

July 1997

RADIOACTIVE WASTE

Interior's Continuing Review of the Proposed Transfer of the Ward Valley Waste Site



**Resources, Community, and
Economic Development Division**

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Congressional Requesters

Seventeen years ago, the Congress directed states to take responsibility for disposing of commercially generated low-level radioactive waste. Since that time, however, only one state—California—has authorized the construction and operation of a disposal facility. The facility would be located in Ward Valley, California, on federally owned land in the Mojave Desert; however, construction depends on the Department of the Interior's sale of the land to the state. Interior announced in February 1996 that before it would make a land-transfer decision, it would conduct additional tests at the site and prepare a second supplement to an environmental impact statement. A supplement to an environmental impact statement is required when significant new environmental information becomes available and may be prepared at an agency's discretion to further the purposes of the National Environmental Policy Act of 1969 (NEPA). Interior's measures are primarily intended to address public concerns about radioactive contamination of the Colorado River, which is about 20 miles east of the site at its closest point.

Concerned that further delay might inhibit progress on similar disposal facilities in other states and threatens the continuing viability of the federal government's policy on the disposal of low-level radioactive wastes, you asked us to determine (1) what sources of information Interior relied on in deciding to prepare a second supplemental environmental impact statement and in selecting issues to address in the supplement and (2) whether the selected issues had been considered in earlier state or federal proceedings and, if so, whether they are being reconsidered on the basis of significant new information. This report also discusses Interior's reasons for preparing the supplement.

Results in Brief

In deciding to prepare a second supplement and the issues it should address, Interior relied primarily on (1) a report by the National Academy of Sciences on the proposed disposal facility at Ward Valley and (2) new information and analysis from the U.S. Geological Survey (an agency within Interior) on the migration of radioactive materials in the soil from a now-retired disposal facility at Beatty, Nevada. In selecting other issues to address in the supplement, Interior relied on the comments of environmental groups, Native American tribes, and others.

Eleven of the 13 issues that Interior is addressing in the new supplement, such as the effects of a disposal facility at Ward Valley on Native Americans, had been considered in California's licensing process and in previous environmental statements prepared by the state and Interior's Bureau of Land Management. The other two issues—the findings and recommendations of the Academy and the information on the Beatty facility—are new.

In announcing that it would prepare the new supplement, Interior gave as its reasons an impasse with California over land-transfer conditions and the age of the original environmental impact statement. Interior did not state that its decision to prepare the supplement was based on significant new information that would require it to prepare a supplement to the original environmental impact statement. In fact, much of the new information that has become available is favorable to the proposed disposal facility. Interior's underlying reasons for preparing a second supplement were that it should provide a forum for the resolution of the public's concerns about the facility and independently determine if the site is suitable for containing radioactive wastes. Interior, however, has neither criteria nor technical expertise in radiological safety matters to independently determine if the site is suitable for a disposal facility, nor has it sought technical assistance from the Nuclear Regulatory Commission (NRC) or—with one exception—the Department of Energy. California, however, has met all of the state's procedural and substantive requirements for licensing the proposed facility. Consequently, the state and its licensee have sued Interior to determine, among other things, if Interior has exceeded its authority with respect to radiological safety matters, such as determining the site's suitability.

Background

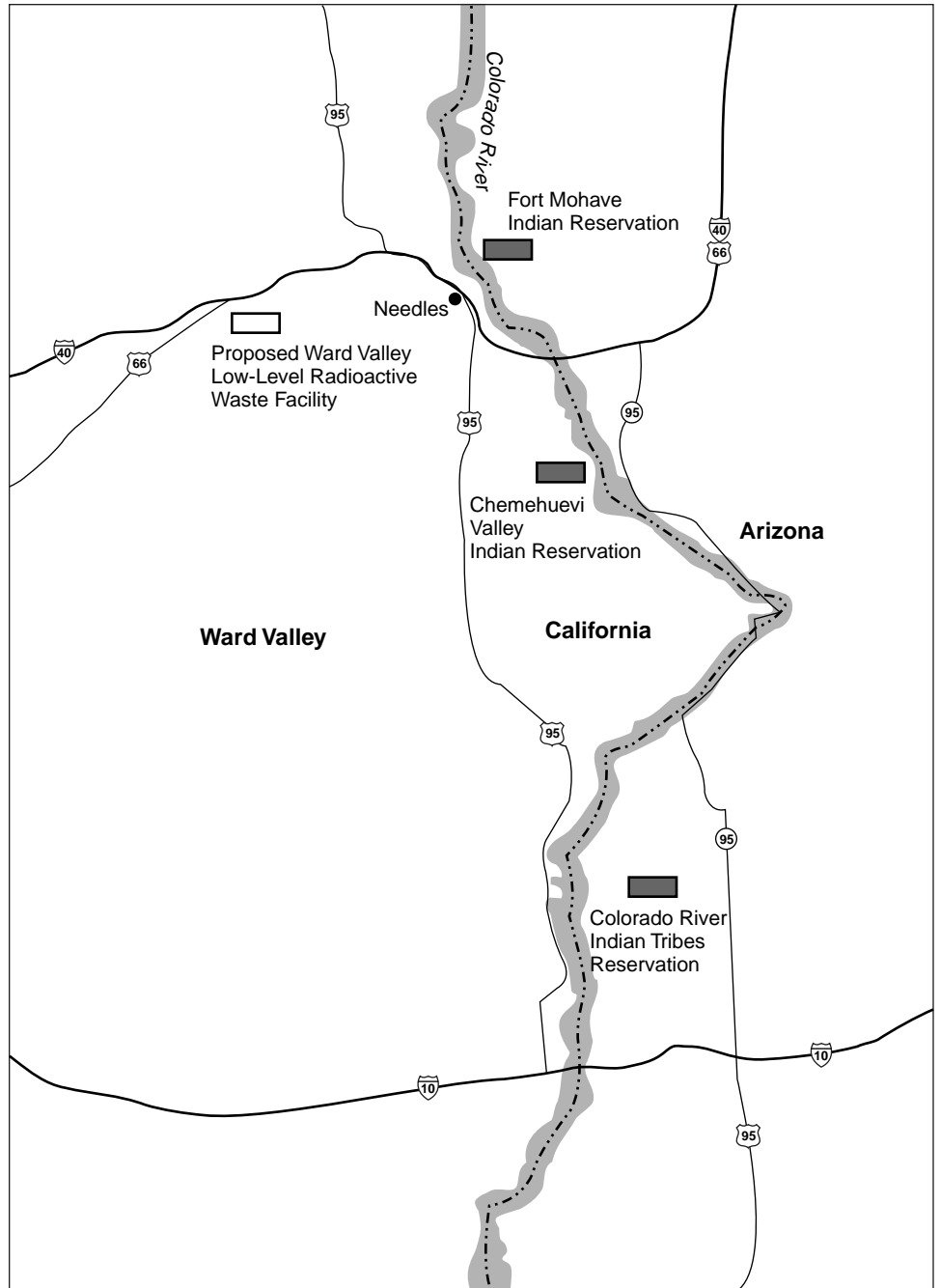
The Low-Level Radioactive Waste Policy Act of 1980, as amended in 1985, made states, acting individually or collectively, responsible for disposing of the low-level radioactive wastes that are the by-products of nuclear power, radioactive medicine, research, and other commercial activities. Consequently, in 1987 Arizona, California, North Dakota, and South Dakota entered into a compact in which California agreed to develop and operate a disposal facility that would serve the needs of waste generators in the four states. The Congress ratified the compact in 1988.

In addition to having the responsibility for developing a disposal facility, California is also responsible for licensing and regulating the facility. The state's authority stems from a 1962 agreement with the Atomic Energy

Commission (a predecessor to NRC), as authorized by the Atomic Energy Act of 1954, as amended. In accordance with this agreement, the Commission relinquished to the state a significant portion of the Commission's authority to regulate radioactive materials within the state, including the disposal of low-level radioactive wastes. Licensing criteria established by the state incorporated into the state's regulations NRC's regulations for siting and regulating low-level waste disposal facilities.

In 1985, California selected US Ecology—a company that has operated other disposal facilities for low-level radioactive wastes—as its “license designee” and authorized the company to conduct a site screening and selection process, investigate the suitability of the selected site, and construct and operate a disposal facility that meets the requirements of a license to be issued by the state. After screening and evaluating potential locations for a disposal facility, US Ecology and California selected a 1,000-acre site in Ward Valley. (See fig. 1.)

Figure 1: Map of Ward Valley Area



About 70 acres would be used for the trenches containing the disposed wastes, a smaller area would be used for administrative purposes, and the remaining area would be a buffer zone.

The site is on federal land managed by the Bureau. The transfer of the land to the state for use as a disposal facility is considered a “major federal action” that may have a significant effect on the quality of the human environment under NEPA. Therefore, an environmental impact statement is required to accompany the record for the land-transfer decision. Because the state requires a similar environmental statement, the Bureau and the state jointly prepared and, in April 1991, issued an environmental statement concluding that the proposed facility would not cause significant adverse environmental effects.

In July 1992, California asked Interior to sell the Ward Valley site to the state under authority granted to the Secretary by the Federal Land Policy and Management Act of 1976 (FLPMA). Among other things, this act authorizes the Secretary of the Interior to transfer public land by direct sale upon finding that the transfer would serve important public objectives that cannot be achieved elsewhere and that outweigh other public objectives and values served by retaining federal ownership of the land. After such a finding, the transfer must be made on terms that the Secretary deems are necessary to ensure proper land use and the protection of the public interest. In January 1993, the outgoing Secretary decided, after considering the environmental impacts of a licensed disposal facility at the site, to sell the land as requested. Acting for the state, US Ecology then paid Interior \$500,000 for the land.

The Secretary’s decision was immediately challenged in federal court on the basis of Interior’s alleged noncompliance with FLPMA and NEPA and failure to protect native desert tortoises under the Endangered Species Act. To settle the lawsuits and to assure himself that the proposed land transfer would comply with applicable federal laws, the incoming Secretary rescinded the earlier land-transfer decision and returned the money that US Ecology had paid for the land. Meanwhile, in September 1993, California issued a license to US Ecology, subject to the transfer of the land to the state, to construct and operate the disposal facility. Legal challenges to the state’s licensing action were denied by the state’s courts.

From 1993 until 1996 the Secretary deferred the land-transfer decision while (1) the Bureau completed, in September 1993, a supplemental

environmental statement, (2) the Academy reviewed seven technical issues related to the Ward Valley site, and (3) Interior negotiated with the state the terms of a public hearing on the proposed facility and a land-transfer agreement.

In May 1995, the Academy recommended that additional tests be performed at the Ward Valley site to improve the program for monitoring the disposal facility's performance during and after the 30 years that the facility was expected to operate. The Governor of California publicly committed the state to implementing the substance of the Academy's recommendations. Interior notified the state that it would transfer the land if the state would accept, as a condition of the transfer, Interior's authority to enforce in the courts the state's compliance with the Academy's recommendations. California refused Interior's offer on the grounds that the implementation of the Academy's recommendations falls into the area of radiological safety, which is the state's responsibility and is outside of Interior's authority and expertise.

With the transfer negotiations at an impasse, in February 1996 Interior announced that it would prepare a second supplemental environmental impact statement and conduct the recommended tests. Interior expected these activities to take about a year to complete; however, as of June 1997, Interior had not yet begun preparing the supplement or conducting the tests.

Interior Primarily Relied on Scientific Reports and Public Concerns

The primary sources that Interior relied on in deciding that it would prepare the second supplement and in selecting the issues that it would address in the statement were (1) scientific reports addressing concerns about the suitability of desert sites for disposal facilities and (2) information obtained from the public, including environmental groups, Native Americans, and others.

Interior Cited the Academy's Recommendations and New Information on a Disposal Facility in Nevada

In March 1994, the Secretary asked the Academy to study seven radiological safety and environmental concerns about the disposal facility that were initially raised by three scientists in the Geological Survey's Menlo Park, California, office. The scientists—acting on their own rather than in their official capacity—had presented their concerns to the Secretary of the Interior in June 1993 in a brief report and then prepared a more comprehensive report on these issues in December 1993. In particular, the scientists were concerned about the potential for (1) water

to flow into the facility's waste-emplacement trenches; (2) radioactive materials to move through the unsaturated ground beneath the disposal facility to the water table, which is at least 650 feet beneath the surface; and (3) a connection between the local groundwater and the Colorado River.

In a May 1995 report, a 17-member committee of the Academy concluded that (1) the lateral flow of water at shallow depths beneath the desert surface is not a significant issue at the site, (2) the transfer of contaminants down through the unsaturated zone to the water table is "highly unlikely,"¹ and (3) although most of the groundwater flow beneath Ward Valley discharges into a dry lake about 30 miles from the Colorado River, there are conceivable, but unlikely, flow paths for some groundwater to reach the river. The Academy added that the potential effect on water quality of any contaminants that might reach the river would be insignificant.

