for the Yucca Mountain Project and the NTS, and also includes published and unpublished information on American Indian consultation procedures across the country. As such, it describes nine ideal steps for developing a consultation relationship with American Indians who are culturally affiliated with lands held by a DOE facility. These steps are suggested on the basis of the past history of consultations sponsored by DOE/NV and on an analysis of other consultation relationships. Examples of relationships between American Indians and other federal agencies are used throughout so that the model will be as instructive as possible. These steps suggest how a process might occur, but they need not always be followed to achieve an acceptable consultation. Instead the nine steps suggest a logical sequence of decisions and actions that normally would be involved in developing a consultation relationship. It is important that the DOE works with the involved Indian tribes to design a consultation relationship reflecting their needs, the needs of the involved DOE facility, and the protection requirements of the cultural resources under consideration. The ideal steps are:

Step 1: Defining Consultation

Step 2: Establishing Cultural Affiliation

Step 3: Contacting the Tribes

Step 4: Having An Orientation Meeting

Step 5: Forming A Consultation Committee

Step 6: Conducting Site Visits

Step 7: Developing Mitigation Recommendations

Step 8: Maintaining Ongoing Interactions and Monitoring

Step 9: Bringing a Consultation Process to Closure.

These consultation steps are discussed in their logical sequence of occurrence. The first consultation step is to decide what type of consultation relationship is desired. The second step is to specify, using cultural and historical research, which American Indian people or peoples have traditional ties to DOE lands. The third step is to establish government-to-government relationships between formally recognized American Indian tribes and American Indians with special federal standing and the DOE. The fourth step is to have an orientation meeting, where DOE begins to meet and talk with American Indians. The fifth step is to form an American Indian consultation committee and establish mutually agreed upon procedures for its operation. The sixth step is to bring American Indian cultural resource experts to the DOE lands so that traditional cultural resources can be identified, related to sites, and initial management recommendations can be made. Mitigation recommendations are the seventh step, followed by ongoing interactions and monitoring as the eighth

step. Finally, because some consultation relationships do not last, the ninth step involves bringing the consultation relationship to a closure.

The following model for developing a consultation relationship is presented here on the assumption that there is no pre-existing relationship. While DOE/NV facilities currently have consultation relationships with American Indians, there are specific programs and activities, such as the Transportation Study, which have yet to enter into formal consultation with tribal governments. Thus, at the suggestion of the American Indian Writers Subgroup, this consultation model was edited and formatted as an attachment to Appendix G, so that it can be used as a guide for future DOE and American Indian consultation processes.

C.1 Defining Consultation

"Consultation" is a term that is commonly used to describe a process by which American Indian peoples with traditional ties are identified and brought into discussions about cultural resources on DOE lands. Consultation involves a fundamental decision on the part of the DOE to share some decisionmaking with American Indians. American Indians are asked to share in the decision to identify resources needing protection. They are also asked to share in the decision to prioritize which cultural resources will be protected first. Indian people are asked to share in the decision to select from among a variety of management practices those that most appropriately protect the cultural resources in the context of other resource uses. Indian people are asked to share in the long-range planning and monitoring of these cultural resources and lands that hold them.

According to scholars who study consultation (Cernea, 1991; Dobyns, 1951; Parenteau, 1988), the quality and success of the consultation process depends directly on the degree to which decisionmaking power is shared. Arnstein's (1969) studies demonstrate that any consultation process can be characterized as falling on a scale from 1 to 8 where participation without shared power is called "manipulation" and where sharing power, even to the point of negotiating with the agency, is called "partnership." The primary decision that a DOE facility must make is how much decisionmaking power can and will be shared with Indian people. Once the range of decisionmaking sharing is established, it should be clearly identified at the outset of the consultation so that it can become a part of the American Indian people's decision to participate in the consultation.

C.1.1 General Consultation

More U.S. federal agencies (including the DOE) are becoming involved in general consultation with American Indians. This establishes a permanent relationship with American Indian groups that have cultural ties to the lands and resources managed or affected by the federal agency or DOE facility. General consultation should be based on extensive research concerning cultural resources that Native groups identify as being located on lands of concern. Cultural resource studies should consider at least the following (1) archaeology sites, (2) petroglyphs, (3) human burials, (4) traditional cultural properties, (5) plants, (6) animals, (7) minerals, and (8) water. Cultural resource studies also can consider impacts to American Indian cultural practices (like a traditional healing ceremony) that are not tied to specific places. Each of these cultural resources should become the subject of a separate study so that Native groups can contribute persons with special knowledge about the topic. General consultation should be based on a strong information foundation.

A major advantage of general consultation is that it can occur in the absence of a specific project proposal, which is evaluated under specific laws and, usually, as part of an environmental impact statement. Often, the laws that govern specific project studies add third parties to discussions between the DOE and American Indian peoples, which can confuse and limit discussions. General consultation occurs when it is desired by the DOE and the Indian people and is not limited by time or issue. It is the perfect environment for discussing a complex relationship designed to protect cultural items of greatest significance. Another advantage of general consultation is that it produces a strong information base for identifying cultural resources for both the DOE and American Indian people.

