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Socio-Cultural Controls for Long-Term Stewardship of U.S.
Department of Energy Legacy Waste Sites**

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TAKING CONTROL: OPPORTUNITIES FOR AND IMPEDIMENTS TO THE USE OF SOCIO-CULTURAL CONTROLS FOR LONG-TERM STEWARDSHIP OF U.S. DEPARTMENT OF ENERGY LEGACY WASTE SITES

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FINAL REPORT: SUMMARY OF ROUNDTABLE FINDINGS AND RECOMMENDATIONS

BACKGROUND

The notion of “long term stewardship” (LTS) was first coined in the mid 1990s when DOE acknowledged that it was unable to clean up sites to background levels and would leave contamination on site that could pose threats to public health and the environment. DOE initially defined LTS to “include all activities required to protect human health and the environment from hazards remaining at DOE sites after cleanup is complete.”

The underlying problem is that during World War II and the Cold War, the federal government developed and operated a vast network of industrial facilities for the research, production, and testing of nuclear weapons, as well as for other scientific and engineering research. These processes left a legacy of radioactive and chemical waste, environmental contamination, and hazardous facilities and materials at well over 100 sites in 30 states. Hundreds of thousands of acres of residually contaminated soils, contaminated groundwater, surface water and sediment contamination, and contaminated buildings are present at many sites across the country.

The problem the Nation now faces is that many, if not most, of the sites formerly used for nuclear weapons production will never be clean enough for unrestricted use. This will be true notwithstanding policies that favor permanent remedies or recommendations from stakeholder groups such as the Energy Communities Alliance recommendation that, “Wherever possible, DOE facilities should be cleaned up to a level that allows unrestricted use and avoids long-term stewardship liabilities for the federal government.” The fact is that ongoing stewardship of these sites for many generations will be necessary to protect the public from the continuing hazards, which these sites will pose.

BRINGING THE PAST & THE PRESENT INTO LONG-TERM STEWARDSHIP

In any discussion of cultural institutions as complements to the standard institutional controls proposed by government, responsibility for the waste legacy must necessarily be discussed. Discussions of responsibility for the waste legacy will be unavoidable and integral to the success of social and cultural approaches, whether tribal or other communities are involved. They will certainly preface all movements by tribes towards assuming any responsibility whatsoever for long-term stewardship activities. More broadly, it will be impossible to expect communities and peoples to consider the implications for their histories, future generations, cultural practice and beliefs without discussing responsibility for the problem at hand. For example, the application of tribal practice and philosophies to long-term stewardship efforts will begin with a reckoning that

will involve both cathartic acts and acts of differentiation. Tribes will want to spend some time lamenting, engaging in memory, and setting themselves apart from a history that many Indian people find objectionable and oppressive. Solely future and information oriented approaches to stewardship cannot deal with responsibility for the past; they obscure the contemporary politics of contamination and waste management. But, given the need for tribes and local communities to discuss memories and political understandings of past activities, meaningful involvement of those communities is impossible without bringing into stewardship the past and the responsibility that goes with that.

This approach constitutes a significant departure from our society's current approach to long-term stewardship, which is to mistakenly hold the federal government solely responsible for the task. The U.S. Department of Energy (DOE) is preoccupied with transferring information (as opposed to knowledge) to future generations (2). However, there is a key difference between "knowledge" and "information." Knowledge is grounded in experience—often shared experience—that must come from the past to the present. Information provided out of context and experience is not powerful and is easily forgotten. DOE's efforts, in particular, have largely failed to address the idea of historical responsibility and underplay contemporary conflicts over waste management. This approach undermines DOE's credibility today and most importantly, compromises the knowledge that should be passed to future generations. On the other hand, a social and cultural approach based in common cultural practice and the knowledge to be had will help refocus attention on past responsibilities and contemporary conflicts. It lends itself to innovative and effective stewardship actions that can be crafted at tribal and community levels and that can increase the effectiveness of our society's overall stewardship efforts.