The Academy recommended, however, that additional tests be done at the site. In particular, the Academy recommended that additional measurements at the site be made to satisfactorily explain why US Ecology detected tritium—a radioactive form of hydrogen that is produced by atmospheric nuclear weapons tests and carried to the ground by rain—about 100 feet beneath the surface of Ward Valley during its investigation of the site. The unexpected presence of tritium so far beneath the surface raised questions about how quickly radionuclides (radioactive elements) from waste materials might migrate from the disposal facility to the groundwater. The Academy concluded that inappropriate sampling procedures probably introduced atmospheric tritium into the samples extracted by US Ecology.

Fifteen committee members concluded that because US Ecology planned to monitor the site for tritium during disposal operations, the issue of the reported tritium needs to be resolved only before monitoring of the site begins. For these members, the recommended tests were not intended to resolve questions about the site's suitability. In the opinion of the other two members, the tests should be completed in time to use the results in a final decision on the suitability of the site for a disposal facility.

Interior also based its decision to prepare a second supplement on the Geological Survey's detection of tritium and another radioactive element in the soil adjacent to a disposal facility for low-level radioactive wastes

¹Two committee members dissented from this conclusion.

located at Beatty, Nevada. This facility had operated from 1962 until Nevada decided to permanently close it at the end of 1992. US Ecology began operating the facility in 1981. Since 1976, the Geological Survey has operated a facility, located on federal land next to the Beatty facility, for research on the disposal of low-level radioactive wastes in desert climates. While conducting this research in 1994, the Geological Survey detected the radioactive contamination from the Beatty facility in concentrations well above natural background levels and confirmed this finding with additional measurements in 1995.

The Geological Survey concluded that the detected contamination was probably due to past disposal practices at the Beatty facility that are now prohibited, such as disposing of liquid radioactive wastes. The Geological Survey added that it is doubtful that the distribution of the contaminants leaking from the site and their movement through the ground over time will ever be understood because of incomplete records of the disposal of liquid radioactive wastes. Therefore, the Geological Survey concluded that extrapolation of the information from Beatty to the proposed disposal facility at Ward Valley is too tenuous to have much scientific value.

In addition to the issues of the Academy's report and the new information on the Beatty facility, Interior said it would address a third issue—the effects of the disposal facility on “nearby Indian sacred sites.” Interior did not, however, identify any such sites or sources of information that led it to select this issue. Later, Interior expanded the scope of this issue to include a variety of issues pertaining to Native Americans.

Appendix I provides additional details on the three issues of the Academy's report, the Beatty facility, and the potential effects of the Ward Valley facility on Native Americans.

Interior Also Relied on Public Comments to Select Issues

Interior relied on the views of the public expressed, both before and after its February 1996 announcement, to select 10 more issues to address in the second supplement. For example, before Interior announced that it would prepare a second supplement, an environmental group—the Committee to Bridge the Gap—had been requesting that Interior prepare a supplement. In August 1995, the Committee made this request because, it asserted, Interior had broken its repeated commitment to hold a public hearing on the Ward Valley facility and prepare a supplemental statement on any new information raised in the hearing. The Committee was referring to the Secretary's decision, after the Academy issued its report, to discontinue

negotiations with the state over the scope of and procedures for a hearing in favor of transferring the site to the state under mutually acceptable conditions.

Subsequently, in a February 8, 1996, letter, the Committee reiterated to Interior's Deputy Secretary its "numerous previous requests" for a second supplement. The Committee said the supplement should address the new information on the Beatty facility and the other significant developments that occurred after the original environmental impact statement was prepared. In addition to the Academy's report, the Committee urged Interior to address four other issues that Interior eventually selected: (1) the potential pathways to the groundwater and then to the Colorado River; (2) the types, quantities, and sources of wastes to be disposed of; (3) the recent financial troubles of US Ecology; and (4) the protection of the desert tortoise.

When Interior announced that it would prepare a second supplement, it said the supplement would address the Academy's report, the Beatty facility, and "nearby Indian sacred sites." Interior also said the public could participate in identifying issues that should be addressed in the supplement. Thereafter, the Bureau held public meetings and received written comments on the scope of the new supplement. After summarizing the public comments, the Bureau sent a list of 10 recommended issues to Interior's Deputy Secretary. Four of the 10 issues were similar to those that the Committee to Bridge the Gap had already raised. Subsequently, the Deputy Secretary approved of 13 issues to be addressed in the supplement. In addition to the three issues that Interior cited in its announcement and the four other issues that the Committee to Bridge the Gap had recommended, the list of issues included: (1) the movement of radioactive contaminants in the soil, (2) alternative methods of disposal, (3) the potential introduction of nonnative plants, (4) waste transportation, (5) the state's long-term obligations, and (6) public health impacts of operating the disposal facility. (See app. I for a discussion of each of the 13 issues.)

Current Issues Being Considered

Except for the Academy's report and the new information about the Beatty facility, all of the issues that Interior will address in the second supplement had been considered earlier by US Ecology and California, in the state's licensing proceeding; by the state and the Bureau in their joint environmental statement of April 1991; and by the Bureau in its first supplement of September 1993. In announcing the new supplement,

Interior said that the impasse with California over the land-transfer conditions and the age of the original environmental impact statement prompted its decision to prepare the supplement. Interior did not state that the Academy's report and the new information on the Beatty facility were significant enough that it had to prepare a supplement. The evidence suggests that Interior based its decision on environmental regulations that give federal agencies discretion to prepare supplements to further the purposes of NEPA.

Most Current Issues Were Addressed Earlier

Appendix I discusses what each of the 13 issues that Interior intends to address in the second supplement is and how they were addressed earlier, as appropriate. One example of an issue that had been addressed in the 1991 environmental impact statement is the potential for rainfall to carry radioactive contaminants through the unsaturated zone to the groundwater. In the 1991 statement, the state and the Bureau noted that extensive studies by US Ecology to evaluate this issue indicated that no effects on groundwater would be expected. The statement also concluded that there is no route for contamination of the Colorado River or to any other surface water resources. The Bureau reiterated these conclusions in its first supplement to the 1991 environmental impact statement.

To a significant degree, the state and the Bureau had also addressed Native American issues in the site selection process, the state's licensing proceeding, and the 1991 environmental impact statement. The Director of the Bureau's Sacramento office reiterated this view in a February 1997 letter to the Environmental Protection Administration. The Director stated that Colorado River Native American tribes were fully represented and consulted in the scoping and descriptive phases of the 1991 statement. The specific consultation steps, according to the 1991 statement, included an archaeological survey of the site with Native Americans' participation. This survey found that no significant cultural resources were present at the site. In addition, US Ecology contacted the Fort Mojave, Chemehuevi, and Colorado River Indian Tribes to evaluate potential cultural impacts of a regional nature. A site-specific walkabout by tribal representatives did not identify any unique cultural resources.

Interior Did Not State That New Information Was Significant Enough to Require a Supplement

According to the regulations of the Council on Environmental Quality on preparing supplements to environmental impact statements, a federal agency must prepare a supplement when either substantial change in a proposed action or significant new circumstances or information becomes

available that is relevant to environmental concerns. An agency may also prepare a supplemental statement when it determines that doing so will further the purposes of NEPA. Among other things, these purposes include promoting efforts to prevent or eliminate damage to the environment.

Although Interior's announcement that it would prepare the second supplement focused on the Academy's recommendations and the new information on the Beatty facility, Interior did not state that this new information constituted significant new circumstances or information that would require it to prepare a supplement to comply with the Council's guidelines. According to Interior, its decision to prepare the statement was prompted by (1) the state's rejection of its proposed land-transfer conditions and (2) the passage of 5 years since the initial environmental impact statement had been prepared.

Other evidence also indicates that Interior did not consider the Academy's recommendations and the new information on Beatty significant enough to require a supplement. After the Academy issued its report, for example, the Secretary of the Interior stated that the report "provides a qualified clean bill of health in relation to concerns about the site." According to the Secretary, the Academy's report provided a "needed careful investigation, assessment, and consideration" of the issues that the three Geological Survey scientists had raised and, with appropriate land-transfer conditions based on the recommendations of that report, the Secretary was "now confident that the transfer . . . [was] in the public interest." Also, when Interior announced that it would prepare the second supplement, it stated that the Geological Survey's new information on the Beatty site indicated "little similarity with Ward Valley" but underscored the need for continued scientific monitoring at both locations.

Interior also did not compare the public comments it received with the state's licensing record or the previous environmental statements to provide a basis for identifying "significant" new circumstances or information. According to the Bureau's Sacramento officials who are preparing the second supplement, whether or not there was any "new" information was not important to the Bureau's deliberations about what issues should or should not be addressed in the supplement. For many of the issues, they said, what was "new" was the public's concerns about the issues.

For example, new information about the desert tortoise became available after the Bureau prepared its 1993 supplemental statement. The most

significant new information is that Interior's Fish and Wildlife Service concluded in 1995 that the facility will not likely jeopardize the continued existence of the desert tortoise or result in the destruction or adverse modification of critical habitat. Like the Academy's report, the Service's conclusion is generally favorable to the proposed Ward Valley facility.

The new information related to Native American issues is the issuance of two Executive orders since the Bureau issued the first supplement. One order, issued 3 months after Interior decided to prepare the second supplement, requires federal agencies to accommodate access to and ceremonial use of Indian sacred sites and avoid adversely affecting the integrity of such sites. The second order, issued in February 1994, requires federal agencies to make "environmental justice" for low-income and minority populations (including Native American tribes) a part of their missions by identifying and addressing, as appropriate, relatively high and adverse human health or environmental effects of their activities on these groups.

Interior plans to assess compliance with the two Executive orders in the second supplement. With respect to sacred sites, the state's previous licensing proceeding and the original environmental impact statement documented, as discussed earlier, the absence of Native American sacred sites at the Ward Valley site. According to US Ecology's license application, the site had once been disturbed by military tank maneuvers, electric-power transmission lines cross the site, and the site is adjacent to a "borrow pit" used to supply rock to construct Interstate 40 one mile north of the site.

To respond to the Executive order on environmental justice, Interior intends to address, in the second supplement, the effects that a disposal facility at Ward Valley could have on Native American religious and cultural values, tourism, agricultural cultivation, and future economic developments. For example, Indian tribes are beginning economic development projects along the Colorado River, including tourism, hotels, and gambling casinos.

Interior also plans to reexamine alternatives to developing the facility, including the "no action" alternative of not transferring the Ward Valley site to California. In commenting on the planned scope of this alternative, officials in the Bureau's Sacramento office told us that they did not plan to address the environmental justice implications for any low-income or minority populations living near places where wastes are now temporarily

stored. However, in commenting on a draft of our report, Interior said that it intends to include environmental justice within the scope of its reexamination of the environmental impacts of the “no action” alternative.

Interior’s Reasons for New Statement Are to Provide a Public Forum and Determine Suitability of the Site

During 1996, Interior stated that its decision to prepare a second supplement was based on the impasse over land-transfer conditions, the 5 years that had passed since the original environmental impact statement had been issued, and the need to analyze new information that became available and circumstances that occurred after the 1991 statement. Although these factors may have precipitated the decision to prepare the statement, there are also two underlying reasons that have shaped Interior’s actions on the Ward Valley issue for several years, specifically, that Interior should provide a forum to resolve public concerns and independently determine if the site is suitable for the planned disposal facility. However, California and US Ecology believe that (1) the state has the authority under the Atomic Energy Act, implementing criteria, and its own expertise for determining if the site is suitable and (2) Interior had, before its decision was rescinded, completed all essential requirements for deciding on the land transfer. Consequently, California and US Ecology have sued Interior over, among other things, whether it has exceeded its authority with respect to radiological safety issues, such as the potential public health effects of radionuclide migration, and, ultimately, the suitability of the site for a radioactive waste disposal facility. The lawsuits are pending.

Supplemental Statement Substitutes for a Formal Hearing

Interior’s regulations for transferring federal land under FLPMA do not require public hearings. Nevertheless, Interior wanted the state to conduct a formal public hearing on the Ward Valley facility because of the controversy over it, particularly the public’s concern that the facility could jeopardize the water supply of millions of people in the Southwest. In lieu of the formal public hearing, the second supplement and additional site tests will, according to Interior, fulfill its responsibility to assure the public that health and safety concerns are adequately addressed.

California did address the public’s concerns in a public hearing conducted as a part of its licensing procedures for the Ward Valley facility. When deciding whether to issue US Ecology a license, the applicable state laws and regulations required the state’s Department of Health Services to conduct a hearing in which the public could make brief oral statements and provide written comments. These regulations required the department

to include all comments in the written licensing record and to consider them. Formal, trial-like hearings, with sworn testimony and cross-examination, are only used in the case of a proposed suspension or revocation of an existing license.