Through various cultural studies, the Indian people have developed a set of recommendations that suggest how to best manage these resources. Most American Indian cultural resources located on or affected by the DOE will become known through the process of general consultation. This will reduce the number of times that DOE activities will have to be stopped and modified because of unanticipated discoveries of cultural resources. If DOE activities were to impact cultural resources not previously identified, procedures would be in place for informing the Native people about the discovery, and those Native people would have procedures in place for helping the DOE minimize adverse impacts to the newly discovered cultural resources.

General consultation is the only way to build true and stable partnerships between U.S. federal agencies and American Indians. Often, project-driven environmental assessments bring federal agencies and Native people together, and afterwards they decide to move to general consultation as a means of resolving problems before projects precipitate specific cultural resource decisions. Native people approach cultural resource management from what has been termed "holistic conservation" (Stoffle and Evans, 1990). They respond positively to holistic studies that bring into consideration as many factors as possible, so the DOE can better understand the complex inter-relationship between cultural resources and other aspects of Native lifeways. Interestingly, the new U.S. federal initiative for "ecosystem management" closely reflects the philosophical orientation of Indian people. According to Gore (1993) "... some people now define themselves in terms of an ecological criterion rather than a political subdivision." For example, the people of the Aral Sea and the Amazonian Rain Forest define themselves in terms of these all-important ecosystems. In March 1994, 18 U.S. federal agencies demonstrated their ecosystem management activities to the U.S. Congress (Morrissey et al., 1994). Native people have responded in a positive way to federal agencies who are willing to consider cultural resources from an ecosystem perspective.

C.1.2 Specific Consultation

There is always the need for conducting specific consultation regarding cultural resource issues associated with DOE facilities and activities. For example, when general consultation has identified all types of cultural resources, ground-disturbing activities may unexpectedly unearth a human burial or an object of great Native ceremonial significance. The DOE may wish to use some portion of their reserve lands for an activity that was not considered during general consultation. Also, the U.S. Congress may pass new laws regarding the management of cultural resources that potentially would alter the existing relationship between the American Indian people and the DOE. One such law is the Native American Graves Protection and Repatriation Act (1990), which specifically requires certain types of information to flow between the DOE as a federal land manager and American Indian people with ties to those lands.

Specific consultation is limited by the scope of the specific law that is being complied with and the proposed activity that is being evaluated. Native people often are frustrated by specific consultations because they are limited to those project-specific issues and cultural resources that are being assessed. The DOE's responses are too often limited by third parties who legally participate in the assessment. Nonetheless, a series of specific consultations can produce the foundation from which to build general consultation. For a DOE facility that currently lacks any kind of relationship with American Indian peoples, general consultation is recommended as the initial step in the consultation process.

C.2 Establishing Cultural Affiliation

There are many ways that American Indians have established cultural affiliations to lands held or affected by the DOE. At the general level, American Indians established these ties because they lived on the land long enough for a culturally shared connection to occur. The basic question asked regarding cultural affiliation is, "What American Indian peoples or ethnic groups lived here?"

The nature of the relationship between American Indians and the land is cultural. The concept of

culture (LeVine and Schweder, 1984) implies that a phenomena (1) is shared in that it represents a consensus on a wide variety of meanings among members of an interaction community, (2) that it is connected and ultimately comprehensible only as a part of a larger organization of beliefs, norms, and values, and (3) that people who share a culture make sense of new information in terms of a cultural rationale founded on a single collective formula. Simply, the connection between American Indians and lands held or affected by DOE facilities is abstract, complex, and non-trivial. Assessing this relationship is best accomplished by professionals trained in the study of cultural systems, in consultation with potentially culturally affiliated American Indian people.

Most laws, regulations, and guidelines that cause federal land-holding agencies to consult with American Indians do not define what is meant by the term "cultural affiliation." Some laws do define this concept; for example, the term is defined very specifically by the Native American Graves Protection and Repatriation Act. It is important to note that when a DOE facility adopts a broad definition of cultural affiliation for most kinds of cultural resource studies, they can still narrow the consultation process when needed for the Native American Graves Protection and Repatriation Act and then resume American Indian interactions based on the broader definition. Flexibility is needed when establishing consultation relationships with American Indians.

Cultural affiliation of DOE/NV facilities was established at the onset of the Yucca Mountain Project (Stoffle, 1987). Sixteen tribes belonging into three ethnic groups (Western Shoshone, Southern Paiute, and Owens Valley Paiute) were found to be culturally affiliated with Yucca Mountain and the NTS. A decade of consultation with these ethnic groups forms the foundation of a successful relationship between the DOE/NV and American Indians.