LEGAL AND PHYSICAL CONTROLS

Current DOE plans for long term stewardship entail institutional controls that restrict access to sites through physical barriers or legal impediments. Institutional controls used at DOE sites generally fall into one of the following categories:

- Government ownership (e.g., Federal or State);
- Warning notices (e.g., no trespassing signs, notification signs for hazardous and sensitive areas);
- Entry restrictions and physical barriers (e.g., requirements for security badges, fencing, training for persons entering hazardous or sensitive areas);
- Resource-use management (e.g. land use and real property controls, excavation permits, ground water use restrictions, deed restrictions, and zoning controls);
- Site information systems (e.g., information tracking systems on the location and nature of waste sites or geographic based-information archives); and
- Methods to preserve data in order to inform current and future generations about site hazards and associated risks.

While these types of controls are necessary, the National Research Council predicts, and experience has shown, that over time, these institutional controls will eventually fail. Failure may be caused by failures in information management, stakeholder awareness (e.g., public

disclosure error, lack of involvement), zoning (zoning change, failure to enforce), ordinance (failure to enforce), deed restrictions, permits, other legal orders, contracts, or government ownership. All of these failure mechanisms have a monitoring aspect: that is, they must be monitored to ensure that the protection provided by these factors remains in place. For the latter, these may include site security (including signage, fencing, and access control), surface covers (includes improper design, construction, or maintenance), active process errors (includes improper design, construction, or maintenance), or subsurface barrier errors (includes improper design, construction, or maintenance). When these controls fail, the health and safety of nearby communities will be at risk.

To address federal and state regulator and stakeholder concerns regarding the limitations of institutional controls, DOE's Office of Environment, Safety and Health issued guidelines in 2003 to help DOE field staff "establish a consistent approach to the implementation, delegation, documentation, maintenance and reevaluation of institutional controls as an integral part of missions and operational activities." The policy guide calls for a "defense-in-depth" strategy, or a "layering" of institutional controls to ensure that if one control temporarily fails, another control will be in place to mitigate any harmful effects. DOE's specifies the following implementation goals:

- "the purpose for controls is identified clearly, need for the controls is well established and has been considered early in planning processes consistent with integrated safety management, and both purpose and need are documented and made available to the public as appropriate and allowed by law;
- mechanisms are in place to ensure controls are effective, implemented as planned, properly maintained, inventoried, periodically reevaluated, and modified as necessary to reflect changes in conditions, needs or technological advancements;
- where multiple institutional control needs or goals exist at the same site, the institutional controls address relevant requirements or goals in an integrated cost effective and protective manner;
- actions are taken to maintain long-term site stability, minimize reliance on institutional controls, and keep maintenance requirements for such controls as low as practicable; and decisions to terminate or reduce controls (e.g., because of mitigating actions, scientific advances, natural attenuation, or changes in policy or programmatic needs) are documented and publicly available, as appropriate."

APPROACH

The Institute brought together 25 indigenous and other storytellers, songwriters, poets, and dancers with historians and other representatives from a variety of tribal and disadvantaged communities in proximity to DOE legacy waste sites, along with policy makers from various public agencies with an interest in addressing environmental problems through the humanities. Roundtable participants were briefed on the types and hazards of persistent contamination from the DOE legacy sites, future hazards for human health and the environment, and the limitations of standard institutional controls. In facilitated discussions, roundtable participants set out the potential benefits of and strategies for encouraging creative/historical discourses that carry basic information about the histories of the sites, and risks of environmental contamination.

Roundtable participants discussed how historical, cultural, and spiritual attachments to place are reflected in stories, songs, poems, and histories and how such discourses might also transmit information about environmental contamination that is crucial for safeguarding future generations.

The roundtable discussions examined ways long term stewardship of DOE legacy waste sites can be enhanced through various methods of storytelling. It brought together artists and community representatives so artists can understand the broad universe of interests, including the spiritual, cultural and historical interests the people have in these landscapes. Conversely, it demonstrated to the community representatives that there are other means by which they can protect their long term interests. The roundtable discussions also sought to inform federal land managers about other mechanisms of long term stewardship beyond the conventional methods of institutional control.