During California's licensing proceeding, several individuals and groups unsuccessfully urged the state to conduct a public hearing on the license application using formal, trial-like procedures. Subsequently, however, a state appellate court found that the state had met the requirements of state law and regulations, such as holding the kind of public hearings specified by law, for licensing US Ecology to construct and operate a disposal facility at Ward Valley. An appeal of the court's decision was denied.

California issued a license to US Ecology to build and operate a disposal facility for low-level radioactive wastes at Ward Valley in accordance with the state's authority under the Atomic Energy Act of 1954 and related state laws and regulations. Interior, however, has not accepted the results of the state's licensing proceeding as an adequate basis for Interior to make a land-transfer decision. For example, in an August 11, 1993, letter to the Governor of California, the Secretary of the Interior requested that the state conduct a formal public hearing as part of a credible process for determining that the site is appropriate so the Secretary can make a land-transfer decision.

Interior Wants to Independently Determine If Ward Valley Is Suitable for a Disposal Facility

FLPMA requires the Secretary of the Interior to ensure that federal lands transferred to other parties are properly used and protect the public interest. California, on the other hand, is responsible for licensing and regulating the Ward Valley disposal facility according to the state's laws and regulations that are intended to adequately protect public health and safety. Where the respective responsibilities of Interior and the state overlap, if at all, has been an uncertain matter. The former Secretary based his decision (subsequently rescinded by the current Secretary) to transfer the land in part on the findings of the joint state-Bureau environmental impact statement of April 1991. Regarding radiological issues, the former Secretary pointed out that (1) the state's analyses of these issues showed that any off-site migration of radionuclides would be less than regulatory limits and (2) the proposed facility would be licensed by the state according to ". . . all applicable federal and state laws and regulations."

In contrast, the current Secretary of the Interior has asserted more overlap between Interior's and the state's respective responsibilities. For example,

when the Secretary requested the state to conduct a formal public hearing, he said the hearing should focus on the issue of the migration of radionuclides from the site because that issue directly relates to his “. . . responsibility under federal law regarding the suitability of the site. . . .”

Setting aside the issue of authority, which is in litigation, Interior has neither the criteria nor the technical expertise to independently determine if the site is suitable for a disposal facility. Moreover, Interior has not sought advice or assistance on the suitability of the site from NRC or—with one exception—the Department of Energy, which have such expertise.

NRC officials told us that in 1993, the Bureau had made a verbal request for NRC’s views on the adequacy of California’s program for regulating radioactive materials, including the Ward Valley facility. In June 1993, NRC responded that it periodically reviews the state’s regulatory program to determine, as required by the Atomic Energy Act, if the program is compatible with NRC’s program for regulating radioactive materials in states that have not agreed to assume this responsibility. On the basis of these periodic reviews, NRC said that it had concluded that the state has a highly effective regulatory program for low-level radioactive wastes and is capable of conducting an effective and thorough review of US Ecology’s license application for the proposed disposal facility.

According to officials of the Department of Energy, the Department had no role in the proposed disposal facility at Ward Valley until Interior decided to perform the tests recommended by the Academy. Following that decision, Interior and Energy negotiated conditions under which Interior would use facilities at Energy’s Lawrence Livermore National Laboratory to conduct one technical part of the tests. Interior officials subsequently told us that Energy’s role in the testing has evolved into a partnership with Interior in setting up the test arrangements. The Interior officials also pointed out that federal agencies such as NRC and the Environmental Protection Agency are expected to provide comments in the process of preparing the second supplement.

California and US Ecology do not agree that Interior has the authority to independently determine if the Ward Valley site is suitable for a disposal facility. Their position is that the regulation of radiological safety issues, such as the migration of radionuclides, is the state’s responsibility because of the state’s agreement with NRC under the Atomic Energy Act. Therefore, they argue, these issues are outside of Interior’s authority and expertise. As discussed earlier, the state and US Ecology sued Interior earlier this

year, asking the court to order Interior to complete the sale of the land and declare that Interior had exceeded its authority with respect to protecting the public's health and safety against radiation hazards.² Thus, the courts ultimately will decide the legality of, among other issues raised by the litigation, Interior's position that it must determine if the site is suitable for a disposal facility.

Conclusions

The task of developing new facilities for disposing of commercially generated low-level radioactive waste has proven more difficult than imagined when the Congress gave states this responsibility 17 years ago. Because no state has yet developed a new facility, the actions in a leading state, like California, are viewed as an indicator of whether the current national disposal policy can be successful. In the case of California's proposed Ward Valley disposal facility, Interior has been unwilling to accept the state's explicit authority and findings concerning radiological safety as adequate to permit Interior to decide on the proposed land transfer. Instead, Interior has decided that it must independently determine if the site is suitable for a disposal facility. Whether an independent determination is within Interior's discretion will be decided in the courts. Setting this legal question aside, most of the substantive issues that the public has raised to Interior for its consideration have already been addressed by the state and by the Bureau of Land Management. Moreover, subsequent new information, such as the National Academy of Sciences' report, generally favors the proposed facility.

Interior's and State's Comments and Our Evaluation

We provided a draft of our report to Interior and California for review and comment. Their written comments appear in appendixes II and III, respectively.

Interior said it disagreed that its decision to prepare the new supplement was not based on significant new information that would require it to prepare the document. We did not make our own determination of whether or not new information, such as the Academy's report and the information on the Beatty facility, was significant enough to require Interior to prepare the new supplement. Instead, we discussed the reasons Interior originally gave for preparing the supplement and other evidence that, taken together, indicated that Interior did not initially consider the

²California Department of Health Services v. Babbitt, No. 1:97CV00218, (D.D.C. filed Jan. 31, 1997) and US Ecology, Inc. v. U.S. Department of the Interior, No. 1:97CV00365 (D.D.C. filed Feb. 24, 1997).

new information significant enough to require it to prepare a supplement. We have revised our report to clarify this point.

In addition, Interior said that our report does not accurately discuss Interior's responsibility and authority for land transfers. We disagree. As discussed in our report, the fundamental issue at Ward Valley is whether or not the disposal facility would properly contain radioactive wastes and therefore adequately protect public health and safety. California must address this issue because of its authority derived from the Atomic Energy Act. Interior's statutory responsibility, however, is much less specific than California's. Interior must consider environmental impacts and ensure that the "public interest" is protected if it decides to transfer the land as the state has requested. Neither of the two statutes covering these responsibilities—FLPMA and NEPA—would preclude Interior from giving great weight to the state's conclusions on radiological safety. In fact, when the former Secretary originally decided (a decision subsequently rescinded by the current Secretary) to transfer the land, he based his decision, in part, on the record on radiological safety matters developed by the state. Since January 1993, however, Interior has not accepted the state's conclusion that the disposal facility would comply with regulatory requirements.

Interior also said that our report does not appropriately evaluate new information and circumstances, available since 1991, that clearly warrant the preparation of a supplement. Again, we do not agree. Interior's position is largely due to what it described in its comments as the "uncertainties and unknown risks" related to the Ward Valley facility that are illustrated by (1) the Academy's inability to resolve the issue of tritium measured beneath the site and (2) the relevance of the information on the Beatty site to Ward Valley because of the similarities between the two sites. Interior, however, appears to overstate the uncertainties and risks that may be perceived from these sources. As discussed in our report, most Academy members recommended that the tritium issue be resolved for the limited purpose of improving the monitoring of the site—not to answer questions about the site's suitability. Moreover, the Academy's nearly unanimous findings and conclusions are generally favorable to the Ward Valley facility and do not support Interior's concern about "uncertainties and unknown risks." Also, the Geological Survey concluded that it is doubtful that the situation at Beatty and the possible relevance of that situation to Ward Valley will ever be understood because liquid wastes were disposed of at Beatty—a prohibited practice at Ward

Valley—and related disposal records are incomplete. Thus, the Survey questioned the relevance of the information on Beatty.

Finally, Interior commented on the statement that it does not have the criteria or the expertise to independently determine if the Ward Valley site is suitable for a disposal facility. Interior pointed out that, as is common practice in preparing environmental documents, it is contracting with a qualified consultant to prepare the supplement; the Department of Energy is assisting on the tests concerning tritium; and NRC, the Environmental Protection Agency, and other federal agencies with relevant expertise are expected to provide comments on the supplement. We agree that these sources of expertise are appropriate for assisting Interior in preparing the supplement and conducting the planned tests. Our report, however, addressed Interior's position that it should independently assess the suitability of the site from a radiological safety perspective. Although Interior can contract with others for expertise on this issue, it has no criteria for deciding if the site is or is not suitable for its intended purpose.

We have revised our report to incorporate Interior's comments on the issue of environmental justice. Our responses to Interior's other specific comments are provided in appendix II.

California agreed with our report and conclusions. The state also offered comments to supplement the information in our report and clarify certain points in the text, which we incorporated as appropriate.

We performed our review at the Department of the Interior's headquarters in Washington, D.C.; the Bureau of Land Management's field office in Sacramento, California; and California's Department of Health Services in Sacramento. We also performed our review at the headquarters of NRC, in Rockville, Maryland; the Department of Energy, in Germantown, Maryland; and the U.S. Geological Survey, in Reston, Virginia. Because we did not independently evaluate whether the information that the public provided Interior with addressed "significant new circumstances or information," we did not discuss this information with those who provided it. We conducted our review from February through July 1997 in accordance with generally accepted government auditing standards. (See app. IV for details of our scope and methodology.)

Unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this letter. At that

time, we will send copies to the Secretary of the Interior; the Governor of California; and the Director, Office of Management and Budget. We will make copies available to others on request.

Please call me at (202) 512-3991 if you or your staff have any questions. The major contributors to this report are listed in appendix V.

A handwritten signature in black ink that reads "Gary L. Jones". The signature is written in a cursive style with a large, stylized "G" and "J".

Gary L. Jones,
Acting Associate Director, Energy,
Resources, and Science Issues

List of Requesters

The Honorable Frank H. Murkowski
Chairman, Committee on Energy
and Natural Resources
United States Senate

The Honorable Don Young
Chairman, Committee on Resources
House of Representatives

The Honorable Joe Barton
The Honorable Brian Bilbray
The Honorable Ken Calvert
The Honorable Tom Campbell
The Honorable David Dreier
The Honorable Ron Packard
The Honorable Dan Schaefer
House of Representatives

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Abbreviations

FLPMA	Federal Land Policy and Management Act
NEPA	National Environmental Policy Act of 1969
NRC	Nuclear Regulatory Commission

Issues That the Bureau of Land Management Is Considering in Its Second Supplemental Environmental Statement

On February 15, 1996, the Department of the Interior's Deputy Secretary announced that Interior would prepare a supplemental environmental impact statement on the proposed disposal facility in Ward Valley, California, for commercially generated, low-level radioactive waste. The purposes of the supplement are to (1) address public concerns that have been raised since Interior's Bureau of Land Management and California jointly published an environmental impact statement in April 1991 and (2) examine recommendations made by the National Academy of Sciences.¹ Interior intends to prepare the supplement prior to deciding whether to transfer land in Ward Valley to the state for use as a disposal facility.

After a public scoping process, Interior's Deputy Secretary selected 13 issues that the Bureau would address in the supplement. In a December 1996 solicitation of contractors' proposals to prepare the supplement, the Bureau stated that the purpose of the supplement was to analyze new information that became available and circumstances that occurred since the 1991 environmental statement was published. According to the request for proposals, the contractor will, for the most part, review relevant existing documents rather than generate new surveys, inventories, or other new information about the characteristics of the site. Interior anticipated that the major issues to be addressed will include but not be limited to

1. The Academy's May 1995 report
2. The movement of radionuclides (radioactive elements) in the soil
3. The potential for radionuclides and other materials to contaminate the groundwater beneath the site and the Colorado River
4. The Beatty, Nevada, disposal site as an analog to the Ward Valley site
5. The impacts on the desert tortoise
6. The nuclear waste stream (types, amounts, and sources of wastes)
7. The alternative methods of disposal
8. Native American issues

¹The National Academy of Sciences is a private, nonprofit organization chartered to advise the federal government on scientific and technical matters.