C.3 Contacting the Tribes

Cultural affiliation studies basically establish which American Indian ethnic groups potentially have traditional, aboriginal, or historic period ties to lands held or affected by the DOE. The term "ethnic group" means people who share a common culture. Perhaps an example will serve to clarify the complexity of moving from ethnic affiliation to that of contemporary American Indian organizations which actually would be contacted about the consultation.

Officially, the U.S. government prefers to deal with American Indian groups on a government-to-government basis. The well-established federal position was recently reaffirmed by the President in a memorandum of April 29, 1994, entitled Government-to-Government Relations With American Indian Tribal Governments. The National Congress of American Indians, which is the National Association of Tribal Chairs, also supports government-to-government relationships. Such a relationship recognizes the "dependent nations-within-the-nation" status of American Indian tribes (Deloria, 1985). This relationship should be the foundation of all consultation. The consultation will be incomplete, as discussed above, without a procedure for additional ethnic group inputs from non-tribal government sources. It is suggested, therefore, that federally unrecognized Native groups, American Indian organizations, and pan-Indian organizations be added to the consultation when it can be demonstrated that they do represent special ethnic group perspectives relevant to the cultural resource management issues of concern to the DOE facility. Finally, individuals from the Native ethnic group who otherwise would not be able to share important cultural insight, can be added to the consultation as "interested parties." The recommendations of interested parties and non-tribal Indian organizations, however, must be subsumed under the recommendations of the officially recognized tribal governments.

C.4 Having an Orientation Meeting

Contacting potential culturally affiliated tribes and American Indian organizations should be conducted in a manner appropriate to the consultation. If it is to be a project-specific consultation, the information given to Native people should reflect that project. On the other hand, if a general consultation is desired, then a very different essay and set of materials is needed. Although project-specific

consultation can lead to a mutual decision to begin general consultation, the orientation meeting should have a clear purpose and deal only with the issues actually under consideration at the time.

In general, letters, maps, and diagrams appropriate to the issues to be discussed should accompany the initial communication with American Indian groups and tribes. Such letters describe the agency that is making the contact and the purpose of the contact. Recently, a video letter was used to inform almost 24 tribes about an assessment of cultural affiliation and concerns for Chaco Culture National Historical Park (Stoffle et al., 1994c). The video letter was about 17 minutes long and began with the park superintendent discussing the goals of the study. This was followed by photos of places in the park which were the focus of the study. Clear instructions for becoming involved in the study closed the video. The video letter was well-received by the American Indian government leaders, who said it permitted them to make an informed decision about whether or not to send representatives to the park.

Letters alone generally are inadequate for most tribal governments to gain sufficient understanding of an issue under discussion so that the government can respond to a project. Many letters therefore are not answered. Follow-up telephone calls are always necessary to provide further information, but most tribal governments require that a consultation request for their people's time, and perhaps, tribal resources, be made in person. Cultural resource specialists and agency personnel should meet with tribal councils (or their officially chosen representatives) to explain the project and answer questions.

The members of tribal governments and American Indian organizations tend to be unfamiliar with the legal aspects of cultural resource questions, although they generally believe decisions about such issues to be highly significant. This presents an information gap problem for most Native government leaders. One solution to the information gap is for the U.S. federal agency to invite government leaders to visit a portion of the study area as part of an orientation meeting. During the meeting, government leaders can learn firsthand about what is being discussed and have the opportunity to exchange cultural resource views and strategies with other Native leaders. The Native government's need-to-know before making key cultural resource decisions should be respected and addressed in the consultation process.

C.5 Forming a Consultation Committee

The decision to form an American Indian consultation committee has been the key to the success of the consultation when many tribes and American Indian groups are culturally affiliated with DOE/NV lands under consideration. The consultation committee stands as a meta-organization between the tribal governments and the federal agency managers. The committee is composed of and chaired by Indian people. As such, the consultation committee is able to resolve certain issues relating to the process of consulting. In the early stages of consultation, for example, the committee may resolve issues such as how many days are needed to complete an ethnobotany study, or it may decide how best to prepare progress reports to be submitted back to Native governments. By meeting together and acting in unison, native people belonging to different tribes and ethnic groups are able to draw on common information and to speak with a single voice. The clarity and consistency of the American Indian requests will influence the DOE's ability to respond effectively and acceptably.

The consultation committee may be asked to resolve problems that would otherwise be impossible for either the DOE or the tribal governments. After the consultation committee understands both the laws that are driving the consultation process and the management needs of the DOE, the committee may be asked to determine when sufficient information has been collected so that recommendations can be made to both the tribes and the agency. If there are disagreements among the tribes or ethnic groups, the consultation committee can be asked to resolve these in closed executive session. Halmo (1994) has recently studied the benefits of a consultation committee participating with the DOE to understand the cultural resource impacts of the underground atomic testing program on the NTS. He concludes that this program's success came largely because of

the consultation committee's efforts to adjust the process to meet the needs of 3 major ethnic groups represented by 16 tribes and 3 Indian organizations.