INCORPORATING SOCIO-CULTURAL CONTROLS INTO LONG TERM STEWARDSHIP

Social controls are those social mechanisms that regulate individual and group behavior by means of sanctions and rewards. It may also designate the processes of informal social control such as custom and formal social control such as laws and regulations. Social control is present in all societies.

Formal social control is expressed through law as statutes, rules, and regulation. It is conducted by government and organizations using law enforcement mechanisms and other formal sanctions such as fines and imprisonment. Informal social control is exercised by a society without explicitly stating these rules and is expressed through custom, norms and mores, using informal sanctions such as criticism, disapproval, guilt and shaming. This implied social control usually has more control over individual minds because it becomes ingrained in their personality.

Traditional society uses mostly informal social control embedded in its customary culture relying on socialization of its members to establish social order and rely mainly on their moral infrastructure (families, schools, communities) and informal social controls to foster a core of substantive (as distinct from merely procedural) moral values. More rigidly-structured societies place increasing reliance on formal mechanisms and rely, to a considerable extent, on their means of coercion to enforce such values.

In democratic societies the goals and mechanisms of social control are determined through legislation by elected representatives and thus enjoy a measure of support from the population and voluntary compliance.

What is troubling about the current DOE approach to long term stewardship, is that although experience teaches us that institutional controls will, at some point, fail or be forgotten by a development-oriented city council, county commission, or school board, the recommendations from governmental stakeholders generally call for more but better of the same sort of failure-prone controls that are currently in place. It is DOE policy to use institutional controls as essential components of a defense-in-depth strategy that uses multiple, relatively independent layers of safety to protect human health and the environment (including natural and cultural resources).

Technical controls and physical barriers will very likely not endure or maintain their current integrity as long as wastes are hazardous. Documents outlining dangers and regulations governing human access and intrusion to sites may be destroyed, forgotten, or misinterpreted as generations pass. Even the governments that oversee and enforce them may fall well before the wastes are no longer a danger. It seems to us today that a deep geologic repository could never be forgotten. But, more central and visible cultural icons have been forgotten before—only to be rediscovered hundreds of years later. In this century humans have uncovered entire communities, temples, and other structures from ancient Rome, China, and Java. Such finds have been buried under less than 2,000 years of political and topographical change. Keep in mind that civilizations able to gather the capital to build grand physical structures would have been highly developed and would likely have the same confidence as our own in its longevity and ability to transfer historical knowledge to future generations. Consider our society's similarly advanced efforts to build deep geologic repositories. In addition, consider that our advanced scientific and engineering practices are also coupled with a reluctance to develop accompanying stories and historical accounts of activities and responsibility for contamination. Now, fast-forward a millennium or two: The stories have not been told about historically monumental activities such as nuclear research and development during the era that we call the Cold War. What if an archaeological find uncovered is not an innocuous religious structure or simple ruin of a home or building, but a site of long-buried spent nuclear fuel rods?

This project looked at the part community-based socio cultural controls could play in a defense-in-depth strategy. We thought it important for society at large, and especially for those communities that hosted these facilities, that efforts be undertaken to conceptualize and put into place, community-based socio-cultural controls that supplement those planned by the DOE. Such controls should be relatively inexpensive, take advantage of human resources that already exist within the community and remain embedded in community decision-making processes to assure their long-term viability. Community-based socio-cultural controls have been used successfully in combating desertification in Africa, forestry management in Indonesia, and wildlife management in Alaska.

For example, from an American Indian, non-Eurocentric perspective, songs can protect the land. From a Western scientific perspective "land protection" is based on quantifiable measurements such as number of species and size of critical habitat. But from a native perspective, restoring the spiritual relationship with a specific place is the first critical step in restoring the land itself. Song assists in connecting people to place, place to the ancestors, ancestors to the living ecosystem and to future generations. Songs (like those of the Chemehuevi Tribe) ensure that the spirits of the soils, plants, birds, and animals have been respected. In Australia stories and songs were believed to be important for the preservation and conservation of the land and all it contained. This involved singing Songlines that had been sung by the ancestors and the concept of taking care of the land and its resources. In indigenous communities, stories are told over and over again to pass along histories, morals, ethics, and cultural norms from one speaker to the next. Not only is the content of the stories important, the social experience of the storytelling itself is highly valued which insures the survival of both the stories and the storytelling.