9. The potential for the introduction of exotic flora

10. Transportation issues

11. The state's obligations regarding the disposal facility

12. The issues pertaining to US Ecology

13. The public health impacts of the disposal facility

Of the 13 selected issues, Interior cited the Academy's report; the Beatty, Nevada, disposal facility; and "nearby Indian sacred sites"—one aspect of Native American issues—as reasons for preparing the supplement and added the remaining 10 issues on the basis of expressions of public concern. Except for the issues related to the Academy's report and the Beatty facility, all of the issues had been addressed, to a significant degree, in one or more of the following:

- California's licensing proceeding for the disposal facility. The administrative record for the proceeding consisted primarily of US Ecology's initial license application to the state, records of oral and written comments, and written responses to the comments.
- The April 1991 joint California-Bureau environmental impact statement.
- The Bureau's first supplement to the environmental impact statement issued in September 1993. The Bureau expressly limited the scope of this supplement to the method for transferring the Ward Valley site to the state. Nevertheless, because many public comments on a draft of the statement addressed environmental issues, the Bureau also responded to these comments in the supplement.
- Related reports by Interior's Geological Survey and Fish and Wildlife Service.

The Academy's May 1995 Report

As California's licensing process for the disposal facility was ending, the state asked Interior to transfer the federal land, managed by the Bureau, to the state for the development of the disposal facility. While Interior was reviewing the state's request, three geologists acting on their own from the Geological Survey's Menlo Park, California, office raised seven concerns about the adequacy of the state's evaluation of the proposed facility and

site to the Secretary of the Interior.² The geologists' analysis, known as the "Wilshire Report," raised questions about the validity of conclusions in site evaluation documents and suggested approaches to resolving the scientific problems they posed. The scientists were particularly concerned about the flow of shallow water into waste trenches, the transfer of contaminants to the groundwater, and groundwater connections from the site to the Colorado River. They also had subordinate concerns about the lack of off-site monitoring, the potential failure of flood control devices, the inability to compensate for the loss of habitat for the desert tortoise, and the plan to revegetate areas disturbed by waste disposal operations.

At the Secretary's request, the Academy convened a committee of 17 scientists to evaluate the three scientists' concerns.³ After reviewing the data, the Academy recommended the continuation of data collection and evaluation activities at the site to build scientific assurance, credibility, and public confidence in the program for monitoring the disposal facility.⁴ Fifteen members of the committee believed that the additional data collection and evaluation could be performed during the construction and operation of the site. The other two members believed that the tests should be completed in time to use the results in a final decision on the suitability of the site for a disposal facility. In addition, the committee's chairman stated that, from a purely scientific standpoint, none of the data reviewed by the committee supported further delay or opposition to the construction of the facility if the Academy's oversight and monitoring recommendations were implemented.

Movement of Radionuclides in the Soil

The Wilshire group and others have raised concerns about the possibility that radionuclides might move through the soil under the site to the groundwater. As a result, Interior plans to address this issue in the second supplement. However, the Bureau's position in addressing public comments on its 1993 supplemental statement was that radionuclide migration from the disposal facility would be "infinitesimally small." In its

²Howard, K.A.; D.M. Miller; and H.G. Wilshire. *Description of Earth-Science Concerns Regarding the Ward Valley Low-Level Radioactive Waste Site Plan and Evaluation* (1993). The authors stated that the report is not an official Geological Survey report and does not represent the policies or positions of the Geological Survey.

³The Ward Valley committee was composed of 17 scientists with a range of expertise in geophysics, geochemistry, hydrology, soil science, ecology, botany, and environmental engineering. The scientists' background included work in the transport of contaminants in unsaturated zones, the ecology of desert tortoise and desert plant populations, soil physics, and the movement of radionuclides in the environment.

⁴Ward Valley—An Examination of Seven Issues in Earth Sciences and Ecology, National Academy of Sciences (May 1995).

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report, the Academy's conclusion that migration was "highly unlikely" was similar to the Bureau's position.

Regulations on disposal facilities for low-level radioactive waste require a prospective licensee to demonstrate that a proposed facility can meet performance objectives related to the site's and the facility's ability to contain radionuclides found in the disposed waste. As part of its license application, US Ecology used a series of computer models to assess the performance of the proposed facility at Ward Valley. The performance assessment analyzed plausible pathways for the migration of radionuclides from the facility and predicted that migration to the groundwater would take thousands of years.

Commenters on the Bureau's first supplement pointed out that, during the site investigation, US Ecology had detected trace amounts of tritium 100 feet beneath the site. Therefore, the commenters suggested, the tritium must have been carried there by rainfall in a matter of decades rather than thousands of years. The Wilshire group also concluded that earlier evaluations of the possible migration of radionuclides to groundwater were inadequate. In the group's view, the detection of measurable tritium in deep soils beneath the site indicated the migration of tritium from the surface at a rate much faster than presumed in site evaluation documents. The scientists also concluded that properties measured and used in modeling water migration in the unsaturated zone did not represent the variability and complexity of the materials at the site.⁵

Furthermore, according to the Wilshire report, the potential for the shallow lateral flow of water down the slope of Ward Valley and into and out of the waste disposal trenches was not addressed in any of the site evaluation documents prepared by US Ecology, the state, or the Bureau. The scientists said that the available information shows that shallow, low-permeability layers of soil exist in the slope beneath the site and toward Homer Wash, which serves as the main drainage mechanism for the valley. In the scientists' view, these layers of soil could promote the lateral, rather than vertical, flow of water. This condition, they said, could lead to an excess of water leaking into and then out of the waste trenches, causing the migration of contaminants from the trenches to Homer Wash and then possibly redistributing the waste into the general environment by wind and water erosion.

⁵The unsaturated zone is the area above the water table that includes soil that may contain water under pressure less than that of the atmosphere.

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However, in response to the concerns of commenters, the Bureau said that finding minute traces of tritium in the soil does not invalidate US Ecology's predictions regarding the potential for radionuclides to reach the aquifer below the site because, in part, the downward percolation of rainfall does not occur below the upper few meters of soil. Instead, water's movement in the top 100 feet of soil is upward because of evaporation and the consumption of water by plants. According to the Bureau, even in a worse-case scenario, the amount of tritium that could find its way to the groundwater would be infinitesimally small.⁶

Furthermore, the Academy concluded from multiple lines of evidence that the potential migration of radionuclides through the unsaturated zone to the groundwater is highly unlikely. The Academy's report discussed a number of aspects of this potential migration and did not find a likely mechanism that would allow contaminants to reach the groundwater. In the Academy's view, the most likely explanation for the apparent detection of tritium at unexpected depths beneath the site is flawed data collection methods rather than the actual presence of tritium in the measured amounts. Uncertainties about these methods should be resolved, the Academy concluded, by remeasurement for tritium and the measurement for other radionuclides, such as chlorine-36 from atmospheric tests of nuclear weapons. A majority of the committee members said that these measurements could be done during the construction and operation of the site. Two of the 17 committee members disagreed with the general conclusions about the transfer of contaminants through the unsaturated zone. They said that they were not willing to judge the likelihood that contaminants would reach the groundwater because of uncertainties about the movement of water through the unsaturated zone.

In regard to concerns about lateral water flow, the Academy also found that such flow at shallow depths beneath the desert's surface is not a significant issue at the Ward Valley site. According to the Academy, lateral water flow into the trenches would be insignificant even with intense rainfall or flooding because of the overall permeability of the soil and the site's gentle slope.

⁶The performance assessment's worse-case scenario assumed that the entire quantity of tritium projected to be received at the site during the 30-year operating period would be concentrated at one location and instantaneously released.

The Potential for Radionuclides and Other Materials to Contaminate the Groundwater Beneath the Site and the Colorado River

Interior plans to review whether radionuclides and other materials from the Ward Valley site may eventually contaminate the Colorado River. Concerns about the possible contamination of the river have been raised since the 1991 environmental statement was issued. Although the Wilshire group disputed the findings of the environmental statement, the Academy generally agreed with the Bureau's conclusion in 1993 that the disposal facility will meet or exceed all environmental health standards with respect to ground or surface waters.

Commenters on the Ward Valley environmental statements were concerned that the location of the waste disposal facility could lead to the contamination of the Colorado River through the contamination of aquifers that might connect the valley with the river. However, the Bureau concluded in its September 1993 first supplement to the 1991 environmental impact statement that the results of independent studies and the predictions of radiological pathways, as reflected in the original environmental statement, indicate that the disposal facility will meet or exceed all environmental health standards and will not contaminate ground or surface waters. Among other things, the Bureau concluded the following:

- US Ecology's license application and the 1991 environmental statement conclude that there is no route for the contamination of the Colorado River or any other surface water sources. The reports found that Ward Valley is a closed basin with no surface water drainage to adjacent basins or the Colorado River. In addition, the reports concluded that no evidence has been found of underground connections that would result in the contamination of a water supply if groundwater were contaminated under the site.
- US Ecology did extensive studies to evaluate the depth of the groundwater and the potential for infiltrating rainfall to carry radionuclides through the unsaturated zone to the groundwater aquifer. The Bureau concluded that the assumptions and scenarios used to evaluate the groundwater and the potential for contamination indicate that no impact on groundwater will occur under the expected site and operating conditions.
- The selection of the Ward Valley site, with its natural features and surface water protection, provides the key protection against contamination. All available data show that water resources will not be threatened by the disposal facility.

After reviewing the license application and environmental statements, the Wilshire group stated that the application and environmental statements

were based on an inadequate assessment of the regional geology. The group concluded in its report that there may be at least five hydrologic connections between the site and the Colorado River groundwater reservoir and that these connections engage aquifers presently in use that are even closer to the site than the Colorado River.

The Academy, however, concluded that, although there are conceivable—but unlikely—flow paths for some of the groundwater under Ward Valley to the Colorado River, the potential impacts on the river’s water quality would be insignificant relative to present natural levels in the river and to accepted regulatory health standards. To assess the effects of conceivable flow paths, the Academy estimated the total amount of plutonium that might end up at the site and then assumed that all of the plutonium would reach the Colorado River at the same rate it was disposed of.⁷ The panel found that even under these hypothetical conditions, the effects of the plutonium on the quality of the river water would be insignificant when compared with the existing background level.

The Beatty, Nevada, Disposal Site as an Analog to the Ward Valley Site

Interior plans to review whether the Beatty, Nevada, site of a now-closed disposal facility for low-level radioactive waste is analogous to the Ward Valley site. Interior began to consider preparing the second supplement, in part, because of new information on radioactive materials found near the Beatty site. However, the Academy found limited value in comparing the behavior of the Beatty site with that of the Ward Valley site, and recent evaluations by the Geological Survey show there is little scientific connection between the Beatty and Ward Valley sites.

The Beatty and Ward Valley sites are sometimes considered analogous because both are designed to bury low-level radioactive waste in shallow, unlined dirt trenches in arid terrain. As part of its deliberations, the Academy’s committee invited a team of Geological Survey hydrogeologists to consider whether the Beatty site is an analogue for Ward Valley. Geological Survey scientists do regard the Beatty site, in some respects, as an analogue for the Ward Valley site because both are located in similar terrain and have similar climate and hydrologic characteristics. Although the natural settings are similar, according to these scientists, there are major differences between the Beatty site and the proposed Ward Valley site regarding the types of waste disposed of and disposal methods. For example, the Beatty facility includes both a toxic chemical and a low-level

⁷The Academy used plutonium because it remains hazardous longer than any radionuclide that might be disposed of in a significant quantity at the Ward Valley site.

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radioactive waste site next to each other. According to the Academy's report, there are also serious uncertainties about the types, compositions, and physical forms of the wastes that were accepted at the Beatty site. One such uncertainty is how much radioactive waste might have been disposed of in a liquid form—a form that is now prohibited. The Academy determined, therefore, that the Beatty site may be useful in understanding some natural processes, but it is limited in evaluating the behavior of the Ward Valley site because of historical uncertainties.

According to the Geological Survey, the contamination of groundwater at the Beatty site has been known for many years. However, gas samples collected by the Geological Survey at its research facility near the Beatty waste site in 1994 and 1995 contained large concentrations of tritium and carbon-14—concentrations well above ambient background levels. These new and unexpected findings indicated the large lateral and vertical movement of tritium and carbon-14 in the unsaturated zone at the research site. Because it appeared that the Beatty site was the most obvious and plausible source, the Geological Survey assembled a review team to examine a variety of transport scenarios to determine whether the concentrations could be explained by sources of tritium and carbon-14 within the waste burial area at Beatty.

The Geological Survey concluded that the tritium distribution at Beatty was probably the result of the burial of liquid wastes and the fact that some disposal trenches at Beatty were open for years until filled, allowing the accumulation and infiltration of precipitation.⁸ The Geological Survey also found that it is unlikely that the tritium distribution and its evolution through time will ever be understood in detail because of the incomplete accounting of liquid wastes at Beatty. The Survey's Director concluded that extrapolations of the results from Beatty to Ward Valley are too tenuous to have much scientific value because of the uncertainties about the transport mechanisms at Beatty and because liquid wastes will not be buried at Ward Valley. Furthermore, the Survey's Director concluded that the findings of tritium near Beatty do not provide further insight into which hypotheses about tritium at Ward Valley are correct. Finally, the Director said that the Beatty findings reinforce the importance of implementing the measures the Academy had recommended, including long-term, continuous monitoring at the Ward Valley site and minimizing the exposure of open waste trenches to precipitation.