The NTS American Indian Religious Freedom Act compliance program was initiated by the DOE/NV in 1990. The goal of the program was to bring the agency into compliance with the provisions of the NTS American Indian Religious Freedom Act, which was passed in 1978. Compliance was to be achieved by establishing consultation relationships with tribal governments and Indian organizations whose members have historic and current cultural ties to the lands in south-central Nevada that had been withdrawn from the public domain by the U.S. government in the 1950s for purposes of testing atomic weapons. The NTS American Indian Religious Freedom Act compliance program was to document tribal and ethnic concerns for cultural resources that would potentially be adversely affected by ground-disturbing activities associated with the national program of underground nuclear weapons testing.

Sixteen tribes representing three American Indian ethnic groups (Western Shoshone, Southern Paiute, and Owens Valley Paiute) were identified as having such ties to NTS lands. Five Indian ethnic and pan-Indian organizations also have been consulted during the program. This work (Stoffle et al., 1994b) built on theYucca Mountain Project.

Meetings included representatives of each of the involved tribes and Indian organizations, the DOE/NV, and the University of Arizona ethnographic research team. The first three years of the program culminated in two mitigation meetings, out of which tribal representatives submitted a series of recommendations to the DOE/NV regarding continued consultation, strategies for protecting the various categories of cultural resources, and tribal participation in future cultural resource planning, fieldwork, and policy formulation.

The DOE/NV favorably responded to the tribal recommendations, and accepted the vast majority of them with standard stipulations such as contingencies in funding and schedule. The result of this program has been that the DOE/NV currently has what may be one of the most comprehensive American Indian consultation program in the United States.

C.5.1 DOE/NV and Indian Consultation

While U.S. federal cultural resource laws require government-to-government relationships, DOE/NV consults with federally recognized tribes, unrecognized tribal groups, and Indian organizations such as the Las Vegas Indian Center, and pan-ethnic associations. Thus, the open policy of DOE/NV moves beyond the letter of the cultural resource laws to reflect their spirit. The DOE/NV has been engaged in a continuous program of consultation with these 19 Indian corporate organizations for 8 years.

The nature of the consultation process led this program to be successful from both a human relations and policy standpoint. One feature of that success has been the coalescence of several tribes and Indian organizations into a group that could speak with one voice (Halmo, 1994) when talking to the DOE/NV. Several features in the consultation process including systematic, regular social interaction, combined with a respect for Indian autonomy in decisionmaking, has shaped the context that allowed a new corporate group to evolve.

C.5.2 The Consolidated Group of Tribes and Organizations

Indian tribal governments are inundated with projects, requests, and paperwork, all needing attention. Many tribal government officials, therefore, simply do not have the time or energy to be involved in every activity that affects various aspects of the lives of their people. For this reason, officials appoint representatives and confer responsibility to them to participate in the project, obtain information, and keep the tribal council up to date on the progress of the project.

Tribal representatives involved in DOE/NV consultation decided by consensus to "incorporate" themselves as a unit, called the Consolidated Group of Tribes and Organizations (CGTO) to more accurately reflect the group's corporatism in representing the interests of 16 tribes and 3 Indian organizations (Halmo, 1994). In taking this action,

members bear the responsibility for representing the interests of not only their own tribes, but of all the other tribes and Indian organizations involved in the CGTO. Today, the DOE/NV explicitly recognizes the CGTO as the vehicle for consultation. Consultation presently occurs directly with the members of the CGTO with the approval of tribal leaders who are fully cognizant that duly appointed individuals represent their interests regarding cultural resources on the NTS.

The CGTO emerged from existing tribes and American Indian organizations who collectively conceived and created it. The CGTO is not, however, a homogeneous, harmonious collection of individuals who uniformly share the same conventional understandings. Members of the group have contending and sometimes conflicting interests regarding the cultural resources located on what can best be described as the intertribal lands that are now incorporated as the NTS. In mitigating the disposition of NTS cultural resources, however, Indian rather than tribal-specific concerns are represented by the CGTO. CGTO members have decided to take action in concert and speak with a common voice whenever such an action is appropriate; this seems the best way to influence DOE/NV policies.

Face-to-face meetings were an important component of the consultation strategy and were routinely scheduled throughout the duration of the NTS American Indian Religious Freedom Act compliance program. These meetings provided the context in which representatives of no less than 19 contending groups, including 16 Indian tribes, 3 Indian organizations, and the DOE/NV, each with its own agendas and interests, could negotiate and reach compromise solutions that were acceptable to all involved parties. Such intimate forms of consultation are likely to bring about the formation of new corporate groups that have the purpose of resolving issues and defending common interests in cultural preservation.

C.5.3 American Indian Monitors

As a result of CGTO recommendation, Indian monitors from each of the involved ethnic groups have participated in data recovery activities at archaeological sites that were slated for ground-disturbing activities. As part of the American Indian monitors program, Indian monitors received training in archaeological survey, collection, and analytical techniques. The most recent monitoring effort has resulted in the formal distribution by the DOE/NV of a monitors report of activities to each of the involved tribes and organizations.