Traditional Ecological Knowledge can also be integrated into a defense-in-depth approach to long-term-stewardship. Traditional Ecological Knowledge (or TEK) is a system of understanding one's environment. It is built over generations, as people depend on the land and sea for their food, materials, and culture. TEK is based on observations and experience, evaluated in light of what one has learned from one's elders, stories, and songs. Native peoples have relied on this detailed knowledge for their survival—they have literally staked their lives on its accuracy and repeatability. TEK is an important source of information and understanding for anyone who is interested in the natural world and the place of people in the environment. Recently, Western science has become more interested in TEK and realized that TEK may help to find useful solutions to current problems, sometimes in combination with “modern” scientific and technological knowledge. The potential to mobilize these traditions to create socio-cultural controls that can supplement the more conventional institutional controls proposed by DOE for long-term stewardship remains, thus far, an almost untapped area for research.

WORKING HYPOTHESIS

We started this project by hypothesizing that long-term stewardship is better accomplished when indigenous people and local communities take responsibility for some elements of stewardship. Artists, storytellers, singers, writers, carvers, basket weavers, potters, teachers, filmmakers, and dancers have a role to play in remembering, teaching, and warning.

ROUNDTABLE ISSUES, FINDINGS AND RECOMMENDATIONS

- **What are the information, knowledge, and wisdom that we want to pass down to future generations?**

Standing or connecting people and places. Much of the history of the Department of Energy Legacy Management Sites is documented in reports, books, scholarly papers and articles, and film. From the tribal and community perspective, what is generally not memorialized in these histories is their stories, their historical connection to those places and the significance of those places to their identity as a people or community. Several participants in the roundtable emphasized the point that before one can teach or warn about the future of a place, it is vitally important to establish and teach about our past connections to the place. In other words, native peoples need to establish their standing to speak on behalf of the land and its resources. For example, in the Maori context, *kaitiakitanga*, is the exercise of guardianship by the people of an area in accordance with Maori customs and traditions in relation to natural and physical resources, and includes the ethic of stewardship. The Yupik people have *watchers* who play a similar role. Hawaiians have *kahu* or *konohiki*. In all these examples, the responsibilities of stewardship or guardianship is limited to specific lands and based on custom and tradition. But the fact that people may have only recently relocated to a community does not necessarily preclude them from establishing their standing. What they have accomplished or sacrificed while on the land also is determinative.

The significance of place. Place names are written words. But, their greatest strength in carrying forth knowledge is that they are spoken daily in many contexts. Place names convey information that transcends the physical. If a place name is invested with the stories,

history, and/or experience of local people, it constitutes an oral control and a resilient cultural institution in which a community is strongly invested. The “Old Woman Mountains,” for example not only describe the vision of an old woman that is said to reside in those mountains, but the name also signifies a spiritual place with a long history for the Chemehuevi people of California. For this tribe, the Old Woman Mountains are revered for their spiritual and historical significance and the Tribe has a deep emotional investment there. Every time the name is spoken, there is ample opportunity for stories to be told that detail the Tribe’s history in association with the mountains. Indian people and others use place names to connote their understanding of their natural surroundings. Therefore, tribes and other communities have the right and responsibility to ensure that their understanding of a landscape and its history are reflected in the images associated with that landscape. If such control is not asserted, valuable knowledge that may warn future generations of historical activities and potential dangers may fade from the historical record. Tribes must be able to name the places that are contaminated and integrate stewardship measures into their stories about the landscape.