⁸Survey Open-File Report 95-741 contains a summary of tritium and carbon-14 data at Beatty, Nevada. Survey Open-File Report 96-110 contains the review team's analysis of the data.

Impacts on the Desert Tortoise

As part of its second supplement, Interior intends to review the impacts on the desert tortoise from the proposed low-level radioactive waste disposal facility. Several groups have raised concerns that the development of the Ward Valley site would have a serious effect on the habitat of the desert tortoise. However, the 1991 environmental impact statement on Ward Valley included measures to minimize the impact of the facility on the desert tortoise. In addition, two Interior agencies—the Bureau and the Fish and Wildlife Service—say that the Ward Valley facility will not jeopardize the tortoise or its habitat.

The desert tortoise is a large herbivorous reptile found in parts of the Arizona, California, Nevada, and Utah deserts. By the late 1980s, the desert tortoise had disappeared from parts of the Mojave Desert and declined in many other areas. These declines led in 1989 to an emergency federal listing of the entire Mojave desert tortoise population as endangered and in 1990 to a final listing of the population as a threatened species. In response to a federal mandate, the Fish and Wildlife Service published a critical habitat designation for the Mojave desert tortoise population and approved a desert tortoise recovery plan in 1994.

The 1991 environmental statement included proposed environmental protection measures to minimize the impact of the disposal facility on the desert tortoise and its habitat. The mitigation and compensation measures—which US Ecology agreed to implement—are intended to protect and potentially increase the number of desert tortoises. In particular, fencing off a nearby stretch of Interstate Route 40 is intended to reduce freeway kills. The measures had been accepted by the Fish and Wildlife Service in November 1990 as part of consultation requirements of the Endangered Species Act. This consultation included a review by a committee comprising representatives of the Bureau, the California Department of Fish and Game, the U.S. Fish and Wildlife Service, and the Desert Council. In a biological opinion, the Service concluded that the Ward Valley project would not likely jeopardize the existence of the desert tortoise. In addition, an Interior Assistant Secretary wrote that the requirements of the Endangered Species Act have been met and that the proposed measures will protect the desert tortoise.

The Wilshire group did not consider the mitigation plan established by US Ecology and supported by California to be adequate. In the group's view, the artificial protection of displaced tortoises or the protection of their habitat in different areas is unlikely to fully compensate for the loss of habitat. In August 1995, however, the Fish and Wildlife Service reiterated

in a second biological opinion that the disposal facility would not likely jeopardize the continued existence of the desert tortoise or result in the destruction or adverse modification of critical habitat.⁹ The Service prepared the opinion using a number of sources, including a biological assessment submitted by the Environmental Protection Agency and the Bureau and prepared by US Ecology, the Academy's report on Ward Valley, and a risk assessment prepared by the Environmental Protection Agency, to assess the potential radiological impacts of the facility on the desert tortoise.

The Nuclear Waste Stream

Interior plans to identify the current and future types and amounts of nuclear waste from waste generators located in the Southwestern Compact—the states of Arizona, California, and North and South Dakota—that would dispose of low-level radioactive waste at the proposed facility in Ward Valley. Public interest groups have raised concerns about the nature of this waste stream, including the relative amounts and types of low-level waste generated and disposed of by nuclear power plants compared with other waste generators, such as medical facilities. However, the projected nuclear waste stream was described in US Ecology's license application, addressed in the state's licensing records, and discussed in the 1991 environmental statement. According to officials of the Bureau's Sacramento office, there is little new information on this issue.

The 1991 environmental statement described the low-level radioactive waste expected to be produced within the Southwestern Compact according to several categories, including nuclear power stations, government agencies, medical institutions, academic institutions, and industrial (nonmedical) concerns. California, for example, has more than 2,000 radioactive materials licensees, concentrated primarily in the Los Angeles, San Francisco, and San Diego areas. Licensees include hospitals, universities, government agencies, biotechnology companies, and other industrial radioactive material users including the state's two operating nuclear power stations. At that time, the report showed that for the period 1985 through 1987, nuclear power plants generated 39 percent of the volume of low-level waste in the compact. The nonmedical industry generated almost 46 percent of the waste, and the medical and academic community generated the remaining 15 percent.

⁹The Bureau and the Environmental Protection Agency requested the consultation pursuant to the Endangered Species Act.

Finally, Bureau officials told us that the Bureau does not have new information justifying the need to include the nuclear waste stream issue in the second supplement. Rather, the Bureau will use the supplement to determine whether information has changed since the state licensed the disposal facility and the 1991 environmental statement was prepared. According to officials of the state's health services department, the projections of waste to be disposed of over the operating lifetime of the disposal facility have declined since the state licensed the facility. Moreover, they stated, the amount of waste disposed of by the nuclear power industry, in relation to that of other users of nuclear materials, is not important as long as the amount and types of radioactive waste disposed of at the Ward Valley facility do not exceed the limits imposed in US Ecology's license.

Alternative Methods of Disposal

Alternative methods for disposing of low-level radioactive waste at the proposed Ward Valley facility were a major area of public concern raised in the scoping process for the second supplement, and therefore, will be addressed in the statement. For example, one environmental group—the Committee to Bridge the Gap—recommended that above-ground facilities and multiple barriers be considered. However, US Ecology and the state addressed alternative disposal methods in the state's licensing proceeding. In addition, the 1991 and 1993 environmental statements discussed alternatives. The proposed facility would use a burial method in which containers of waste are placed in 35-foot-deep trenches and then covered with soil. The alternative disposal methods discussed in the statements include the following:

- The concept of disposing of waste in an above-ground vault. The primary features of this concept include a vault, a drainage layer, and an interior drain. According to the 1991 environmental statement, this concept is inappropriate in a desert environment because of deterioration problems (without ongoing and expensive maintenance), the need for a longer institutional care period, a shorter route for radionuclides to escape to the environment, and limited practical experience with applying the technology.
- A shallow land burial facility with double-lined trenches. The liners are intended to prevent the migration of liquids and wastes into the soil. The analysis of this alternative revealed benefits, such as isolating wastes from the subsurface environment beneath the liner during the liner's useful life. However, the 1991 environmental statement concluded that there was no technical basis for a liner to protect groundwater and that the installation

of a liner system could result in a “bath tub effect,” causing water to build up around the wastes. Furthermore, in a desert environment in which there is very little precipitation, a high evapotranspiration rate,¹⁰ and several hundred feet of unsaturated ground between the surface and the water table, it is prudent not to concentrate moisture infiltrating into waste trenches.

The alternatives to building the disposal facility discussed in the statements included the following:

- Storing wastes where they are generated. According to the 1991 environmental statement, the long-term storage of radioactive wastes at multiple facilities throughout the state is not desirable and may increase the risk of releases of radionuclides to the environment.
- No action. According to the 1991 environmental statement, denying either the land transfer or the license for the disposal facility would avoid the potential adverse effects of the facility but would cause other types of significant effects. This alternative would, among other things, place the state in violation of the compact agreement ratified by the Congress, result in potentially significant health effects if medical and other licensed activities are curtailed or wastes are improperly managed, and delay, at considerable cost, a necessary action into the future at a significant risk to the public’s health and safety.

Native American Issues

When Interior announced that it would prepare a second supplement, it gave as one reason “nearby Indian sacred sites.” Subsequently, following the scoping process, the Department expanded this issue to include a review of various relevant materials regarding Native American issues. According to officials in the Bureau’s Sacramento office, this expansion of scope for the supplement is appropriate because of a recent underlying shift in emphasis from cultural issues, such as sacred sites, to concern about the health and economic effects that contamination of the Colorado River could have on Native Americans living in the region. However, Native American issues—including new requirements to consider sacred sites and environmental justice—have been addressed to a significant degree in previous licensing and environmental actions taken by US Ecology, California, and the Bureau. One dimension of environmental justice that the supplement does not include, however, is whether developing the Ward Valley disposal facility has environmental justice

¹⁰“Evapotranspiration” is a term used to describe the process by which water is returned to the air either through direct evaporation or by the transpiration of vegetation.

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implications for people located around the sites where wastes are generated and stored.

The Fort Mojave and Chemehuevi Valley Indian Reservations in California and the Colorado River Indian Reservation in Arizona are adjacent to the Colorado River. The California town of Needles, also near the Colorado River and about 20 miles east of the Ward Valley site, is the closest significant population center. The 1991 environmental statement described the Ward Valley site as within the traditional, historic, and contemporary use areas of the Mojave and Chemehuevi peoples. The area contains natural resources that are important to their belief systems. Additionally, the traditional trails crossing the valley outside the project area are considered culturally important. As such, the entire Ward Valley is considered to be sensitive in terms of ethnographic resources.

However, the proposed site of the disposal facility is crossed by existing electric-power transmission lines and is also adjacent to a “borrow pit” for rock used to construct Interstate Route 40 about 1 mile north of the site. Furthermore, according to US Ecology’s license application, unlike large areas of Ward Valley, which are still largely pristine, the proposed project site has been extensively disturbed by such additional activities as tank maneuvers by the military and yucca harvesting.

President Clinton issued Executive Order 13007 in May 1996 requiring federal agencies that manage federal lands to accommodate, to the extent practicable, access to and the ceremonial use of Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical integrity of such sacred sites. In February 1994, President Clinton issued Executive Order 12898, which is designed to focus federal agencies’ attention on the environmental and human health effects of their activities on minority and low-income communities (including Native American communities) and achieve the goal of environmental justice. The concept of environmental justice grew out of a grass-roots campaign against the local siting of incinerators, landfills, and other facilities associated with pollution and contaminated consumption in minority and low-income communities.

Interior’s responsibilities related to the proposed land transfer require a reasonable effort to identify and consider Native Americans’ comments and concerns. The Bureau believes that Native Americans were fully represented and consulted in the original environmental impact statement as well as the first supplement. Nevertheless, Interior will consider the

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potential impacts of the proposed facility on Native American religious and cultural values, tourism, future economic developments, and agricultural cultivation in the second supplement. In addition, Interior will examine compliance with executive orders on Indian sacred sites and environmental justice.

However, Native American consultation was initiated by US Ecology early in the site selection process and continued through the preparation of the license application and the 1991 environmental statement. The state's licensee conducted archaeological and ethnographic studies of tribal activities in the region. Consultations with Native Americans focused on the sensitivity of Native American resource use and cultural and religious values.

The specific consultation steps taken in preparation of the license application and considered in the 1991 environmental statement included a 100-percent archaeological survey with Native American participation. According to the Bureau, the survey indicated that no significant cultural resources were present at the site. In addition, US Ecology contacted the Fort Mojave, Chemehuevi, and the Colorado River Indian Tribes to evaluate potential cultural impacts of a more general regional nature. In addition, during a walkabout at the site, no tribal representative identified anything to suggest that the site has an established religious significance to, or ceremonial use by, an Indian religion and did not identify any unique cultural resources.

Furthermore, in the state's view, the proposed transfer of land for the Ward Valley low-level radioactive waste disposal facility is fully consistent with Executive Order 12898. As discussed above, the state's view is based on the earlier consideration of socioeconomic, historical, and cultural issues in the state's licensing proceeding and in the 1991 environmental impact statement.

Finally, according to Bureau officials, Interior is considering environmental justice in the second supplement only as it pertains to Native Americans and not to other minority or low-income groups. Thus, although Interior plans to review alternatives to developing the facility, such as storing waste at generators' sites, the environmental justice implications for potentially affected low-income and minority populations are not within the scope of this review. According to California officials, the potential exists for waste to be stored in urban locations if the disposal facility at Ward Valley is not built. This carries environmental justice

implications for urban populations, these officials maintain, because depriving the generators of low-level radioactive waste of a safe disposal option potentially discriminates against hundreds of thousands of minority persons who live in proximity to the stored waste.

Potential for the Introduction of Exotic Flora

Interior plans to review the potential impacts that new flora may have on the area as a result of building and operating the disposal facility. Officials in the Bureau's Sacramento office told us that the impetus for this issue was the Wilshire group. However, this group subsequently withdrew this concern, and according to the Bureau officials, nothing new regarding this issue is apparent.

The proposed site for the disposal facility is in a remote area that has experienced little in the way of intensive development. However, various land uses could introduce vegetation that is not native to the area. For example, Interstate Route 40, a four-lane interstate highway, runs in an east-west direction about 1 mile north of the proposed site. The request for proposals requires the contractor to evaluate the potential for and impacts of importing exotic species of plants into Ward Valley.