C.5.4 The Native American Graves Protection and Repatriation Act Subgroup

That the CGTO will continue to function in the future is evidenced by the fact that the NTS American Indian Religious Freedom Act compliance program opened the door to other phases of consultation such as that concerning archaeological materials related to the Native American Graves Protection and Repatriation Act.

A Native American Graves Protection and Repatriation Act "subgroup" was appointed by the CGTO in March 1994. This was the first time that the CGTO had appointed a subgroup to conduct any significant business and, therefore, marked a point at which sufficient confidence was reached in both the DOE/NV and the CGTO itself. The six members of the Native American Graves Protection and Repatriation Act subgroup represent the Owens Valley Paiute, Western Shoshone, and Southern Paiute ethnic groups. The subgroup evaluated and selected potential Native American Graves Protection and Repatriation Act items from among the 450,000 items in the NTS collection for Native American Graves Protection and Repatriation Act consultation with representatives of the 16 involved tribes.

The new challenge of Native American Graves Protection and Repatriation Act was successfully met by the members of the subgroup in a series of three meetings. The subgroup selected about 200 items that are potentially (1) unassociated funerary objects or (2) sacred objects as these concepts are defined in the legislation. The subgroup also structured the Native American Graves Protection and Repatriation Act viewing procedures so that consultation occurred in a culturally appropriate manner.

The CGTO served in a review and advisory capacity to their respective tribes regarding Native American Graves Protection and Repatriation Act recommendations on the disposition of items from the NTS collection. In the future, the CGTO will be involved in studies of Traditional Cultural Properties, animals, petroglyphs, and other types of cultural resources on the NTS.

C.5.5 The American Indian Writers Subgroup

Stimulated by the success of the Native American Graves Protection and Repatriation Act subgroup, DOE/NV agreed to sponsor the formation of an AIWS which produced Appendix G as well as text for direct inclusion in Volume 1 of the NTS EIS. Public response to this unique DOE initiative has been highly positive and may open the door to future participation of Indian people in the production of EISs throughout the country. A detailed description of the formation and function of the AIWS is provided in Appendix G.

C.5.6 Future Subgroups

To continue with the American Indian Religious Freedom Act compliance program, the DOE/NV has funded a rock art study, which will begin in the summer of 1996. A rock art subgroup will be in charge of the site selection and research design for future site visits by American Indian elders.

C.6 Conducting Site Visits

"What is out there?" This is the fundamental question that must be addressed in any consultation. The answer will not come directly from tribal governments, but they will send cultural experts who can identify various cultural resources located on DOE lands. Native government leaders can appoint representatives to a consultation committee, and during the operation of that committee, a Native based inventory of cultural resources can be planned.

American Indian cultural resource studies should be conducted separately, whenever possible, because tribes and Native groups will send different types of cultural specialists depending on what is to be studied. The Native person who can speak at length about archaeological sites may know little about the traditional use of plants. A Native person who specializes in fishing ceremonies may have little knowledge of petroglyphs and curing ceremonies. Native cultures, like all cultures, are differentially held in the minds of specialists.

The term "study" is used to separate research that is needed to prepare a cultural resource inventory from what are sometimes described as American Indian "tours." Occasionally, federal agencies will simply bring American Indians to the lands under discussion and ask them individually or in a group what is out there. These tours are usually organized and conducted by agency personnel who are not professionally trained in scientific methods associated with cultural resource studies. The agency tour guides rarely have a hypothesis about what resources may be present and so, naively believe, that they can simply ask for information and the American Indian will completely share all pertinent information. American Indian tours were more common decades ago before there was an extensive body of research about how to conduct studies with American Indians and what to expect from such studies.

C.6.1 Forming a Study Design

Since American Indians have become aware of the quality of information that is needed to make convincing policy recommendations on federal lands, they are demanding to participate in the formulation of study designs that are culturally and scientifically valid. A recent analysis of American Indian research studies suggests that the design of the study can directly influence the findings and the recommendations (Stoffle and Evans, 1990). An analysis of 11 projects suggests that Indian people will have greater impacts on land use decisions if the study design permits them to identify and select for special protection those places, plants, and archaeology sites that have the highest cultural significance; this process has been called "cultural triage" (Stoffle and Evans, 1990). When it is difficult for Indian people to demonstrate how to move from cultural concerns to land management recommendations that protect the most cultural items, it becomes the responsibility of the scientist to help make this translation. For example, it is

possible to calculate the cultural significance of individual Indian plants so that specific places where the plants grow can be assigned value, and protection can be afforded to those places with the highest plant scores (Stoffle et al., 1990b).