Relatedly, roundtable and workshop participants said it was necessary to demonstrate how the place figured in the day-to-day lives of the people. A Department of Energy Legacy Management Site may have religious significance. It may have been a source of traditional foods and medicines—prime habitat for deer or elk. Both Indians and Whites may have grazed their livestock on the grasslands or gathered firewood in the forests. It may have been a family member’s farm or orchard. Or it may have been the work site for Indian women who had never before worked for wages or dealt with non-Indians so extensively. Some of the roundtable and workshop participants spoke of the need to make these very personal kinds of connections as predicate to the development and implementation of community-based socio-cultural control. As Fernand Braudel said in 1980 in his *Histoire et sciences sociales: La longue durée*, “Do not think only of the short time span, do not believe only the actors which make the most noise are the most authentic—there are other, quieter ones too.” Appendix A sets out some questions that may be used for conducting interviews for some of those other, quieter ones.

Modes of cultural transmission. Roundtable participants repeatedly emphasized that the culture of indigenous peoples or, in fact, of a country, is not static or changeless. On the contrary, it is in a constant state of flux, influencing and being influenced by other cultures, either through voluntary exchange and extension or through conflict, force and hegemonic influences of modern cinema, music, literature, and technology. So while the culture of any particular Indian tribe or ethnic community reflects its history, mores, institutions and attitudes, it is dynamic and continually evolving. Modes of cultural transmission are similarly dynamic. For example the Coeur d’Alene Tribe has populated its geographic information system with video clips of respected elders telling stories and recounting historical events about specific sites. The Hawaiian Studies Department of the Brigham Young University-Hawaii has brought elders and young students together to produce illustrated books that recount stories and histories of specific areas in traditional Hawaiian land divisions called *moku*. The Confederated Tribes of the Umatilla Indian Reservation, Santa Clara Pueblo, Yakama Indian Nation, and Nez Perce Tribe, among others, have produced videos that tell the story of their connections with places such as Hanford and Los

Alamos. Native artists like Bunky EchoHawk, have used Hanford and other Department of Energy Sites as the backdrop to some of their creative works. Many Indians and other indigenous peoples are using film to tell their stories. Land and the relation of the people to it is central to many of these productions.

This is not to say that more traditional modes of cultural transmission are in disuse. Far from it. The last several years has seen an explosion of pow-wows and talking circles. Almost every university Native American Studies program now has a pow-wow, film festival, art show, or concert and often more than just one. The Hawaiian Civic Clubs on the U.S. mainland hold classes on language, culture, history, music, and crafts. There are many more *halau*, or hula schools on the U.S. mainland than in the Islands. These *halau* are some of the most effective means of transmitting Hawaiian culture.

Besides the family, the schools remain the primary means of transmitting culture. Indian tribes, Maori, and Hawaiians all have established language and cultural immersion schools in which classes are conducted in the native language and sometimes by elders, traditional healers, and the like. At the secondary and tertiary levels, the science curriculum seeks to integrate traditional ecological knowledge with Western science. The educators who participated in our roundtable and workshops pointed out that there are few opportunities for the sort of cultural immersion approaches in non-reservation school systems. However, in those areas, the Johnson O'Malley Program provides funds to supplement the regular school program in such areas. JOM programs are used for tutoring, academic support, cultural activities, summer education programs and after school activities. Schools are eligible to receive JOM funds for each student, ages 3 through grade 12, who is a member of, or at least one-fourth degree Indian blood from a descendent of a member of an Indian tribe. Museums also play a role in cultural transmission. Some tribal museums, for example, that of the Mashantucket Pequot Tribe, compares favorably with mainstream museums. Others are very modest affairs with small staff which serve mainly to display artifacts, art, and crafts. These could have exhibits or displays related to the historical connection of the tribe to current and past DOE facilities and activities.

- **What socio-cultural opportunities are there to pass along information, knowledge, and wisdom, either together or individually? And what are the impediments to doing this?**

The roundtable and workshop participants agreed that the institutions enumerated above are all potentially able to teach and warn native peoples and other community members about the history and hazards of Department of Energy legacy management sites. Roundtable participants made the following observations and recommendations for action to be taken by individuals, tribal and other organizations, and the Department of Energy:

- Learning about Department of Energy Legacy Management Sites is just not a priority for people, organizations, and institutions not intimately involved in long-term stewardship.
- Just learning about the sites and long-term stewardship requires an investment of staff time and financial resources that are already in short supply.