The Bureau and the state, in their 1991 environmental statement, included a discussion of US Ecology's plans to revegetate the site. The plan described the timing, techniques, and locations for transplanting cacti and yuccas during construction; the initiation of revegetation during operation; and the restoration of the entire site after closure.

The Wilshire group initially said that misconceptions about the enhancement of revegetation may interfere with the successful reestablishment of the native plant community. Later, the group dropped this concern, saying that it was satisfied that there is an adequate revegetation program and that it will be overseen by an independent panel of experts.

Transportation Issues

Interior plans to review transportation issues that were raised by the public. However, aspects of transporting low-level radioactive waste were addressed in the 1991 Bureau-California environmental statement. In addition, the Bureau addressed concerns about transporting wastes in responding to public comments on its first supplement. Although Bureau officials told us that there is no new information on the issue that was not discussed in the state's licensing proceeding and the environmental

statements, Interior plans to review and update the 1991 statement as part of the second supplement.

Transporting low-level radioactive waste was considered in the original environmental statement. In responding to public comments on that statement, the Bureau and state noted that the potential for accidents was determined to be a low risk and that the range for the possible effects from radiological exposure due to an accident would be below that established by regulatory limits and would meet environmental health and safety standards. In addition, the statement recommended environmental protection and mitigation measures, such as requiring all shippers to notify the schedule and route of shipments in advance.

In responding to public comments on the first supplement in 1993, the Bureau addressed public concerns about transporting wastes. At that time, the Bureau discussed truck transportation because trucks were considered the primary mode of transporting wastes. The Bureau made a number of conclusions about transporting wastes in the state including the following:

- No transportation accidents involving low-level waste releases have occurred in the state, and no radiological exposures have occurred from an accident with a vehicle transporting low-level radioactive waste for storage or out-of-state disposal.
- The Ward Valley facility is expected to receive fewer than four shipments per day, which represents only a small percentage of the hazardous materials routinely transported through the state.
- All waste is securely packaged for shipment and is not combustible or explosive.
- Inspection on arrival at the facility will ensure that waste transport vehicles are not exceeding radiation limits or safety conditions.
- Since transportation is an existing federally regulated system by which all hazardous materials are transported in the country, all needed safeguards already exist.

The State's Obligations Regarding the Disposal Facility

Interior plans to review California's legal and financial obligations in connection with the proposed Ward Valley disposal facility. However, the legal and financial liability issues were addressed in the 1991 environmental statement prepared by the state and the Bureau.

**Appendix I
Issues That the Bureau of Land Management
Is Considering in Its Second Supplemental
Environmental Statement**

The Low-Level Radioactive Waste Policy Act of 1980, as amended, requires that either the state or the federal government own disposal sites for such waste. As a matter of policy, Interior will not permit the development of this type of facility on federal land in the Mojave Desert region. Therefore, the state, if it is to use the Ward Valley site for a disposal facility, must obtain and retain ownership of the site.

Regulations implementing the low-level waste act anticipate that a low-level radioactive waste disposal facility would be acceptable for unrestricted surface use 100 years following the closure and stabilization of a disposal facility. According to the state, US Ecology will be responsible for the waste received during the 30-year operating period of the disposal facility. Monitoring and institutional responsibility would shift to California following the satisfactory closure and transfer of US Ecology's operating license to the state's custodial agency.

A number of factors affect California's total liability, however. First, the operating license specifies that the licensee will continue to be responsible for buried radioactive waste until the state finds that the site has been satisfactorily closed. The failure to renew the license will not relieve the licensee of the responsibility to carry out the site's closure, post-closure observation, environmental monitoring, site inspections, maintenance, and site security until California transfers the license to the state's custodial agency or another licensee. Second, the Comprehensive Environmental Response Compensation and Liability Act of 1980, as amended, primarily determines the state's liability for releases of radioactivity from the facility. Under this law, four classes of persons may be liable for cleanup costs: the current owner and operator, anyone who owned or operated the facility when radionuclides were released, waste generators, and persons who transported radionuclides to the facility. Under this law, the state may be liable for environmental remediation costs as a waste producer and site operator.

**Issues Pertaining to
Us Ecology**

Interior plans to review the past performance of US Ecology and any uncertainty regarding its financial status. This issue was raised during public scoping meetings for the second supplement on Ward Valley. However, California already considered the company's operating record and financial condition in its licensing proceeding, and the state and the Bureau had addressed it and found US Ecology fully qualified in their 1991 environmental statement.

Appendix I
Issues That the Bureau of Land Management
Is Considering in Its Second Supplemental
Environmental Statement

The selection of US Ecology to develop and operate the low-level radioactive waste facility for the Southwestern Compact has been criticized by people who question the qualifications and operating record of the company. US Ecology has operated four low-level radioactive waste disposal facilities—two in areas with high rainfall (Sheffield, Illinois, and Maxey Flats, Kentucky) and two in arid areas similar to Ward Valley (Beatty, Nevada, and Richland, Washington). Small amounts of radioactivity were detected in the groundwater at the Illinois and Kentucky facilities. Also, in 4 separate years—1979, 1982, 1983, and 1984—tritium in concentrations well below NRC’s regulatory limits in water was detected in a well at the Beatty site. The request for proposals for a second supplement calls for the consideration of US Ecology’s past performance and uncertainty regarding its financial status.

However, US Ecology’s record for operating other low-level radioactive disposal facilities was addressed by the state in its licensing proceeding and by the state and the Bureau in their 1991 environmental statement. In responding to public comments on the environmental statement, the state and the Bureau noted that California had issued a report of findings on US Ecology’s past record and the company’s qualifications and capabilities to develop and operate the Ward Valley facility. The report, issued in 1986, found that US Ecology was fully qualified to develop and operate the facility and that the problems that had occurred in the past at other disposal facilities can be avoided through experience gained and through the enforcement of stringent low-level radioactive disposal regulations in effect since 1982. With respect to US Ecology’s disposal sites in Kentucky and Illinois, the Bureau and state found that no member of the public had ever been exposed to radiation as a result of off-site releases of buried waste. According to the Bureau and the state, the experience with desert disposal sites in Nevada and Washington is more relevant to California’s effort.

California’s current position is that no new information has emerged to change the state’s and the Bureau’s earlier conclusions that US Ecology is fully qualified to operate the Ward Valley facility.

Recently, an environmental group also questioned whether US Ecology is on solid enough financial footing to proceed with the Ward Valley facility. The group asserted that US Ecology’s parent company appeared to be in a serious financial condition because of large liabilities associated with purchases of two waste companies in Tennessee and Texas. According to

the group, this development affected the qualifications of US Ecology to safely operate the proposed Ward Valley facility.

According to California, the financial condition of US Ecology and its parent company was considered in the April 1991 environmental impact statement. In the unlikely event that US Ecology is unable to meet its obligations, according to the state, the state would use available mechanisms to replace the company with another qualified contractor.

Public Health Impacts of the Disposal Facility

Interior intends to consider, in the second supplement, the public health effects of accidents, fire, intruders, and radionuclide migration on operating the Ward Valley disposal facility. However, these issues were addressed by the state and the Bureau in the 1991 environmental statement.

For example, in their 1991 environmental statement, the Bureau and the state summarized the effects of 30 hypothetical radiation exposure scenarios varying from waste container breaks to several intrusion possibilities. According to the statement, the scenarios were considered appropriate for conservatively estimating the potential effects of facility operations, accident conditions, and post-closure activities and events. Specifically, for all credible exposure scenarios, the maximum doses of radiation to on-site and off-site individuals were calculated for both normal and accident conditions. Regardless of the probability of occurrence, the results indicated that the projected maximum doses would be well below regulatory limits and would meet the standards for environmental health and safety.

Comments From the Department of the Interior

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, D.C. 20240

JUL 3 1997

Mr. James Hinchman
Comptroller General
U.S. General Accounting Office
441 G Street, N.W.
Room 7B02
Washington, D.C. 20548

Dear Mr. Hinchman:

Thank you for the opportunity to respond to the General Accounting Office's (GAO) draft report, "Radioactive Waste, Interior's Continuing Review of the Proposed Transfer of the Ward Valley Waste Site" (Report).

INTERIOR AUTHORITY

The Report addresses actions of the Department of the Interior relating to the proposed transfer of Ward Valley to the State of California, primarily the preparation of a supplemental environmental impact statement (SEIS) pursuant to the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 et seq., in the context of Interior's statutory authority and responsibility. In particular, the Report considers Interior's statutory role regarding the proposed transfer of the site in relation to the State's role in regulating the disposal of low-level radioactive waste (LLRW). We believe the Report presents, and its conclusions are predicated on, an overly constrained and incomplete view of Interior's role.

In the Federal Land Policy and Management Act (FLPMA), 43 U.S.C. § 1701 et seq., Congress has directed the Secretary to insure that any transfer of public land "will serve important public objectives which cannot be achieved prudently or feasibly on land other than public land and which outweigh other public objectives and values...." 43 U.S.C. § 1713(a)(3). Moreover, FLPMA also requires the Secretary to make such transfers on "such terms, covenants, conditions, and reservations as he deems necessary to insure proper land use and protection of the public interest." 43 U.S.C. § 1718.

In addressing these provisions in relation to the State's role, Secretary Babbitt wrote to California Governor Pete Wilson in August, 1993, "In short, while federal law makes the licensing and operation of Ward Valley, including attendant health and safety issues, primarily a state concern, federal law also requires me to consider the site in relation to its proposed use in deciding whether or not to transfer the land."

Appendix II
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In a reply dated September 16, 1993, Governor Wilson wrote, "I agree with your assessment of the separate state and federal responsibilities as they relate to this effort...." An accompanying press release states that in his letter, "Wilson outlined how the state will work with the Interior Department in conducting a hearing on the suitability of the Ward Valley site."

This exchange between the Secretary and the Governor succinctly and accurately characterizes Interior's broad, independent responsibilities under federal law in determining whether to proceed with the proposed land transfer. It is in the context of carrying out those responsibilities that Interior has undertaken the preparation of an SEIS to analyze the substantial amount of new information and the new circumstances that have become available since the original environmental review was completed in 1991.

BASIS FOR PREPARATION OF SEIS

The Report states that Interior's decision in 1996 to prepare an SEIS was not based on significant new information that would require it to prepare an SEIS. Interior fundamentally disagrees with this conclusion.

The decision in February 1996 to prepare the SEIS was triggered primarily by new information or analysis not available or considered in the initial environmental review completed in 1991 or the very limited SEIS prepared in 1993. This new information bears on two related issues fundamental to the hypothesis that Ward Valley is a safe site for a nuclear waste repository because its arid climate and geology will preclude the migration of radioactive material.

First, the National Academy of Sciences (NAS) panel on Ward Valley, in its May 1995 report, Ward Valley, An Examination of Seven Issues in Earth Sciences and Ecology, considered reported findings of tritium at considerable depth (30 meters) below the surface at Ward Valley. The NAS panel was unable to determine the cause of the reported findings of tritium. The panel recommended further analysis and sampling for tritium and chlorine-36 at the site to explain the reported tritium findings. The panel was not unanimous in assessing the significance of the evidence of tritium, with two members dissenting from the majority findings on the issue. The NAS panel considered scientific issues only and did not address any implications of its report on the Secretary's legal responsibilities under NEPA and FLPMA.

Second, in late 1995 test results obtained by the U.S. Geological Survey (USGS) were released showing unexpectedly high levels of certain contaminants at considerable depth and distance from the perimeter of a Beatty, Nevada waste disposal site considered by the State of California and others as an analog to Ward Valley. In supplemental findings filed on June 22, 1994, pursuant to court order, Ron Joseph, Chief Deputy Director, California Department of Health Services stated, "...I find that the Beatty site provides a good analog for the Ward Valley facility." The USGS data were not available to the NAS panel on Ward Valley and

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were not considered in the NAS report. While leakage from the Beatty facility is suspected, the reason for the apparent migration of these contaminants remains unknown. Other entities including the State of Nevada also raised new concerns about the presence of tritium in groundwater at the Beatty site. Given the similarity of the Beatty and Ward Valley sites, the Beatty data are clearly relevant and significant to an analysis of the potential impacts of the proposed LLRW facility at Ward Valley.

The questions regarding the tritium findings at Ward Valley and the Beatty data, in combination, constitute significant new information which Interior believes requires the preparation of an SEIS. However, apart from a requirement that an SEIS be prepared, under Council on Environmental Quality (CEQ) regulations Interior has the clear discretionary authority, not questioned by GAO, to prepare the SEIS to further the purposes of NEPA (40 C.F.R. § 1502.9(c)(2)). Paramount among these purposes is to insure environmental information is available to both decision makers and the public before decisions are made and before actions are taken. 40 C.F.R. § 1500.1(b). Interior's decision in February 1996 to prepare the SEIS is supported by both its discretionary authority to further the purposes of NEPA and the mandatory provisions of the regulations.