C.6.2 Defining Basic Concepts

It is essential that all parties to a study agree on what is to be studied. It is common for Indian people, agency personnel, and study scientists to assign different meanings to the same term. One of the most commonly misunderstood terms is "sacred." This report devoted three earlier chapters towards explaining and illustrating the concept of sacred, especially regarding those places of great cultural significance such as the origin mountain of an Indian ethnic group. The concept of sacred is really a non-Indian concept that creates a division between the sacred and the profane. Most Indian people do not believe such a division exists. Indian cultures, and there are hundreds of variations, contain many ceremonies designed to assure proper behavior towards and communication with the natural environment, other humans, and the supernatural. These ceremonies literally translate everything touched by an Indian person into a sacred object. For example, a Shoshone Indian woman who makes willow baskets will keep the shavings that have been produced by smoothing the split willows. Eventually, she prays over these shavings and returns them to a natural area near her camp. The Shoshone woman considers these willow shavings as sacred. Indian people also have ceremonies associated with great life transitions—birth, first menses, death—that use and create sacred objects that are more generally recognized by others, such as Euroamericans. Finally, there are sacred objects that are specifically defined by U.S. federal laws such as Native American Graves Protection and Repatriation Act. So the concept "sacred" could refer in any given discussion to many categories of items, some defined by law, some defined and mutually recognized by Indian and non-Indian alike, and some exclusively perceived as sacred by Indian people.

Great care must be taken in the formulation of study concepts and when discussing the meaning of these concepts with Native government representatives. If someone asks a Native person to come to DOE lands and identify places and things that are sacred, this person is likely to respond that all is sacred. If on the other hand, the Indian person is asked to identify which objects in a museum collection are needed in a current religious ceremony as defined by Native American Graves Protection and Repatriation Act, the person will be able to make a discriminate decision. The answer is often framed by the question, but it can also be influenced by the amount of time the Native person has to share her/his cultural resource perspective and her/his confidence that deeper cultural resource insights will have more protective influence than simple "holistic conservation" statements.

C.6.3 Assuring Participation

The federal agency must approach the study of cultural resources with caution when seeking American Indian participation in land management decisions. This is because American Indians will weigh the potential benefits from increased protection against the potential that if cultural resources become known they will be threatened. A Kaibab Paiute elder, for example, indicated that he wanted to protect traditional trails, but that he would not reveal their location because once known they could be followed to previously undiscovered Indian camps. Native people often say that revealing Indian plant usages causes the plants to be taken by non-natives who profit from sale of the plants. The curing power associated with certain places can be reduced if the place and its function becomes known to other ethnic groups, including other Indian people. Agency personnel should be aware that Native experts who are sent to identify cultural resources are subject to ethical conflicts, emotional stress, and even fear of reprisal. Indian experts express concern about violating traditional norms against sharing knowledge with outsiders. Concern is also expressed over how other tribal members and even future generations of tribal members will evaluate the sharing of information. Basically, the question they ask is whether or not more good than harm will come from sharing cultural knowledge (Greaves, 1994).

When American Indian tribes and organizations send experts to represent cultural concerns, they

expect that the shared information will be used to set policies to better protect cultural resources. To accomplish this, the identifications of the experts must be systematically recorded so they can be written into a scientifically and ethnically acceptable report. In general, interviews should be conducted in private so that the Native person does not have to share the information with others. An interview form should be prepared in advance with the assistance of the consultation committee or informed Native people so that similar questions are asked of each expert and there is a place to record their answers. Tape recorders can be used as backup, but only used with the expert's permission. Experts' confidentiality should be assured, unless they wish to go on the record regarding some aspect of the study.

Group interviews can be conducted when individual interviews are either not desired or impossible to conduct. Group interviews tend to produce "consensus data" which means that members of the group discuss possible answers and provide one answer to the interviewer. The weakness of group interviews is that some people are not willing to express their opinions in the presence of others. The strength of group interviews is that people have the opportunity to talk over a response while in the field. Focus group interviews are a special type of group interview and they require special preparation and training for the focus group facilitator.

C.6.4 Presenting the Findings

The report presenting the findings of the consultation process being discussed should be more than a pure description of what was said by the Native experts. Some attempt should be made to translate the thoughts of Native experts into information that can be used by federal agency land managers. In general, Native concerns should be contextualized by providing findings from published historical and ethnographic literature that demonstrate how the expressed cultural concerns fit into the overall culture of the ethnic group. Translation into management information and contextualization will help achieve the goals of building American Indian concerns into land management policies.

The report should receive a technical review by the Native experts and members of the consultation committee before being sent for draft review by the federal agency. This will assure that the report does not contain information that should not be revealed, and that the information it does contain is accurate. When the technical review is complete the report should be given a draft review by the federal agency. Then the draft report should be sent to the American Indian group or tribal government for official review and approval. Final reports should be available to other federal agencies seeking to achieve similar goals and in need of case data for developing or refining their own consultation processes. The public has a right to know about significant land management decisions made by federal agencies, even if these are in consultation with American Indians and have some element of confidentiality that will continue to be respected. The final report and perhaps portions of the information (not the data) used to make the decision (Ruppert, 1994) should be available to the public.