- Getting educators, comic book writers, filmmakers, songwriters, choreographers and the like to integrate socio-cultural controls in their lessons or productions will require champions—and well-heeled champions at that. Someone in the Department of Energy’s Office of Legacy Management has to be convinced that socio-cultural controls can play an important part in a defense-in-depth. Someone has to be communicating that sense of urgency to tribes, educators, and other stakeholders. And someone has to make the resources available to those organizations or institutions.
- However, that being said, the roundtable participants acknowledged that some low-cost or no-cost things could be done. For example, we could “embrace” these sites instead of willfully imposing a collective amnesia. Communities close to Legacy Management Sites that are or will be close to population centers could periodically host film festivals, concerts, pow-wows, or fairs to celebrate the history of the place and the people who worked there. Former workers could be invited to participate in the events.
- All Legacy Management Sites were at one time active sites. Site closure and Legacy Management has to be part of the communication and consultation between the Department of Energy and Indian tribes and other stakeholders.
- Socio-cultural controls at some Indian reservations are at the ragged edge with the influx of crystal meth and the criminality, violence, and destruction of the social fabric of the tribe that accompanies it. As one workshop participant stated, “If we can’t stop them from killing each other, how are we going to get them to think about pollution?”
- Some tribal elders are dying without passing on their knowledge. There may be a convergence of Department of Energy and tribal interests in conducting, filming, and archiving oral histories of those tribal members who were employed at the Department’s Legacy Management Sites.
- At the very least, the Department of Energy should hire a socio-cultural control champion who could work with organizations as diverse as the American Nuclear Society, National Indian Education Association, and Waste Management Symposia, Inc. to have them include programs on socio-cultural controls for long-term stewardship in their conferences and symposia.
- The International Institute for Indigenous Resource Management should continue its work with universities and law schools to recruit interns who can research and write on issues related to the application of socio-cultural controls for long-term stewardship of Department of Energy Legacy Management Sites.
- The National Tribal Environmental Council should take the lead in working with other environmental organizations to push the concept of socio-cultural controls for long-term stewardship of Department of Energy Legacy Management Sites
- The International Institute for Indigenous Resource Management should work with native filmmakers, students, schools, and tribal officials to conduct workshops and clinics to

teach native students filmmaking, writing, and oral history with Department of Energy Legacy Management Sites central to their efforts.

- With the institution of state-wide and national learning standards, schools and teachers have limited discretion to develop and implement new curriculum including long-term stewardship. The International Institute for Indigenous Resource Management should continue working with the Indian Education Department of the Denver Public Schools to examine ways curriculum on long-term stewardship can be integrated into current educational program priorities.
- Create a library of creative long-term stewardship activities. These could include song, posters, paintings, pots, videotaped dance, etc. Feature these as part of conversations and in literature when discussing long term stewardship strategies.
- The Department of Energy should periodically revisit the state of the science regarding clean-up remedies (technologies) and roles (for tribes, agencies, communities, families, individuals, and others)
- The Department of Energy historian should extend invitations to the Department of Education, National Education Association, Smithsonian Institute, the Library of Congress, the International Council on Monuments and Sites, IUCN (the World Conservation Union), and other types of education, art, science, and historical institutions to examine different approaches to preserving memories and histories for generations to come.
- The International Institute for Indigenous Resource Management, National Tribal Environmental Council, and National Indian Education Association should provide a forum for Indian tribes now engaged with the Department of Energy on active sites to share their experiences.
- Tribal colleges and universities should be developing courses that integrate traditional ecological knowledge with Western science for long-term stewardship.
- The Department of Energy should consult with Indian tribes and other stakeholders to develop the metrics or evaluative criteria needed to accurately assess the efficacy of socio-cultural controls on legacy management.

CONCLUSION AND SUMMARY OF RECOMMENDATIONS TO THE DEPARTMENT OF ENERGY

For socio-cultural controls for long-term stewardship to work the Department of Energy must acknowledge its legitimacy as part of a defense-in-depth approach to legacy management. Similarly, the Department must acknowledge that long-term stewardship requires a commitment to a long-term conversation with a wide range of stakeholders. In short, the Department of Energy must be a champion of socio-cultural controls and support the efforts of tribal and other organizations to identify, develop, and integrate socio-cultural controls for long-term stewardship.