CEQ guidance provides that an EIS more than five years old, as in this case, should be carefully re-examined to determine if the criteria in 40 C.F.R. 1502.9 compel the preparation of an SEIS. Since completion of the 1991 environmental review, a wealth of relevant new information has become available which has not been systematically assembled and evaluated.

Additionally, the proposed transfer and its environmental effects have been the subject of an extremely high level of public interest and controversy. A total of 878 comments, oral and written, were received from 799 individuals in the SEIS scoping process. Among those providing comments were the County of San Bernardino, the county where the Ward Valley site is located, and Catellus Development Corporation, the largest private land owner in California whose lands include lands directly adjacent to the Ward Valley site. The public continues to have a major interest in Ward Valley, and Interior has the responsibility under NEPA and its implementing regulations to increase public confidence in its decision. The uncertainties and unknown risks related to the disposal site, and the degree to which possible effects on the human environment are likely to be highly controversial, are important factors in determining the significance of an action. 40 C.F.R. § 1508.27(b)(4),(5). Absent the SEIS or another similar document, the public would not have the opportunity to review in one document the NAS report, information on Beatty, and other relevant information, to understand the environmental impacts of the proposal, and to comment on them.

In the SEIS scoping process, the public recommended that approximately 35 issues be addressed in the SEIS. Interior determined that 13 of these issues warranted further analysis. The issues to be addressed in the SEIS that were addressed in the 1991 EIS were the subject of

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new information and circumstances which have become available or developed since 1991 warranting a current analysis. Attachment 1 describes some of the issues to be addressed in the SEIS, and provides examples of the new sources of information on these issues provided to the Department since 1991.

INTERIOR EXPERTISE

The draft report states that Interior has neither the criteria nor the technical expertise to independently determine if the Ward Valley site is suitable for a disposal facility. As indicated above, the Secretary's responsibilities under FLPMA and NEPA require that he analyze and consider the impacts of the proposed transfer of the Ward Valley lands and their use as an LLRW disposal facility. As is common practice in preparing environmental documents (including the 1991 EIR/EIS on Ward Valley jointly prepared with the State of California), Interior is contracting with a consultant with expertise to prepare the SEIS. Additionally, Interior is working with the Department of Energy in connection with the tritium testing, and Interior anticipates that other Federal agencies with relevant expertise, such as the Environmental Protection Agency and Nuclear Regulatory Commission, will provide comments during the SEIS process.

ADDITIONAL ISSUES AND COMMENTS

The Department disagrees with other points in GAO's report, and many require further clarification and discussion. For example:

- **Independent Determination by Interior of Site Suitability.** The Report states that Interior wants to independently determine if Ward Valley is a suitable site for a LLRW disposal facility. Interior recognizes that the responsibility to license and regulate the LLRW facility rests with the State of California. Interior is carrying out its responsibilities under FLPMA and NEPA, responsibilities which the State does not have. In FLPMA, Congress has given Interior the responsibility for determining whether transfer of the Ward Valley site for construction of a LLRW disposal facility is in the public interest. Further, the proposed transfer of public land at the Ward Valley site triggers additional obligations. In NEPA, Congress requires that Interior describe and evaluate the environmental impacts of the proposed transfer, which necessarily include the impacts of using the site as a LLRW disposal facility.
- **State's Licensing Proceeding as a Substitute for Interior Review.** As indicated above, Interior has responsibilities under federal law that are independent of and separate from any responsibilities of the State. Therefore, the results of the State's licensing proceeding cannot be a substitute for or relieve the Secretary of his obligation to carry out the independent analysis and exercise of discretion which Congress has entrusted to him. The State has recognized this in Governor Wilson's letter to the Secretary dated September 16, 1993. In that letter, sent at the time the State completed

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its environmental review process and issued a license to US Ecology, the Governor agreed to hold a hearing as requested by the Secretary "to assist you in the exercise of your discretion in approving conveyance of the needed site under federal law."

See comment 1.

- **State's Public Hearing.** The Report states that California addressed the public's concerns at a public hearing. During the licensing process, California state regulators conducted a one-day informal licensing hearing which involved accepting oral comments of up to five minutes and written statements from interested parties, but no cross-examination, discovery or formal testimony. Some have argued that an adjudicatory hearing is needed to ensure proper scrutiny of the many controversial issues surrounding the project. They have held up the State's unwillingness to hold such a hearing as an indication that the project has not been subject to appropriate review. An SEIS will provide the public an additional opportunity to have their views considered and addressed.

See comment 2.

- **Findings Regarding Leakage at Beatty, Nevada Facility.** The USGS memorandum dated February 14, 1996, indicated that without further study, extrapolations of the results from Beatty to Ward Valley are too tenuous to have much scientific value due to uncertainties about how the wastes migrated at Beatty. USGS has undertaken no formal scientific study as to the cause of the contamination. In contrast to the views of USGS regarding the relevance of the Beatty findings to Ward Valley, others have asserted that there is a strong connection. The SEIS will provide the opportunity for this issue to be fully aired.

See comment 3.

- **New Executive Orders.** Executive Order 13007 concerning Indian Sacred Sites and Executive Order 12893 pertaining to Environmental Justice were issued after the 1991 environmental impact statement was prepared. Unlike the State, the Secretary of the Interior must address these orders, and will do so in the SEIS.
- **Environmental Justice Implications on Low-Income or Minority Populations.** GAO states that the Department does not plan to address whether any low-income or minority populations living near places where wastes are now temporarily stored would be adversely affected by a decision not to transfer the Ward Valley site. Interior intends that all relevant environmental impacts of the no action alternative, including any environmental justice impacts, be disclosed in the SEIS.
- **Actions in Early 1993.** The following points should be clarified or added to the description of events in early 1993. At the time the outgoing Secretary decided to sell the lands, the State's Department of Health Services (DHS) had not yet completed its environmental review or licensed the facility; the federal court challenge to the Secretary's action under the Endangered Species Act resulted in the issuance of a

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temporary restraining order on January 8, 1993, enjoining transfer of the lands; and the funds from US Ecology were not "paid," but rather received in an "unearned" account and subsequently returned to, and accepted by US Ecology, as the State's prospective licensee, without objection by DHS.

- **1995 Negotiations with the State of California.** Interior sought a binding commitment from the State to carry out the recommendations of the NAS panel. The State insisted that any agreement explicitly provide that its commitments were not enforceable.
- **Evaluation of New Information.** In contrast to the characterization in the Report, Interior was aware in 1996 of the previous environmental documents and other relevant material. Interior evaluated new information received in relation to information that had previously been considered. The determination that information was "new" was important in the selection of the issues to be addressed in the SEIS.
- **Some of the Issues Discussed are the Subject of Pending Litigation.** Pending litigation filed separately by the State of California and US Ecology challenges Interior's authority, among other things, to prepare an SEIS on the proposed transfer. This litigation implicates issues concerning the scope of Interior's authority and the basis for preparing the SEIS. Interior believes that GAO should not express any conclusions on issues under litigation.

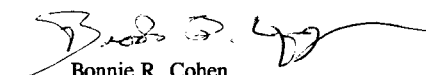
See comment 4.

In light of the brief time available for our review of the Report, we have not been able to identify every issue or aspect of the Report with which we may disagree. The absence of comment on a particular statement or issue does not necessarily indicate our agreement.

In summary, we believe that while the Report contains much useful information, it has two critical shortcomings. First, it fails to recognize and accurately set forth the responsibility and authority Congress has entrusted to Interior in determining whether to proceed with the proposed land transfer. Second it does not appropriately evaluate the substance and implications of the new information and circumstances bearing on the impacts of the proposal that have become available since 1991 and that clearly warrant the preparation on an SEIS.

Thank you again for the opportunity to comment.

Regards,


Bonnie R. Cohen
Assistant Secretary
Policy, Management and Budget

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Attachment 1

Documents Provided to DOI Since 1991¹

Beatty, Nevada Disposal Site. "US Ecology, Inc., Beatty, Nevada Facility, 1992 Annual Report." Conference of Radiation Control Program Directors draft 1994 report, "Environmental Monitoring Report for Commercial Low-Level Radioactive Disposal Sites." Reports in 1994 and 1995 by the State of Nevada Division of Health and Department of Conservation and Natural Resources.

Potential for Radionuclides and Other Materials to Contaminate the Aquifer below the Site and the Colorado River. "Issues Regarding the Proposed Ward Valley Low-Level Radioactive Waste Disposal Site," a draft report prepared by the Metropolitan Water District of Southern California in 1994, and a final report in 1994 entitled "Hydrogeologic Review of the Proposed Ward Valley Low-Level Radioactive Waste Facility." Also, "Environmental Monitoring Report for Commercial Low-Level Radioactive Disposal Sites," issued by the Conference of Radiation Control Program Directors in 1996.

Nuclear Waste Stream. Issues raised by the Committee to Bridge the Gap in a report dated April 1992 entitled The Proposed Ward Valley Low-Level Radioactive Waste Dumpsite: Issues and Alternatives. Also, How Safe? Issues Raised by the Proposed Ward Valley Low-Level Radioactive Waste Facility; A Report by the Senate Rules Committee and, "The Top 100 Generators List," information presented by the California Department of Health Services to Congressman George Miller.

Alternatives to the Methods of Disposal. International Atomic Energy Agency, Review of Available Options for Low-Level Radioactive Waste Disposal (July, 1992). Defense Nuclear Facilities Safety Board, Low Level Waste Disposal Policy for Department of Energy Defense Nuclear Facilities (1994).

Native American Issues. Executive Order 13007 concerning Indian Sacred Sites and Executive Order 12893 pertaining to Environmental Justice were issued after the 1991 EIS was

¹This list does not include all documents provided to the Department since the 1991 EIR/EIS was released.

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prepared. Unlike the State, the Secretary of the Interior must address these orders.

Potential for Introduction of Exotic Flora. Information presented in 1996 by Dr. Robert Stebbins, Professor Emeritus, University of California at Berkeley.

Issues Pertaining to US Ecology. The California Senate Office of Research 1993 report, How Safe? Issues Raised by the Proposed Ward Valley Low-Level Radioactive Waste Facility; "US Ecology, 1994 Annual Environmental Monitoring Report for Calendar Year 1993." "A Review of Organic Contaminants in the Unsaturated Zone and Groundwater Zones at the Beatty, Nevada TSD Site," prepared by the Environmental Protection Agency in 1995. 10-K forms filed by US Ecology for the Securities and Exchange Commission in 1996 and 1997. "Financial Condition of American Ecology Corporation," a report prepared by Dr. F. Gregory Hayden in 1996.

Impacts on the Desert Tortoise. "Laboratory Health Profiles of Free-Ranging Desert Tortoises in California: Interpretation of Physiologic and Pathologic Alternations (March - October 1993), a draft report prepared by Dr. Kristin Berry. Dr. Berry released additional information in 1995 concerning an epidemic of upper respiratory tract disease in the desert tortoise population. Draft Recovery Plan for the Desert Tortoise, released by the US Fish and Wildlife Service in 1993, and final in 1994.

The following are GAO's comments on the Department of the Interior's letter dated July 3, 1997.

GAO's Comments

1. Interior commented that California's hearing on Ward Valley did not subject the project to appropriate review. In our view, this issue is not relevant to Interior's obligations to decide whether or not to transfer the land. The state has its requirements for public hearings on the issuance of licenses, and its courts determined that the state had followed these requirements. Neither the Federal Land Policy and Management Act nor the National Environmental Policy Act of 1969 requires that Interior hold a public hearing before deciding on the proposed land transfer.
2. Interior commented that without further study, the information on the Beatty facility will shed little light on how the wastes migrated from that facility. It should be noted that, according to the Geological Survey, further study will probably not answer this question or provide insightful information on the Ward Valley facility because of the incomplete accounting of the disposal of liquid radioactive waste at Beatty.
3. We agree that Interior is required to comply with the Executive Orders on Indian sacred sites and environmental justice. We note, however, that complying with these orders does not require the preparation of an environmental impact statement—or, in the case of Ward Valley, a supplement.
4. During the course of our review, we found no indication that Interior evaluated new information received in relation to information that had previously been considered or that the determination that the information was "new" was important in the selection of issues to be addressed in the supplement. As discussed in our report, the intensity of the public's concern about issues was more important to the Bureau in recommending issues to be considered in the supplement than whether or not any new information had been made available.