C.7 Developing Native Mitigation Recommendations

Cultural resource technical reports should focus on the cultural resources under study and should not attempt to make government-level policy recommendations. Technical reports are the basis for proceeding with mitigation discussions and eventual recommendations from the American Indian governments to the DOE. Policy decisions occur after the Native recommendations are combined with what the land management agency can and will do to incorporate American Indian recommendations. It is important that this point in the decisionmaking process has been thoroughly considered by the agency before the consultation began (See Section C.1, Defining Consultation.)

Native policy recommendations should derive from three sources: (1) Native experts during the on-site interviews, (2) consultation committee, and (3) Native organizations and tribal governments. These three sources of recommendations represent a hierarchy of decisionmaking authority that is inversely related to the degree of information about the resource. Native experts are knowledgeable about the cultural resource and, because of their on-

site experiences, are aware of factors that could have either adverse or positive impacts on its protection. Native experts are charged by their tribes and organizations with identifying what is out there and making preliminary recommendations. The report should consolidate all Native expert recommendations by place and resource, and these should be presented to the consultation committee. Committee members have a long-term relationship with the project and are generally aware of what is possible in terms of resource management on the DOE facility. It is up to them to consider the recommendations of the Native expert; if possible, resolve conflicting recommendations and add recommendations. The final cultural resource decision recommendations in a government-to-government relationship belongs to the tribal council and advisory board of a Native organization. They tend to follow the advice of their appointed Native experts and consultation committee members; however, they can add or modify recommendations.

Recommendations that have passed with some consensus through this hierarchy of Native decisionmaking should be seriously considered by the DOE facility. The strength of the recommendations depends, in part, on whether or not they remain within federal laws that govern land management decisions by the DOE facility. In addition, the Native recommendations should be within the agreed upon limits of power sharing decided upon by the facility when the consultation process began. If the recommendations are within these limits, then credible cultural resource recommendations should be adopted by the DOE facility.

C.8 Maintaining Ongoing Interactions and Monitoring

"Partnership" is a term often used to described the desired outcomes of consultation relationships between American Indians and DOE facilities. Partnerships require shared power, mutual respect, and mechanisms for sustaining a long-term relationship. Partnerships can be established when the American Indian people and the DOE facility establish (1) mutual trust, (2) a common knowledge base, (3) a cultural resource management plan, and (4) a monitoring plan.

C.8.1 Mutual Trust

When people get to know each other through face-to-face interactions, they create a basis of understanding that can be used to establish what is called "trust." The term "trust" is not being used here to refer to the legal "trust relationship" that exists between the U.S. government and American Indian peoples. Instead, the term "trust" is used as it is more generally understood, as confidence in the honesty, integrity, reliability and justice of another person or organization.

People do meet, but the DOE and American Indian consultation occurs within the context of government-to-government relationships. One of the great dynamics of mutual trust is differences between the people and the agency relationships. First and foremost, Indian people must believe that their participation in consultation is more likely to protect cultural resources than would saying nothing at all. Decisionmaking should be shared (insofar as it is appropriate and possible), and the decisions must have some identifiable positive impacts (see C.8.4, Monitoring Plan below).

Trust derives from the history of relationships between the DOE facility and its personnel, and American Indians. This history may go back to a time when the Indian people were at odds with the federal government during the nuclear testing era. Trust also derives from more recent interactions about DOE facility policies like the transportation of low-level radioactive waste and the location of waste repositories. It is important to address these issues early in the consultation process. In fact, it is likely that Indian people will raise these issues as stipulations before they are willing to proceed with consultation. Concerns about past relationships are often raised in holistic conservation statements made by Native elders and leaders in early consultation meetings. Stipulations are not debatable by the DOE, which instead will have its own stipulations it may wish to express at this time. Trust cannot be negotiated. Trust can emerge from long-term interactions especially when consultation begins with clearly expressed stipulations. Trust must be earned and mutually shared.

Any consultation relationship will depend, in part, on the individuals involved. Friendly and professional relationships have the potential of overcoming any negative historic relationships between the American Indian people and the DOE. Unfortunately, personnel change in both Native organizations and DOE facilities. Mechanisms should be in place to assure that consultation partnerships can survive personnel change.

C.8.2 A Common Knowledge Base

A primary goal for every DOE and American Indian consultation is to create or contribute to a common knowledge base that is shared by both. Native groups send their most knowledgeable experts to the DOE facility to identify cultural resources. These thoughts should not be lost. Federal agencies cannot afford to forget what has been told to them by Native groups. Similarly, most DOE facilities have initial archaeology, botany, and animal studies that can be shared and used by Native groups. The challenge is to develop a single, shared pool of information that can be used by both the DOE and the Indian people to know what is out there and to understand what is happening to it.