APPENDICES:

- APPENDIX A: ORAL HISTORIES FOR SOCIO-CULTURAL CONTROLS FOR LONG-TERM STEWARDSHIP OF U.S. DEPARTMENT OF ENERGY LEGACY MANAGEMENT SITES – SAMPLE QUESTIONS FOR CONDUCTING INTERVIEWS

- APPENDIX B: PARTICIPANT LIST FROM ROUNDTABLE ON TAKING CONTROL: OPPORTUNITIES FOR AND IMPEDIMENTS TO THE USE OF SOCIO-CULTURAL CONTROLS FOR LONG-TERM STEWARDSHIP OF U.S. DEPARTMENT OF ENERGY LEGACY WASTE SITES

- APPENDIX C: “YUCCA MOUNTAIN” A DEMONSTRATION COMIC BOOK

- APPENDIX D: ROUNDTABLE TRANSCRIPT

- APPENDIX E: ROUNDTABLE BRIEFING BOOK

- APPENDIX F: TECHNICAL REPORT - A REVIEW AND ASSESSMENT OF DOE PHYSICAL AND INSTITUTIONAL CONTROLS USED AT MAJOR WEAPONS SITES AND THE POSSIBLE ROLE OF COMMUNITY-BASED SOCIO-CULTURAL CONTROLS FOR LONG-TERM STEWARDSHIP

**APPENDIX A: ORAL HISTORIES FOR SOCIO-CULTURAL CONTROLS FOR LONG-TERM
STEWARDSHIP OF U.S. DEPARTMENT OF ENERGY LEGACY MANAGEMENT SITES
SAMPLE QUESTIONS FOR CONDUCTING INTERVIEWS**

1. QUESTIONS ABOUT LIFE BEFORE THE MANHATTAN PROJECT FOR ORAL HISTORIES

Where were you living when the Japanese bombed Pearl Harbor?

With whom were you living? Parents? Brothers and sisters? How many? Names? Ages? Where are they living now? Spouse? Children? How many? Names? Ages? Where are they living now? Do you have photographs of your brothers and sisters when they were young?

Did your parents work? What kind of work did they do? Where did they work? How did they commute to work? Where did they buy the gasoline, tires and oil for the car? Did your parents tell you about rationing? What did they say about rationing? What did your parents tell you about the work they did? Do you have any photographs of your family at work?

Can you tell me a little bit about the house you lived in? How did your family cook their meals? How did your family bake? How was it constructed? Wood? Adobe? Did it have electricity? Running water? How did you get water? What were your responsibilities for cooking? Gardening?

Did your family have a garden? How big was it? What did your family grow in the garden? Who worked the garden? How did your family work the garden? How was it irrigated? What was done with the garden produce? Eat? Trade or barter? Sell?

What was your favorite food? What did you eat at breakfast? Lunch? Dinner? How did you store food? Where did your family do its grocery shopping? Do you remember what kind of groceries your parents bought? What did your parents tell you about rationing?

What kind of clothes did your family wear? For school? For work? At home? For Feast Days and other special days? Did people sew their own clothes then? What do you remember about people sewing their own clothes? Where did your family buy the clothes they didn't make? What kind of clothes did your parents buy? For themselves? For the children?

Did people in your family hunt/fish? What did they hunt/fish? How did they prepare themselves to hunt/fish? Who did the hunting/fishing? How did they hunt/fish? Where did they hunt/fish? Did they tell stories about the hunting/fishing? About the animals they hunted/fished? What do you remember about those stories? Besides as food, how were the animals used? Hides? Hair? Antlers? Bones? In crafts? As decoration? For ceremony? Do you still have some of the items that were made with these animal parts?

Were there plants your family used as food or medicine? Did you learn about those foods and medicines? Who taught you? What did he/she tell you about the plants? Did people tell stories about the foods and medicines? What do you remember about those stories? Where did you gather those foods and medicines? Did someone write the stories down? If so, do you know where the written stories are?