Comments From the State of California

STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY

PETE WILSON, Governor

DEPARTMENT OF HEALTH SERVICES

714/744 P STREET
P.O. BOX 942732
SACRAMENTO, CA 94234-7320



(916) 322-4492

June 27, 1997

Mr. Victor S. Rezendes, Director
Energy, Resources, and Science Issues
U.S. General Accounting Office
441 G Street NW, Room 2440
Washington, D.C. 20548

Dear Mr. Rezendes:

**DHS' COMMENTS ON THE GENERAL ACCOUNTING OFFICE DRAFT REPORT ON
INTERIOR'S CONTINUING REVIEW OF THE PROPOSED TRANSFER OF THE WARD
VALLEY WASTE SITE**

Governor Pete Wilson has asked us to respond to your June 23, 1997 request for comments on the subject report. Our comments are enclosed. If you have any questions, please contact me at (916) 323-3693.

Sincerely,

A handwritten signature in cursive script that reads "Carl Lischeske".

Carl Lischeske, P.E., Manager,
Low-Level Radioactive Waste Program

Enclosure

**DHS' Comments on the General Accounting Office Draft Report on
Interior's Continuing Review of the Proposed Transfer of the
Ward Valley Waste Site**

General

The report and its conclusions comport with the California Department of Health Services' (DHS') administrative record on this subject, as upheld by the California courts. DHS is, therefore, in complete agreement with the report and its conclusions. The following comments are offered to supplement the information in the report, and to clarify certain points in the text.

Source of Department of the Interior's (DOI's) Technical Expertise

The report rightly points out that, although DOI's stated primary purpose for the Supplemental Environmental Impact Statement (SEIS) is to determine whether the Ward Valley site is suitable for a low-level radioactive waste (LLRW) disposal facility, DOI has neither the criteria nor the technical expertise to independently make such a determination. Furthermore, it is correctly noted that DOI has not sought advice or assistance from the U.S. Nuclear Regulatory Commission (NRC) or – with one exception – the U.S. Department of Energy (DOE). The report also points out that DOI's decision to conduct a second SEIS for the Ward Valley land transfer decision was based upon input received from the public and anti-nuclear activist groups. This leads to an obvious question that the report does not explore in detail: who provided the technical expertise on which DOI has been relying?

A number of documents suggest that DOI has been consistently relying upon information provided by anti-nuclear activist organizations, particularly the Committee to Bridge the Gap (CBG) and the Nuclear Information Research Service (NIRS), to make substantive administrative decisions. The attached table documents this reliance. Especially revealing, however, is a "Fact Sheet" on LLRW released by DOI in July 1996. The information in the Fact Sheet was supplied almost entirely by CBG, NIRS, and other anti-nuclear organizations. For example:

- The information on LLRW being produced by two University of California campuses was taken from a survey conducted by CBG, Bay Area Nuclear Coalition, and other anti-nuclear activist groups, and flatly contradicts information provided by the President of the University of California.
- The definition for LLRW was taken from a report by the NIRS, and sharply criticizes the statutory definition for LLRW and the NRC's waste classification system.
- The data on the sources of waste that will be disposed at the Ward Valley facility was taken verbatim from a report by CBG, and falsely attributed to the NRC, DOE, and other official sources.

The clear (and coincidental) inaccuracies in the so-called “Fact Sheet” can only lead to the conclusion that neither the NRC nor the DOE were asked to review the document before it was released.

Note also that DOI’s position on the relevance of the soil gas data from the now-closed LLRW facility at Beatty Nevada more closely reflects that of CBG than the position taken by the U.S. Geological Survey (USGS), which is a subsidiary of the DOI. Consider the following quotes:

- “Because of the Differences in waste burial practices at the Beatty site compared to those intended for the Ward Valley site, and the previously mentioned uncertainties about the transport mechanisms at Beatty, *extrapolations of the results from Beatty to Ward Valley are too tenuous to have much scientific value*” (emphasis added) -- 2/14/96 memorandum from G. Eaton, Director, USGS to E. Haste, California State Director, Bureau of Land Management (BLM).
- “*These extraordinary new data* (soil gas analytical results from Beatty) *contradict the fundamental assertion on which the presumed safety of the Ward Valley project was premised* – that radioactive materials would take thousands or even tens of thousands of years to migrate at an arid site...” (emphasis added) -- 2/1/96 letter from D. Hirsch, President, CBG to J. Garamendi, Deputy Secretary, DOI.
- “*The fundamental hypothesis for the safety at Ward Valley has been challenged*. The safety assumption is: there is so little rainfall in the region that rainwater will not percolate downward through the waste material into the water table, but will, instead, evapotranspire into the atmosphere. Two sets of data call this hypothesis into question. One set is the USGS report of radioactive contamination offsite and downward to the water table at Beatty, Nevada.” (emphasis added) -- 8/8/96 letter from J. Garamendi, Deputy Secretary, DOI to R. Atkinson, President, University of California.

Again, it is evident through these statements that DOI has consulted with neither the NRC nor the DOE on this subject.

In sum, rather than avail itself of the expertise available within the federal government, it appears that DOI has chosen to rely upon information provided by anti-nuclear activist groups to develop its position relevant to the Ward Valley land transfer issue. Not only is DOI incompetent as a federal agency to make such policy judgements, it utilized incompetent science to render significant administrative decisions.

DOI does not have the resources to carry out the SEIS

Internal communications from October, 1996 reveal that DOI does not have, and apparently never did have, the funding to carry out the SEIS and the “tritium tests” it announced with such fanfare in February, 1996. Consider the following quotes:

- “I am told by Ed Haste (California State Director, BLM) that he does not have the budget to do the SEIS or the Tritium testing. We are in for a major embarrassment if we fail to move on these projects.” 10/18/96 memo from J. Garamendi to B. Cohen, Assistant Secretary, DOI
- “You may be aware that we are not permitted to transfer funds between bureaus after appropriations. Further, no transfer more than \$500,000 can occur within a bureau without reprogramming approval from Congress” 10/22/96 memo from B. Cohen to J. Garamendi

These memoranda, and the fact that DOI has made very little progress on either the SEIS or testing to date, support the conclusion that DOI was never actually prepared to perform the activities mentioned. In fact, the evidence described above supports the hypothesis that the SEIS was, from its inception, a delaying tactic.

Factual Clarifications

Now on p. 2.

- Page 3: insert “Class A, B, and C” in the first sentence under “Background” before “low-level radioactive waste” in the third line. Before the last sentence in the first paragraph under “Background”, insert “Under the Southwestern Compact, California is designated the host state for the Compact’s regional disposal facility, and must ensure the protection of public health and safety in the siting and development of the facility.”

Now on p. 3.

- Page 4: amend the first sentence of the last paragraph to read: “In 1985, California named US Ecology – a company that has operated other disposal facilities for low-level radioactive waste – its license designee authorized to conduct...”

Now on p. 5.

- Page 7: in the first sentence of the first full paragraph insert the word “alleged” before “noncompliance. In the second sentence of the first full paragraph insert the phrase “declared to the court that he had” before the word “rescinded”. In the last paragraph: amend the first sentence to read “... the Academy recommended that additional tests be performed at the Ward Valley site during construction and operation of the facility to improve the program for monitoring the disposal facility’s performance...”

Now on p. 8.

- Page 11: delete the first full sentence on the page and replace with “This facility had operated from 1962 until Nevada decided to permanently close it at the end of 1992.” (For your information, US Ecology acquired the facility in 1981 from Teledyne Corporation, which had acquired it from Nuclear Engineering Company. The latter was responsible for disposing of liquid wastes.)

Now on p. 14.

- Page 22: in the second full sentence on the page insert the word “declared” between the words “subsequently” and “rescinded” in the parenthetical phrase.

Now on p. 34.

- Page 44: in the first full paragraph replace the sentence that begins “The proposed facility would use a burial method...” with “The proposed facility would dispose of lower activity Class A waste in 60-foot deep trenches with have 25-foot thick soil covers. Higher activity Class A waste, Class B waste,

Appendix III
Comments From the State of California

and Class C waste would be disposed of in a 42-foot deep trench with a 26-foot thick, multi-layered, engineered cover.”

**Appendix III
Comments From the State of California**

Ward Valley project opponent's recommendation

- BLM must initiate a second SEIS³
 - BLM's process must permit public input in determining scope of SEIS⁴
 - "independent experts" should review relevance of Beatty data³
 - DOE should perform H-3 testing at Ward Valley²
 - H-3 test results should be released without interpretation⁵

 - DOI should use a consultant, not DOE, to collect samples from Ward Valley⁵
 - DOE should analyze samples, with splits sent to another lab⁵
 - BLM must conduct additional measurements at Beatty³

 - table from CBG report indicates 98% of Ward Valley waste activity will come from nuclear power¹
 - survey of U.C. LLRW facilities made by Ward Valley opponents⁶
-
1. March 1994 report by CBG
 2. 6/8/95 letter from Senator Boxer to DOI
 3. 2/1/96 letter from Hirsch to Garamendi
 - note of interest: Hirsch indicates that he knows the contents of USGS transmittal memo for Prudic's Beatty report two weeks before the memo is sent to BLM³
 4. 2/8/96 letter from Hirsch to Garamendi
 5. 4/2/96 letter from Hirsch to Garamendi
 - not included in by DOI in documents provided under FOIA request by USE
 - warns Garamendi that DOE is going "off message"; i.e., deviating from the administration's position on Ward Valley³
 - note of interest: unlike previous letters the tone is that of an insider, not a supplicant. Hirsch clearly expects Garamendi to act on his suggestions³
 6. 6/11/96 letter from Goitein to Stanford University

Corresponding DOI action

- Garamendi announces second SEIS will be initiated⁷
 - public invited to provide comments on scope of SEIS, series of public workshops announced⁹
 - SEIS process will consider Beatty data and analysis⁷
 - Garamendi says DOE will oversee H-3 sampling at Ward Valley⁷
 - Garamendi states that the Ward Valley test results will be released without interpretation, thereby allowing the public to interpret them.¹²
 - Garamendi states his intention to hire a Ward Valley project opponent to oversee sample collection¹⁰
 - DOE will assist DOI by performing analyses on samples collected by a third party, will not interpret results⁸
 - Garamendi states that it is imperative to understand what happened at Beatty to assess its relevance to Ward Valley, thus affirming the possibility of additional tests at Beatty¹³
 - Garamendi cites as "fact" information obtained from 3/94 CBG report (confirmed in 9/10/96 letter from DHS to DOI)¹¹
 - Garamendi cites as "fact" information obtained from opponents survey of Stanford & other universities (confirmed in 8/8/96 letter from Garamendi to Atkinson)¹¹
-
7. 2/15/96 DOI press release
 8. 5/2/96 letter from DOE to Senator Frank Murkowski
 9. 5/17/96 DOI press release
 10. August 1996 letter from Garamendi to Dr. Carol Marcus
 11. 7/18/96 press release by Garamendi
 12. 9/3/96 NACP meeting with Garamendi
 13. 10/17/96 letter to Gregg Larson

Scope and Methodology

To (1) identify the sources of information that the Department of the Interior relied upon for a second supplemental environmental statement and (2) determine if the issues the Department is addressing had already been considered, and if so, on the basis of significant new information, we performed our work primarily at Interior's headquarters in Washington, D.C.; the Department's state office in Sacramento, California; and the state's Department of Health Services in Sacramento. At these locations, we obtained and reviewed information from officials of Interior's Office of the Solicitor and Bureau of Land Management and the state's health services department. This information included

- legislation, regulations, and guidance related to transfers of federal land and authorizing construction and operation of disposal facilities for commercially generated low-level radioactive waste;
- correspondence on the proposed disposal facility at Ward Valley of an intradepartmental nature, between the state and the the Department (including the Bureau), and from the public to the Department and the Bureau; and
- Ecology's application to the state for a license to build and operate a disposal facility at Ward Valley, the joint state-Bureau environmental impact statement of April 1991, and the Bureau's September 1993 supplemental statement.

We also obtained and reviewed information from officials of the (1) Executive Director for Operations, Nuclear Regulatory Commission, Rockville, Maryland; (2) Assistant Secretary for Environmental Management, Department of Energy, Germantown, Maryland; and U.S. Geological Survey, Reston Virginia.

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Related GAO Products

Radioactive Waste: Status of Commercial Low-Level Waste Facilities
([GAO/RCED-95-67](#), May 5, 1995).

Nuclear Waste: Connecticut's First Site Selection Process for a Disposal Facility ([GAO/RCED-93-81](#), Apr. 5, 1993).

Nuclear Waste: New York's Adherence to Site Selection Procedures Is Unclear ([GAO/RCED-92-172](#), Aug. 11, 1992).

Nuclear Waste: Slow Progress Developing Low-Level Radioactive Waste Disposal Facilities ([GAO/RCED-92-61](#), Jan. 10, 1992).

Nuclear Waste: Extensive Process to Site Low-Level Waste Disposal Facility in Nebraska ([GAO/RCED-91-149](#), July 5, 1991).

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