Geographic information systems are being used by many federal agencies and Native groups to inventory and keep track of resources distributed across an extensive landscape. Geographic information systems are expensive and difficult to use, but innovative interactive multimedia data systems that can draw on some similar information systems components are being developed. An ideal data base could be used simultaneously by the Native people at their homes and the DOE facility. This is likely to require that a multimedia program be developed that can use and make easily accessible the products of the geographic information systems data analysis. The geographic information systems and multimedia system should be updated easily when new information comes from Native expert visits or science studies. It should contain photos, video, sound clips, maps, and text. Finally the geographic information systems and multimedia system should restrict access to certain portions of the database to reflect both the DOE and the Native concerns for selective distribution of data and information.

C.8.3 Cultural Resource Management Plan

Federal facilities produce overall land-use plans usually including specific plans for wildlife, plants, and cultural resources. An American Indian cultural resource management component could be developed in each of these plans. Possibly more difficult, but nonetheless important, would be to include American Indian cultural resource management comments in discussions of minerals and water.

The recommendations produced by the hierarchy of American Indian decisions (experts, consultation committee, tribal governments) should be organized to reflect how the information can be incorporated into facility management plans. Early coordination with the consultation committee should produce both information and recommendations that fit how the facility manages natural and cultural resources.

C.8.4 Monitoring Plan

There must be some way of knowing whether or not American Indian consultation has influenced the condition of cultural resources contained on the DOE facility. Because it is impossible to constantly monitor all cultural resources located on DOE lands, monitoring timeframes and monitoring locations must be chosen. Basically, the timeframe questions are: How fast are culturally significant changes occurring to any specific cultural resource? Does the quality, quantity, or distribution of medicine plants change seasonally, annually, or over a period of years? Damage due to erosion or vandalism to archaeology sites may be occurring sporadically; monitoring should occur at least once a year, and more sensitive sites monitored more often.

Monitoring locations should be decided in terms of how well they represent a certain cultural resource. Monitoring samples should be selected with full input from the Indian people. Monitoring techniques will vary, from ground level photography of petroglyph panels to remotely sensed data from satellites showing the distribution of plants. When ground disturbance is to occur, Native monitors may be hired to oversee activities. The results of all monitoring efforts should be provided to the members of the consultation committee and Native

sporadically; monitoring should occur at least once a year, and more sensitive sites monitored more often.

Monitoring locations should be decided in terms of how well they represent a certain cultural resource. Monitoring samples should be selected with full input from the Indian people. Monitoring techniques will vary, from ground level photography of petroglyph panels to remotely sensed data from satellites showing the distribution of plants. When ground disturbance is to occur, Native monitors may be hired to oversee activities. The results of all monitoring efforts should be provided to the members of the consultation committee and Native governments at regular intervals. Regular feedback on the condition of cultural resources is the only way to maintain an ongoing relationship with Indian people.

C.9 Closing a Consultation

Today, most U.S. land-managing agency initiatives to establish American Indian consultation relationships are intended to be ongoing because Native people's views will become part of the information base for making, monitoring, and adjusting on-going land management decisions. Still, some consultations are designed to end. These may be project-specific consultations designed to provide a narrow range of findings for the evaluations of a project or action proposal. Sometimes the DOE facility itself is closing. Whatever the reason for termination, how it occurs has implications for both the involved Indian people and the U.S. federal agency.

C.9.1 Making Analogs

Anyone who has made a presentation before a tribal council or Native governmental body has experienced some council or audience member standing up and talking at length about some other project that occurred many years in the past that did not end in a positive way. Most presenters want to say, "That is not what I am talking about, it occurred a long time ago and I (or my agency) was not involved." The point presented by the American Indian, however, is well taken; "We have seen your kind before and here is the summation of those experiences." In most cases, Native people lump most federal agencies together, so the mistakes of one agency are transferred to another.

"Project analogs" is the technical term used to discuss the process of evaluation of a current proposal in terms of past proposals. For example, during the social impact assessment of the Superconducting Super Collider for the state of Michigan it was discovered that local people responded to this new and quite unique proposal in terms of how the involved state and federal agencies had behaved with past projects (Stoffle et al., 1987). The proposed collider, a massive and generally positive project, was being evaluated in terms of how the Michigan Department of Natural Resources had conducted a public access for hunters program, how a state utility had handled a cross-county pipeline project, how a cement company had dealt with air pollution, and how state politicians had proposed a prison for the area. These small-scale and highly localized projects were not similar in any respect to the Super Collider proposal, but the local people drew upon them as historic analogs for deciding whether or not to trust the state of Michigan and private business, and support the Superconducting Super Collider proposal.

C.9.2 Maintaining Positive Relations

Relations between the DOE and American Indians began 50 years ago and is often recounted as a history of adversarial relationships. All lands currently held or affected by DOE facilities once belonged to an American Indian ethnic group. Nonetheless, many Indian people have been employed by DOE facilities and have begun to establish positive relationships with Native people focussed on cultural resources. It is important at this moment in the history of relations between American Indians and the DOE to create positive analogs. So each effort is important. No positive action of the DOE will go unrewarded, because American Indians respond well to being involved in decisions about their traditional resources. There are small and terminal consultations, but each has the potential of being a positive analog. The remaining chapters of this report bring together many of these successes.

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