Did you or your family members visit doctors when you were young? What do you remember about these visits? For what reason did you visit the doctor? Where was the doctor's office located? How did you travel to the doctor's office? Did doctors or nurses visit your home? What do you remember about these visits?

Where did you go to school? How did you travel to school? Who were your favorite friends in school? Do you know where they are now? Were there non-Indian students at your school? Did you have non-Indian friends? Who were they? What can you tell me about them? Do you know where they are now? What kind of recreational activities or hobbies did you engage in? Sports? Art? With whom did you do these activities? Who were your favorite teachers? Why? Were they Indian? What were your favorite classes? Why were these your favorite classes? Did you have homework? Where did you do your homework? When? Did anyone help you with your homework? Who? Do you have any photographs of you or your school friends and teachers? Do you have any of your report cards, diplomas or other school records?

What do you remember about the Feast Days before Los Alamos? What did you do to prepare for them? Did non-Indians attend?

Was anyone in your family a potter or weaver? What do you remember about their work? Where did they get the clay/wool? What do you remember about how they prepared the clay/wool? What did they tell you about the designs they used? Did they tell you stories about making pots or weaving? What do you remember about those stories?

Did any of your family members join the military? Did your family do anything special when someone in the family joined the military? What did they do? Did the servicemen or servicewomen write to you? Do you still have the letters? Did they send you any photographs? Do you still have those photographs? What can you tell me about your family members who joined the military? What did he/she do after the war? Where is he or she now?

2. QUESTIONS ABOUT APPLYING FOR THE JOB

How did you first hear about employment opportunities at Los Alamos?

How old were you when you first heard about employment opportunities at Los Alamos?

What were you doing before you worked at Los Alamos?

What were the reasons you applied for work at Los Alamos?

What did your parents think about you working there?

What did your husband/wife think about you working there?

What did your children think about you working at Los Alamos?

What did your friends think about you working there?

Where did you apply for work at Los Alamos?

How did you get there?

With whom did you travel to apply for work?

How did you hear that you could work at Los Alamos?

What did you do when you heard that you could work at Los Alamos?

What do you remember about applying for work at Los Alamos?

Did you have to take a physical examination to work at Los Alamos? Where did you take the physical examination?

3. QUESTIONS ABOUT THE JOB

How did you travel to Los Alamos? Did any of your friends travel with you? Who were they? Do you know where they are now? At what time did you have to get up in the morning to get to work? Did you know everyone on the bus? Did you make friends with other people on the bus? Where were they from? Did you keep in touch with them after you stopped working at Los Alamos? Where are they now? What do you remember about the ride? How long was the ride? How many stops did the bus make? Where did the bus stop? How many people were on the bus?

What happened when the bus got to Los Alamos? Did you have to get a pass to get into Los Alamos? What do you remember about applying for the pass? What do you remember about the guards checking your pass? What happened if you forgot your pass?

What did you do at Los Alamos? For what families did you work? Can you describe your workday? What did you bring for your lunch? Who made your lunch? Where did you eat your lunch? With whom did you eat your lunch? What kind of food did the Los Alamos families eat for lunch? Were there children in the families? What do you remember about the children? What did the women do during the time you were working at their homes? Did they speak to you? What did they talk with you about? Did they ever visit you at the Pueblo? How often did they visit you? What do you remember of their visits? Do you have any photos that were taken during the time you were working at Los Alamos? Did you write to the families you worked for after you stopped working at Los Alamos? Did they write to you? Do you still have those letters?

How often did you get paid? How did you get paid? Did you have to sign for your paycheck? Were there shops or stores on the base where you could purchase food or clothing? Did you shop at those places? What kind of merchandise did they sell? What did you usually buy at those shops? Do you remember how much you were paid?

Did you get hurt or sick while you were working at Los Alamos? Did you know anyone who got hurt or sick while they were working at Los Alamos? What happened when people got hurt or sick at Los Alamos? Did you go to a clinic or see a doctor on the base? Did you fill out any forms at the clinic or the doctor's office?